**APDW 2018 E-poster Presentations**

**OE-0731 (PP-0001) Utility of adjunctive rapid drink test (RDT) during high resolution esophageal manometry (HREM) in sitting position for evaluating functional esophagogastric junction outflow obstruction (EGJOO)**

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**Background and Aim:** EGJOO has unclear clinical characteristics. **Methods:** Three hundred twenty-nine patients with esophageal symptoms completed questionnaires and underwent HREM with ten 5-mL water swallows then 100-mL rapid drink challenge in sitting position. Functional EGJOO defined as mean integrated relaxation pressure (IRP) > 15 mmHg without major esophageal dysmotility, previous esophageal surgery, or obstruction. The association between esophageal symptoms, esophageal scintigraphy results, HREM parameters including LES relaxation pressure and integrated intrabolus pressure (pressure > 20 mmHg from the transition zone to the proximal margin of LES) during RDT were analyzed. **Results:** Thirty-five patients (10.6%) had functional EGJOO (25 F; age 57 ± 15). Predominant symptoms included dysphagia (7), chest pain (8), typical reflux (7), and unexplained ENT symptoms (13); 10/21 patients (47.6%) who completed esophageal scintigraphy had delayed transit at supine position and 3 patients had supine and upright delay. Resting LES pressure, IRP, integrated intrabolus pressure, and LES relaxation pressure during RDT were not associated with esophageal transit results. Eighteen patients (51.4%) had hiatal hernia. Esophageal/ENT symptoms and HREM parameters were similar between patients with and without hiatal hernia. Only higher integrated intrabolus pressure during RDT was significantly associated with dysphagia (1900 [506–2800] vs 359 [264–706] mmHg/s/cm, P = 0.04) (Figure). Other manometric parameters during 5 mL swallows and esophageal transit results were not associated with chest pain, reflux, and ENT symptoms, P > 0.05. **Conclusion:** Higher integrated intrabolus pressure during adjunctive RDT in sitting position was associated with dysphagia whereas esophageal transit did not facilitate clinical characterization of functional EGJOO patients. **Keywords:** esophageal manometry, esophageal motility, EJG outflow obstruction, dysphagia.

**EE-0029 (PP-0002) Reduction of proton pump inhibitor (PPI) usage in patients with gastroesophageal reflux disease (GERD) after undergoing stretta procedure, an East Malaysia perspective**

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**Background and Aim:** This retrospective study evaluates the efficacy of Stretta on GERD patients based on reduced PPI usage 6 months post-Stretta and to determine if age and sex of patients were significant factors that affect that outcome. **Methods:** From November 2015–December 2017, 83 patients underwent Stretta procedure. All patients with GERD were diagnosed by the presence of clinical symptoms and gastroscopy. Nine patients who defaulted follow up were excluded. Usage of PPI by type, dosage, and frequency pre-Stretta was recorded and compared to post-Stretta 6 months later. **Results:** The mean age of patients was 40.3 years old with standard deviation of 12.8 years: 55.4% were males, 44.6% females; 100% of patients were on regular PPI therapy at baseline. Six months post-Stretta, 79.7% of patients were able to taper PPI usage; 24.3% of patients were weaned off PPI, 36.5% reduced to on-demand PPI usage, and 18.9% had reduction in daily PPI dosage. However, 12.2% required the same PPI usage while 8.1% required more PPI usage; 86.2% of patients aged 50 and below had a reduction in PPI usage while only 56.2% of patients above aged above 50 had reduction in PPI usage.
OE-0070 (PP-0003)

Withdrawn
OE-0343 (PP-0005) Taking the next steps in endoscopic visual assessment of Barrett’s esophagus

Authors: ROXANA CHIS[1]; WILMA HOPMAN[2]; LAWRENCE HOOKEY[3]; ROBERT BECHARA[3]


Background and Aim: Enhanced endoscopy can increase diagnostic yield for identification of dysplasia in patients with Barrett’s esophagus (BE). Although several classification systems exist for BE based on advanced endoscopy, none have been widely accepted. We aimed to develop a simple, user-friendly, and clinically relevant endoscopic classification for the accurate prediction of non-dysplastic BE (NDBE), low-grade dysplasia (LGD), high-grade dysplasia (HGD)/superficial submucosal cancer, and invasive carcinoma. Methods: Twenty-two patients with BE underwent endoscopy using PENTAX Medical MagniView gastroscope and OPTIVISTA processor. The OPTIVISTA processor uses i-SCAN Optical Enhancement (OE) technology with filters to highlight features of the microsurface. BE segments and suspicious lesions were recorded with high definition white-light with magnification and OE mode 1. OE mode 1 delivers wavelengths of 415 and 540 nm to highlight the microvasculature. Videos of the exams were recorded. Sixty-seven images were analyzed to characterize mucosal and vascular patterns. These features were used to develop our classification system. Biopsies were taken to confirm pathology. Results: Sixty-two samples were analyzed of which 79% were NDBE, 12.9% LGD, 8.1% HGD, and invasive adenocarcinoma. Our classification consists of three components: vascular pattern, surface pattern, and demarcation line. Class A is characterized by regular vascular and surface pattern and absence of a demarcation line, class B by low irregularity in vascular and/or surface pattern and presence of a demarcation line, and class C by high irregularity in vascular and/or surface pattern and presence of a demarcation line. Of the class A images, 100% were NDBE. For class B, 66.7% were LGD and 33.3% NDBE; 100% of the class C samples were HGD. Conclusion: We developed a simple, user-friendly, and clinically relevant classification system for the accurate prediction of NDBE, LGD, HGD/superficial submucosal cancer, and invasive carcinoma which will be validated in a prospective study.

Keywords: Barrett’s esophagus, classification system, esophageal adenocarcinoma, high-grade dysplasia, low-grade dysplasia.

OE-0365 (PP-0006) Do we need to exclude epigastric symptoms for GERD diagnosis?

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Background and Aim: To assess epigastric symptoms for gastroesophageal reflux disease (GERD) diagnosis. Methods: Consecutive outpatients presented with substernal symptoms (heartburn, regurgitation, dysphagia, substernal pain) and epigastric symptoms (epigastric pain, epigastric burning, early satiety, and postprandial fullness) were enrolled. All patients underwent endoscopy and reflux monitoring. Patients with esophagitis would have esomeprazole 20 mg bid for 8 weeks and those with normal findings for 4 weeks. PEAR was defined as the percentage time for which a pH value <4 was >4.2% in the distal esophagus. The symptom scores were measured by the frequency score multiplied by the severity scores. The PPI test was defined as positive if the scores decreased by >50%. Results: A total of 334 patients were included (Table I). Overall, 80 patients (23.95%) had PEAR, including 58 patients with predominant substernal symptoms and 22 with epigastric symptoms. The PEAR rate of patients with epigastric burning (28%, 7/25) was similar as heartburn patients (28.75%, 23/80). A total of 155 patients had positive PPI test, among whom 44 (40.74%) had predominant epigastric symptoms. Patients with epigastric burning shared similar positive PPI test with heartburn patients (54.2% vs 56.2%, p=0.40). Endoscopy indicated that 65 patients had esophagitis and 20 patients (17.1%) of them had epigastric symptoms. A total of 167 patients were diagnosed with GERD and 30% of them had predominant epigastric symptoms (Fig. 1). Conclusion: Approximately one third of GERD patients have predominant epigastric symptoms. Excluding epigastric symptoms may miss the diagnosis of real GERD.

Keywords: epigastric symptoms, diagnosis, GERD.

Table 1 The demographic characteristics of subjects of each symptom [data presented as means SD on N (%)]

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Male gender</th>
<th>Age (year)</th>
<th>Weight (kg)</th>
<th>BMI (kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heartburn (&lt;40%)</td>
<td>35 (41.6%)</td>
<td>39.09 ± 12.96</td>
<td>57.85 ± 11.25</td>
<td>25.50 ± 3.95</td>
</tr>
<tr>
<td>Regurgitation (&lt;40%)</td>
<td>32 (42.9%)</td>
<td>46.95 ± 13.87</td>
<td>50.75 ± 10.61</td>
<td>25.70 ± 5.32</td>
</tr>
<tr>
<td>Substernal pain (&lt;40%)</td>
<td>36 (45.6%)</td>
<td>42.81 ± 10.78</td>
<td>60.43 ± 11.86</td>
<td>22.75 ± 3.54</td>
</tr>
<tr>
<td>Dysphagia (50-90%)</td>
<td>15 (32.5%)</td>
<td>48 ± 12.37</td>
<td>58.85 ± 10.84</td>
<td>20.74 ± 3.69</td>
</tr>
<tr>
<td>Epigastric pain (90-100%)</td>
<td>8 (28.6%)</td>
<td>36.63 ± 12.72</td>
<td>56.36 ± 13.62</td>
<td>23.85 ± 3.34</td>
</tr>
<tr>
<td>Epigastric burning (&gt;100%)</td>
<td>3 (33.3%)</td>
<td>43.77 ± 13.94</td>
<td>60.19 ± 9.31</td>
<td>22.65 ± 2.76</td>
</tr>
<tr>
<td>Early satiety (&lt;20%)</td>
<td>10 (80.8%)</td>
<td>50.80 ± 10.92</td>
<td>44.70 ± 13.72</td>
<td>26.70 ± 2.96</td>
</tr>
<tr>
<td>Postprandial Fullness (&lt;20%)</td>
<td>20 (50.0%)</td>
<td>35.17 ± 12.10</td>
<td>56.62 ± 9.31</td>
<td>21.84 ± 2.63</td>
</tr>
</tbody>
</table>

Figure 1 The symptom spectrum of GERD defined by combining the 24th esophageal pH monitoring, PPI test and upper endoscopy.
OE-0444 (PP-0007) Effect of anti-reflux mucosectomy (ARMS) for refractory GERD underwent 24-h pH-impedance (MII-pH) off PPI before and after ARMS

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Background and Aim: Standard therapy for gastroesophageal reflux disease (GERD) remains the use of proton pump inhibitors (PPIs). In cases of PPI refractory GERD, more interventional procedures are favored. Based on a case where remission of PPI refractory GERD was achieved in a patient after circumferential endoscopic submucosal dissection in the cardia, a novel technique was developed, refined and named ARMS (anti-reflux mucosectomy).

Methods: From a pool of 106 patients that underwent ARMS, 25 cases of PPI refractory GERD (15 males) were identified and assessed retrospectively. All cases underwent 24-h pH-impedance (MII-pH) off PPI and filled in questionnaires (F scale and Gerd Q), before and after ARMS, between April 2012 and March 2018. During ARMS, cap-EMR is performed in the gastric pericardial area, so that residual mucosa covers a surface between 1 to 2 times the diameter of the gas-troscope on the greater curvature. Results: Percent time clearance pH (total), number of acid episodes, and DeMeester composite score improved significantly: from 20.8% to 7.0% (n = 25, P < 0.05), from 92.3 to 43.4 (n = 25, P < 0.05), and from 63.9 to 26.4 (n = 25, P < 0.01), respectively. Proximal and distal reflux episodes didn’t decrease before and after ARMS. Following ARMS, 55% of patients discontinued PPIs while 45% remained on PPIs. In the self-assessment sheet, after 6 months, GERD Q improved significantly from 9.6 to 6.1 (P < 0.05), and F scale improved significantly from 20.4 to 10.7 (P < 0.01). Conclusion: ARMS can reduce acid reflux, improve symptoms, and decrease PPI demand.

Keywords: ARMS, GERD, PPI.

OE-0453 (PP-0008) Immunohistochemical expression of transient receptor vanilloid 4 (TRPV4), a marker of visceral hypersensitivity in NERD and controls

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Background and Aim: Visceral hypersensitivity may be the underlying mechanism in non-erosive reflux disease (NERD). TRPV4 is a new biomarker of mechanical hypersensitivity, and its role in NERD is yet to be determined. The aim of this study was to determine if TRPV4 was expressed in NERD and in controls and if TRPV4 expression was associated with reflux and manometry parameters in NERD.

Methods: Consecutive patients who underwent upper endoscopy (Olympus model Evis Exera II) were screened and consented. Those with high likelihood of GERD (GERDQ score > 8) and negative endoscopy were deemed to have NERD, and controls were participants with low likelihood of GERD and negative endoscopy. Biopsies at 5 and 15 cm above the squamo-columnar junction were obtained for all participants and were subjected for immunohistochemical expression of TRPV4 expression (intensity and number of cells stained). Those with NERD would further undergo high resolution impedance esophageal manometry and 24-h pH-impedance test (both Medical Measurement System, Amsterdam).

Results: Of 55 participants, 39 had NERD (mean age 46 years, males: 41%) and 16 were controls (mean age 50 years, male: 56.3%). TRPV4 was expressed in NERD and in controls (17.9% vs 25%, respectively, P = 0.48). No association was found between positive versus negative TRPV4 expression with either age or gender. Likewise, in those with NERD, no association was found between positive versus negative TRPV4 expression with all reflux parameters included DeMeester score, % time pH < 4 and total number of refluxes (all P > 0.24) and manometry parameters included mean lower esophageal pressure, IRP4s, distal contractile integral, and distal latency (all P > 0.09).

Conclusion: TRPV4 is expressed in both NERD and controls and its presence does not correlate with reflux and manometry parameters in NERD.

Keywords: non-erosive reflux disease, Trpv4, visceral hypersensitivity.
OE-0454 (PP-0009) Normative values for 24-h ambulatory multichannel intraluminal impedance and pH monitoring (Sandhill and MMS systems) in the Malay population

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Background and Aim: Normative data among Asians for 24-h ambulatory pH-impedance monitoring is currently lacking. We aimed to determine normative metrics using two widely used systems in Malaysia and to evaluate factors affecting these values. Methods: We conducted a cross-sectional study involving 100 healthy Malay adults (39 Medical Measurement System [MMS], Amsterdam and 61 ZepHr® system, Diversatek, Highlands Ranch, USA). Normative values for Johnson DeMeester composite score, total percentage time pH less than 4, gastroesophageal refluxes for total, acidic and non-acidic for supine and upright were determined for each system and the combination of two. Factors including age, weight, height, body mass index (BMI), and waist circumference were analyzed to see if they affected each metric using multivariate analysis with $P < 0.05$ being significant. Results: The normative metrics (MMS, Sandhill, and combined) are shown in Table 1. Using independent t-test, there were no statistical differences in pH-impedance metrics between the two systems (all $P > 0.05$). As for factors affecting the values, there were no significant association between age, weight, height, BMI, and waist circumference with the DeMeester score, total all refluxes and acidic refluxes (all $P > 0.05$). Height was the only factor that affected the total percentage time pH less than 4 with adjusted $B = 0.60$, $P = 0.037$. As for non-acidic refluxes, there was significant association observed with weight (adjusted $B = 5.56$, $P = 0.002$), height (adjusted $B = 4.93$, $P = 0.001$), and BMI (adjusted $B = 14.51$, $P = 0.002$). Conclusion: Normative values for both system can be used interchangeably. Non-acidic refluxes are significantly affected by BMI metrics.

Keywords: DeMeester composite score, Sandhill and MMS systems, 24-h ambulatory pH impedance.

Table 1 Normative metrics for 24 h a
Background and Aim: We aimed to determine normative metrics using two widely used systems in Malaysia and to evaluate the effects of provocative swallows in different postures. Methods: This cross-sectional study involved 100 healthy Malay adults (50 Medical Measurement System [MMS], Amsterdam and 50 InSIGHT Ultima®, Sandhill/Diversatek, Highlands Ranch). HRM protocol consisted of 10 liquid, three viscous, and three solid boluses in supine and standing postures. Combined normative Chicago 3.0 metrics (integrated relaxation pressure/IRP4s, distal contractile integral/DCI, and distal latency/DL) of two systems were determined. Results: Normative metrics are shown in Table 1. With standard liquid protocol, no correlations were found of all metrics for both system (all P > 0.8). Bulus types affected combined metrics of DCI and DL but not IRP4s. DCI was lower with liquid versus solid and viscous versus solid (both P < 0.001) in supine but only viscous versus solid (P < 0.001) in standing. DL was longer with liquid versus solid and viscous versus solid in supine and standing postures (all P ≤ 0.003). Similarly, postures affected combined metrics of DCI and DL but not IRP4s. For liquids, lower values were seen in supine versus standing for DCI (P = 0.012) and DL (P = 0.006). For viscous bolus, higher value was seen for DCI in supine versus standing (P < 0.001). Likewise, for solids, higher value was seen for DCI in supine versus standing (P < 0.001). Conclusion: Normative Chicago metrics are different between the two systems. Metrics are affected by bolus types and postures except for IRP4s. Keywords: effects of boluses types and postures, high-resolution esophageal manometry, Normative Chicago 3.0 metrics.

Table 1 Normative metrics for high-resolution HRM

<table>
<thead>
<tr>
<th>Variable</th>
<th>MMP (Mean ± SD)</th>
<th>P value</th>
<th>MMS (Mean ± SD)</th>
<th>P value</th>
<th>Total (Mean ± SD)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCI</td>
<td>1399.21 ± 226</td>
<td>0.001</td>
<td>1300.75 ± 250</td>
<td>0.001</td>
<td>1349.98 ± 234</td>
<td>0.001</td>
</tr>
<tr>
<td>IRP4s</td>
<td>88.49 ± 36.2</td>
<td>0.940</td>
<td>86.92 ± 35.6</td>
<td>0.940</td>
<td>87.70 ± 35.9</td>
<td>1.000</td>
</tr>
<tr>
<td>DCI</td>
<td>1358.53 ± 235</td>
<td>0.001</td>
<td>1301.08 ± 196</td>
<td>0.001</td>
<td>1329.80 ± 210</td>
<td>0.001</td>
</tr>
<tr>
<td>IRP4s</td>
<td>89.3 ± 36.8</td>
<td>0.899</td>
<td>86.9 ± 35.6</td>
<td>0.940</td>
<td>88.1 ± 35.9</td>
<td>1.000</td>
</tr>
</tbody>
</table>

OE-0460 (PP-0011) Effects of provocative bolus and positions on Chicago 3.0 metrics in normal Malay population

Background and Aim: High resolution manometry (HRM) is considered the gold standard test for dysphagia. Provocative bolus in different postures may demonstrate more abnormalities but need to establish normative values, thus the aim of current study. Methods: A cross-sectional study involving 50 healthy Malay volunteers was performed using the 36-channels HRM system (Medical Measurement System, Amsterdam). Four Chicago 3.0 metrics (integrated relaxation pressure/IRP4s, distal contractile integral/DCI, distal latency/DL, and peristaltic break/PB) were determined following protocol of 10 liquids, three viscous, and three solid boluses in each supine, sitting and standing postures. Results: Different postures affected IRP4s, DCI, PB but not DL. IRP4s was reduced in supine versus sitting (P < 0.001) for liquid and viscous boluses. DCI was lower in supine versus sitting and supine versus standing (both P < 0.001) for liquids and solids but only supine versus standing (P < 0.001) with viscous bolus. PB was longer in supine versus sitting only for all types of boluses (all P < 0.001). On the other hand, bolus types affected DCI, DL, and PB but not IRP4s. DCI was greater with viscous versus solid (P < 0.001) in supine, liquid versus solid and viscous versus solid (both P ≤ 0.017) in sitting and liquid versus solid and viscous versus solid (both P ≤ 0.002) in standing posture. DL was longer with liquid versus solid and viscous versus solid (both P < 0.001) in supine, liquid versus viscous and liquid
versus solid (both $P \leq 0.009$) in sitting and with liquid versus viscous, liquid versus solid and viscous versus solid (all $P \leq 0.001$) in standing posture. Lastly, PB was shorter with liquid versus solid and viscous versus solid (both $P \leq 0.004$) in sitting and liquid versus solid and viscous versus solid (both $P < 0.001$) in standing posture. Conclusion: Provocative boluses and postures have differential effects on Chicago 3.0 metrics, and this should be considered when evaluating dysphagia.

**Keywords:** Chicago 3.0 normative metrics, high resolution manometry, provocative bolus and positions.

**OE-0458 (PP-0012) Clinical characteristics of untreated achalasia patients in Taiwan: A prospective study based on high-resolution impedance manometry**

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**Background and Aim:** Esophageal achalasia is a rare primary esophageal motility disorder. With progressive dysphagia, achalasia imposes a crucial impact on patients physically and psychologically. In the present study, we aimed to report the clinical and manometric characteristics of untreated Taiwanese achalasia patients diagnosed by the high-resolution esophageal manometry (HRIM) and Chicago classification. **Methods:** From October 2014 to May 2018, consecutive achalasia patients diagnosed by HRIM-based evaluation were prospectively enrolled at National Taiwan University Hospital. All subjects underwent a comprehensive evaluation, including anthropometric measures, validated symptom questionnaires for common gastrointestinal and psychological symptoms and sleep quality, esophagogastroduodenoscopy, and timed barium esophagogram. Achalasia were categorized into three subtypes using the updated Chicago Classification v3.0. We compared the clinical characteristics and manometric parameters between these subgroups. **Results:** A total of 102 achalasia patients (52 men; mean age [range], 51.2 [13–87] years) were analyzed. The median (range) symptom duration was 24 (1–480) months, and the most commonly reported symptoms were dysphagia and regurgitation. The median (range) Eckardt score was 5 (1–10). Among them, 40 (39.2%) had type I, 58 (56.8%) had type II, and only four (3.9%) had type III achalasia. Patients with type II achalasia had shorter mean symptom duration (34.9 vs 108.9 months, $P = 0.001$), more severe regurgitation and sleep difficulty, higher LES resting pressure (45.2 vs 29.4 mmHg, $P = 0.001$) and IRP-4 s (28.2 vs 20.0 mmHg, $P < 0.001$) than those with type I achalasia. Other clinical characteristics were similar between these three subgroups. **Conclusion:** Type II is the most common subtype and type III was rather rare in untreated achalasia patients in Taiwan. Patients with type II achalasia had shorter symptom duration, higher LES resting pressure and IRP-4 s than those with type I achalasia and may represent an earlier stage of achalasia.

**Keywords:** achalasia, Chicago classification, dysphagia, high-resolution esophageal manometry.

**OE-0605 (PP-0013) Prevalence and risk factors of Barrett’s esophagus in Vietnamese patients with upper gastrointestinal symptoms**

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**Background and Aim:** To investigate the prevalence and risk factors of Barrett’s esophagus (BE) in Vietnamese patients undergoing endoscopy for upper gastrointestinal symptoms. **Methods:** Consecutive outpatients with upper gastrointestinal symptoms who underwent upper gastrointestinal endoscopy from August 2017 to March 2018 at the University Medical Center of Hochiminh City were recruited. Suspected columnar-lined esophagus which was clearly visible at least 1 cm above the gastroesophageal junction at endoscopy was taken biopsy. At least one biopsy per 2 cm in tongues of suspected BE and four biopsies per 2 cm of circumferential suspected BE were taken. The diagnostic criterion for BE was replacement of the normal distal squamous epithelial lining by columnar epithelium confirmed by histology. **Results:** A total of 1947 patients were recruited. The mean age was 42.4 ± 12.0 and the male-to-female ratio was 1:1.18. Forty-seven out of 58 patients with endoscopically suspected columnar-lined esophagus were histologically confirmed BE, consisting of eight with intestinal metaplasia and 39 with non-goblet columnar metaplasia. The prevalence of BE was 2.4% (95% CI, 1.7%, 3.1%). In univariate analysis, male, smoking, typical reflux symptom, reflux esophagitis, and hiatal hernia were significantly associated with BE. In logistic multivariate analysis, there were only two factors significantly associated with BE: typical reflux symptoms (OR 2.07; 95% CI, 1.12, 3.83; $P = 0.020$) and hiatal hernia (OR 7.53; 95% CI, 3.13, 18.11; $P < 0.001$). **Conclusion:** BE is not rare in Vietnamese patients with upper gastrointestinal symptoms. Hiatal hernia and typical reflux symptoms may be the risk factors for developing BE.

**Keywords:** Barrett’s esophagus, prevalence, risk factor, Vietnamese.
OE-0693 (PP-0014) The endoscopic and clinicopathological characteristics of Barrett’s esophagus in Vietnamese patients
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Background and Aim: To investigate endoscopic and clinicopathological characteristics of Barrett’s esophagus (BE) in Vietnamese patients with upper gastrointestinal symptoms. Methods: A prospective cross-sectional study was conducted on outpatients with upper gastrointestinal symptoms who underwent upper gastrointestinal endoscopy at the University Medical Center of Hochimin City from August 2017 to March 2018. Suspected columnar-lined epithelium (SLE) was visible at least 1 cm above the gastroesophageal junction at endoscopy was evaluated according to the Prague C and M criteria and was taken biopsy. At least one biopsy per 2 cm in tongues of SLE and four biopsies per 2 cm of circumferential SLE were taken. Diagnostic criterion for BE was replacement of the normal distal squamous epithelial lining by columnar epithelium confirmed by histology. Two experienced pathologists co-examined all specimens and reached consensus on the final diagnosis. Results: A total of 88 out of 98 patients with SLE were histologically confirmed of BE. The mean age of patients were 43.5 ± 11.7, the male-to-female ratio was 1.44:1. Forty-four (50.0%) patients have prior history of gastroesophageal reflux disease. The median time with reflux symptoms was 24 months. Heartburn and regurgitation were only reported in 11 (12.5%) and 13 (14.8%) patients, respectively. There were 3 in 3 (3.4%) and columnar metaplasia type.

Keywords: Barrett’s esophagus, columnar metaplasia, dysplasia, intestinal metaplasia, Vietnamese.

OE-0727 (PP-0015) Pneumatic dilation, more than a treatment of achalasia: Evaluation of compliance of esophagogastric junction by pneumatic dilation balloon before POEM
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Background and Aim: After the introduction of POEM several years ago, the position of pneumatic dilation (PD) in the treatment of achalasia has been challenged. While in the process of PD, the pressure of balloon changed according to volume of gas injected into it. Which might indicate the compliance of esophagogastric junction (EGJ), an important data considered by operator of POEM recently. In this study, we aimed to assess whether PD balloon catheter combined with a precise pressure sensor allows for the evaluation of EGJ compliance, and then, help to predict the outcome of POEM in the treatment of achalasia. Methods: In this prospec-tively designed study, 42 achalasia patients waiting for POEM and 9 healthy volunteers were enrolled. Series of small amount of gas were injected into the balloon after placement of the PD catheter and the pressure was recorded. Biopsies of esophageal muscle and mucosal tissue were obtained from achalasia patients in POEM for assessing the inflation degree of inflammation by HE staining and fibrosis status by Masson staining. Both clinical evaluation and data of high resolution manometry were assessed before and 6 months after POEM. Results: The EGJ compliance of 42 achalasia patients were significantly lower than controls (P < 0.05). Inflammation infiltration present in 29 of 42 (69.1%) cases of achalasia with fibrosis in 23 patients (54.8%). The EGI compliance were negatively correlated with fibrosis and inflammatory status, respectively (P < 0.05); the correlation between the Eckardt score and EGJ compliance were also confirmed (P < 0.05). Moreover, the EGI was significantly more distensible in patients who have not received previous treatment for achalasia (P < 0.05). Conclusion: Assessment of EGJ compliance with the novel measurement of PD balloon catheter might be able to reflect the degree of inflammation and fibrosis in esophagus of achalasia patients and predict the outcome of POEM.

Keywords: achalasia, compliance, peroral endoscopic myotomy (POEM), pneumatic dilation (PD).
OE-0030 (PP-0016) Do patients, their families, and doctors really think the same? A population-based, multicentered cohort study using the inflammatory bowel disease disability index

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Background and Aim: The inflammatory bowel disease disability index (IBD-DI), depicting IBD-associated disability, has been introduced into Asia recently. Our study aimed to apply the IBD-DI in a population-based cohort, analyze associated factors, and explore the shared perception of the disease among patients, family, and medical professionals. Methods: Participants were recruited from three Chinese tertiary medical centers between December 1, 2016 and February 28, 2017. IBD-DI scores were calculated after item reduction and data structure. Relevant factors were examined using multivariate linear regression; comparisons among patients, family, and medical professionals were performed with paired t-test. Results: Two hundred seventy-five patients were included in the cohort, and their average IBD-DI was 22.2 ± 16.1. Living area (P = 0.03) and disease activity (P < 0.001) were two relevant factors in the whole cohort; infliximab (P = 0.004) was relevant in the CD group; and systemic corticosteroids (P = 0.01) and azathioprine (P = 0.022) were relevant in the UC group. IBD patients and their family members had roughly similar perception of the disease (Fig. 1, P > 0.05), but that medical professionals held more optimistic views concerning patients’ overall health than did the patients (P < 0.001). Conclusion: IBD-DI can be adjusted to measure patients’ perception of social function in an Asian country. Disease activity is the predominant relevant factor. IBD patients and their family members have similar perception of the disease, but medical doctors are more optimistic about the disease. Insurance coverage remains a great concern for IBD patients.

Keywords: disability, disease perception, inflammatory bowel diseases.

Table 1 Perception of the disease

OE-0031 (PP-0017) Using magnetic resonance imaging to evaluate the effectiveness in perianal fistulizing Crohn’s disease

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Background and Aim: Data regarding the radiological evaluation of perianal fistulizing Crohn’s disease (PFCD) naive to anti-tumor necrosis factor (TNF) therapy are lacking. This study is to explore predictors of deep remission in PFCD. Methods: Patients diagnosed with Crohn’s disease with active anal fistulas and intended for IFX therapy were enrolled prospectively. Each patient underwent clinical assessment of anal fistulas (the Fistula Drainage Assessment Index), Magnetic resonance imaging (MRI) (Van Assche score, Ng score, main fistula length, etc.), endoscopy, Crohn’s disease activity index, perianal Crohn’s disease activity index, laboratory tests within 2 weeks prior to the start of IFX therapy and within 2 weeks after the 6th IFX therapy, respectively. Results: Among the 38 patients treated with IFX (four patients discontinued), 52.6% achieved clinical remission and 42.1% achieved “deep remission” (Fig. 1). The only predictor of “deep remission” was simple fistula (P = 0.004, OR = 3.802, CI: 1.541–9.383). Van Assche score (14.5 ± 4.26 to 7.36 ± 7.53), Crohn’s disease activity index (170 ± 92 to 71 ± 69) and perianal Crohn’s disease activity index (7.45 ± 2.65 to 2.44 ± 3.20) decreased significantly after 6th IFX treatments. Conclusion: IFX was effective for the treatment of PFCD. MRI was the useful standard for evaluating PFCD. Combination of the MRI and clinical index shows the comprehensive view for PFCD recovery.

Keywords: infliximab, magnetic resonance imaging, perianal fistulating Crohn’s disease.
Figure 1 Fistula in MRI.

OE-0159 (PP-0018) Distinct cut-off values of adalimumab trough levels are associated with different therapeutic outcomes in patients with inflammatory bowel disease


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Background and Aim: This study aimed to evaluate the relationship between serum adalimumab trough levels (ATL) and disease activity of IBD patients in a large, well-characterized referral center-based cohort. Methods: We conducted a retrospective study of IBD patients treated with adalimumab who had trough levels measured between September 2014 and August 2017. We compared serum ATL/AAA between those with clinical, biochemical, or endoscopic/radiologic disease activity and those without. The diagnostic power of ATL was investigated using area under the receiver operator characteristic (ROC) curve analysis to obtain the area under the curve (AUC). Results: A total of 236 patients with IBD were included. Adalimumab was administered every other week (65%) or weekly (35%). Median duration of adalimumab therapy was 2 years. ATL were not different between patients with clinically quiescent disease and those with active symptoms (mean 6.8 vs 5.9 μg/mL, P = 0.331). However, ATL were significantly higher in patients with normal CRP versus those with high CRP (mean 6.7 vs 4.7 μg/mL, P = 0.023). ATL were also significantly higher in patients with endoscopic/radiologic response compared to those without response (mean 8.2 vs 5.6 μg/mL, P = 0.016). Higher cut-off values were associated with endoscopic/radiologic response (AUC 0.632, cut-off value 5.3 μg/mL, P = 0.003) than biochemical response of CRP (AUC 0.591, cut-off value 4.3 μg/mL, P = 0.031). A total of 95 patients (40%) developed AAA, and 36 patients with AAA (38%) had undetectable ATL (< 0.6 μg/mL). AAA were not associated with disease activity. Conclusion: In this retrospective cohort, ATL were associated with objective response parameters, including biochemical and endoscopic/radiologic disease activities, rather than a symptom-based, subjective parameter. Higher cut-off ATL was associated with endoscopic/radiologic response.

Keywords: adalimumab, drug monitoring, IBD, outcome, trough level.

OE-0216 (PP-0019) Post-hoc analysis from the Phase 2 FITZROY study with the selective JAK1 inhibitor filgotinib: Effect of disease duration and location on clinical remission in Crohn’s disease patients

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Background and Aim: Filgotinib, an oral selective Janus kinase 1 (JAK1) inhibitor, showed favorable efficacy/safety profile in the 20-week Phase 2 FITZROY study. Primary endpoint (CDAI remission at week 10) was met (filgotinib: 47%; placebo: 23%; P = 0.0077). Methods: One hundred seventy-four patients with moderate-to-severely active CD, naïve (aTNF-naïve) or anti-TNF exposed (aTNF-IR), no response or loss-of-response, were randomized to 200-mg filgotinib or placebo QD for 10 weeks. Immunosuppressants were discontinued, corticosteroids could be continued until week 10. Effect of disease duration and location on primary endpoint was explored. Results: Baseline disease was similar in both groups, 51% of patients used oral corticosteroids, 42% were aTNF-naïve. Forty-three percent were diagnosed <5 years, 30% between 5–10 years, and 27% for >10 years. Most aTNF-naïves (63%) had <5 years CD, 71% of aTNF-IRs were diagnosed >5 years. Sixty-two percent had ileo-colonic, 18% ileal, and 20% colonic disease. Clinical remission with filgotinib was not impacted by longer disease duration. In filgotinib patients, consistently high remission rates in aTNF-naïves and (to lesser extent) aTNF-IRs were seen, independently of disease duration (aTNF-naïve: 59%, 60%, 62%; aTNF-IR: 42%, 37%, 32%, for respectively <5, 5–10, and >10 years). Filgotinib effect was shown independently of disease location, although higher remission rates were observed in colonic disease (Table 1). In aTNF-IRs treated with filgotinib, ileal disease was associated with lower remission versus aTNF-naïves (aTNF-naïve: 68%, 70%, 48%; aTNF-IR: 67%, 21%, 37%, for respectively colonic, ileal, and ileocolonic disease). Conclusion: Filgotinib induces clinical remission in Crohn’s patients, independently of disease duration and location in this post-hoc, exploratory analysis.

Keywords: Crohn’s disease, filgotinib, JAK1.
OE-0619 (PP-0020) Endoscopic diagnosis of non-pedunculated dysplasia during surveillance in the ulcerative colitis: A survey-based, multinational studies

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Background and Aim: Endoscopic diagnosis of dysplasia/cancer in the ulcerative colitis (UC) is considered more challenging than sporadic neoplasia in the non-colitic patients. We aimed to evaluate the accuracy of endoscopic diagnosis for “non-pedunculated” dysplasia or colitic cancer in the UC patients.

Methods: We performed a survey-based study using photos of histologically confirmed dysplastic or non-dysplastic lesions retrieved from UC registry database of Asan Medical Center. All lesions were detected during surveillance colonoscopy for the UC patients with 8 years or longer duration or with primary sclerosing cholangitis. The following lesions were excluded: (i) dysplasia or adenocarcinoma was confirmed only once in the specimens from repeated colonoscopic biopsies, polypectomy, or colectomy, (ii) indefinite for dysplasia in the two consecutive colonoscopic biopsies with 6 months or longer interval, (iii) dysplasia having pedunculated polypoid appearance, (iv) dysplasia located beyond the colitic segment, (v) squamous epithelial dysplasia. Finally, 61 lesions (27 non-dysplastic, 34 dysplastic) were selected for the survey. The selected photos were distributed to the study participants with questionnaires for the endoscopists’ experience and the endoscopic diagnosis.

Results: Ten endoscopists from four countries participated in this survey. The sensitivity, specificity, and accuracy for the overall lesions based on the endoscopists’ diagnosis were 88.2%, 34.8%, and 64.6%, respectively. The interobserver agreement for the endoscopic diagnosis of dysplasia were poor (Fleiss κ = 0.189). Multivariate analysis showed that neoplastic pit pattern (OR = 3.9 [95% CI, 2.8–5.5], P < 0.001) and surface ulceration (OR = 2.1 [95% CI, 1.3–3.3], P = 0.002) were independently predictive for dysplasia. The diagnostic accuracy of ulceration and neoplastic pit pattern for dysplasia was 50.2% and 66.1%, respectively.

Conclusion: The endoscopic diagnosis for non-pedunculated dysplasias in UC showed suboptimal performance to predict true dysplasias. Even neoplastic pit pattern predicted dysplasia with limited performance.

Keywords: accuracy, dysplasia, endoscopic diagnosis, pit pattern, ulcerative colitis.
Background and Aim: Whether superimposed cytomegalovirus (CMV) infection is an active pathogen or an innocent bystander in the exacerbation of ulcerative colitis (UC) remains controversial. The aim of this study is to identify the impact of CMV infection on the disease outcomes of UC.

Methods: Between 2007 and 2017, patients with UC and/or CMV infection were identified using the pathology and EMR databases at a single large hospital in Korea. CMV colitis was diagnosed as having positive inclusion bodies in colonic tissue including IHC. To classify by the degree of CMV load, a single, experienced pathologist retrospectively reviewed biopsy specimens. We compared the poor outcomes (hospitalization, colectomy, death) among patients with CMV positive and 1:4 matched CMV negative group.

Results: Among the 306 patients with UC flare-ups tested for CMV, 36 (11.9%) were diagnosed with CMV colitis. Mean follow up duration was 44 months. Compared to patients without CMV colitis, older age at diagnosis of UC, higher proportion of left-sided colitis, and more severe disease activity were noted in the CMV positive group. CMV infection was an independent predictor of poor outcomes, and the cumulative probability of hospitalization was significantly higher in the CMV positive group \( (P < 0.001) \). Twenty-three patients (63.9%) of CMV colitis was graded as low density disease and the density of CMV load did not show any difference in clinical outcomes. Fourteen patients (38.9%) had recurrent CMV colitis and had a significantly higher hospitalization rate when compared to patients with single episode of CMV colitis \( (P < 0.001) \).

Conclusion: CMV infection is an independent predictor of poor disease outcome, especially hospitalization in patients with UC flare-ups. Recurrent CMV colitis is associated with hospitalization, but not colectomy. Long-term effect of antiviral treatment is modest.

Keywords: antiviral treatment, cytomegalovirus, flare-up, ulcerative colitis.

OE-0885 (PP-0023) Histone H3 acetylation protects ulcerative colitis by inhibiting NF-B/p65 and enhancing intestinal epithelial barrier function

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Background and Aim: Ulcerative colitis (UC) is a chronic and non-specific inflammatory bowel disease. Evidence suggests that epigenetic factors participate in UC pathogenesis; however, corresponding molecular mechanism remains unclear. Methods: Histone H3 acetylation was assessed in the colon tissues of 61 UC patients, 38 Crohn’s disease (CD) patients, and 44 healthy controls by IHC. In vivo, C57BL/6 and TLR4−/− mice were administered DSS or TNBS. In vitro, HCT116 were stimulated with TNFα; 20 mg/kg and 1 uM MS-275 (class I histone deacetylases [HDACs] inhibitor) were applied, respectively. Results: Histone H3 acetylation level in IECs was significantly decreased in UC and CD patients, compared with healthy controls, and negatively associated with disease severity. In addition, in Gene Set Enrichment Analysis, MS-275 induced most similar cell responses to PBMCs of UC patients. In experimental colitis model both in vivo and in vitro, histone H3 acetylation induced by MS-275 led to relief in colitis activity, symbolised by preserved colon length, inhibited epithelial cell apoptosis as well as inflammatory cell infiltration, and decrease in disease mortality. ChIP-seq analysis of histone H3 acetylation promotion in colitis concordantly targeted NF-κB/p65. Conclusion: These findings suggest that histone H3 acetylation improves colitis through NF-κB/p65, by inflammation amelioration and intestinal epithelial barrier reinforcement, providing new strategies for colitis treatment.

Keywords: histone H3 acetylation, intestinal epithelial barrier function, MS-275, NF-xB/p65 pathway, ulcerative colitis.
H. pylori infection may perform a systematic immunoregulation effect on remote organs via lymphocyte recirculation, it finally could influence the pathogenesis of various autoimmune and allergic diseases, such as IBD and asthma. **Conclusion:** Based on the potential protective role of *H. pylori* infection, we suggested that the interaction between *H. pylori* and their host was complicated, and any medical treatment of *H. pylori* eradication should be handled with caution.

**Keywords:** DC, *Helicobacter pylori*, inflammatory bowel disease, Treg.

**OE-0975 (PP-0025) The efficacy and safety of adalimumab for the patients with moderate to severely active ulcerative colitis and predictors of response in Korea (EUREKA): Preliminary results**

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**Background and Aim:** We evaluated the efficacy of adalimumab and predictors of response in Korean patients with ulcerative colitis (UC). **Methods:** We conducted a prospective multicenter study over 56 weeks. Subjects initiated on adalimumab for moderately to severely active UC. Clinical response and remission were assessed by Mayo score. Mucosal healing (MH) was defined as Mayo subscore 0 or 1. Fecal calprotectin (FC) were assessed at baseline, 8 and 56 weeks. Serum adalimumab level was measured at 8 weeks. We report interim analysis at week 24. **Results:** One hundred forty-six patients were enrolled. Clinical response and remission rates at 8 (n = 131) and 24 weeks (n = 114) were 76.3%, 31.3% and 71.1%, 26.3%, respectively. MH rate at 8 weeks was 57.1%. Adalimumab was dose-escalated to 40 mg weekly in 24 (18.3%) patients. Median FC at 8 weeks was 267.4 ± 339.3 in patients with MH versus 619.9 ± 572.5 without (P = 0.002). The best cut-off value of FC to predict MH was 276 mg/kg. Adalimumab drug levels were similar between responders and non-responders at 8 weeks (9.8 ± 5.1 vs 8.5 ± 5.4). No parameters were associated with clinical responses at 8 weeks. Mayo score, MH at week 8, and concomitant immunomodulator use were associated with better clinical response at week 24. **Conclusion:** Adalimumab is effective in inducing clinical response, remission, and MH. Better response to induction therapy can predict better long-term response. **Keywords:** adalimumab, calprotectin, disease activity indices, real world data, ulcerative colitis.

**OE-0909 (PP-0024) Helicobacter pylori infection in inflammatory bowel disease: Protective or harmful?**

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**Background and Aim:** *Helicobacter pylori* (*H. pylori*) has coexisted with human beings for about 60,000 years, and more than 50% global population infected with *H. pylori*. After being successfully cultured in vitro in 1983, studies of *H. pylori* have advanced by leaps and bounds in the last 35 years. Since then, *H. pylori* has been characterized as the primary pathogenic factor of chronic gastritis, peptic ulcer, and gastric malignancy. Many patients were suggested to receive *H. pylori* eradication treatment, but only 1–2% *H. pylori* infected individuals finally develop into gastric cancer. Recently, a lot of epidemiological and basic experimental studies suggested a protective role of chronic *H. pylori* infection against inflammatory bowel diseases (IBD) by inducing systematic immune tolerance and suppress inflammatory response. **Methods:** Here, we summarized the current research progresses about the association between *H. pylori* and IBD and expounded the detailed molecular mechanism underlying *H. pylori* induced tolerogenic phenotype dendritic cells (DCs) and immunosuppressive regulatory T cells (Treg). **Results:** Although *H. pylori* infection could recruit numerous DCs in gastric mucosa, but these DCs stay at functional semi-mature status with immune tolerogenic phenotype. Considerable Tregs induced by persistent *H. pylori* colonization in the upper digestive tract may perform a systematic immunoregulation effect on remote organs via lymphocyte recirculation, it finally could influence the pathogenesis of various autoimmune and allergic diseases, such as IBD and asthma. **Conclusion:** Based on the potential protective role of *H. pylori* infection, we suggested that the interaction between *H. pylori* and their host was complicated, and any medical treatment of *H. pylori* eradication should be handled with caution. **Keywords:** DC, *Helicobacter pylori*, inflammatory bowel disease, Treg.
OE-0986 (PP-0026) Experience of patients with inflammatory bowel disease in using a home fecal calprotectin test as an objective reported outcome for self-monitoring

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Background and Aims: Fecal calprotectin (FC) level is a predictive marker of mucosal healing for patients with inflammatory bowel disease (IBD). Home FC tests are now available. We evaluated the performance of the smartphone-based IBDoc home testing system in patients with IBD and obtained their feedback as an objective patient-reported outcome.

Methods: This prospective study enrolled consecutive patients with IBD in clinical remission. FC in the same stool sample was assessed by using both the laboratory test (Quantum Blue calprotectin test) and home test (IBDoc). The correlation between the two tests was analyzed using the Pearson method. In addition, the patients were asked to fill a questionnaire based on their experience. Results: Fifty-one patients with IBD (68 tests and 49 questionnaires) were included. The correlation between Quantum Blue test and IBDoc was good ($r = 0.776, P < 0.0001$). After the test, 56% patients found IBDoc easy to perform, and 96% were satisfied with it. Thirty-nine (80%) patients had a strong (> 70%) probability to use it for future monitoring if the price was acceptable. By using 250 μg/g as the cut-off, the agreement between home test and laboratory results was 80%, and by using 600 μg/g as the cut-off, the agreement increased to 92%. Conclusion: The correlation between the laboratory and home tests was good. Most patients found the home test to be feasible and easy to use and preferred it over laboratory test and endoscopy for monitoring. Therefore, the home test could be used as an objective patient-reported outcome.

Keywords: fecal calprotectin, home test, self-monitoring.

OE-0992 (PP-0027) Doctors’ perspectives on the use of traditional, complementary and alternative medicine in inflammatory bowel disease: The first doctors’ report in Asia

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Affiliation: Departments of [1]Institute of Digestive Disease, [2] Department of Medicine and Therapeutics, [3]Hong Kong Institute of Integrative Medicine, The Chinese University of Hong Kong, Hong Kong, Hong Kong; and [4]Department of Division of Gastroenterology and Hepatology, Shanghai Jiao Tong University, Shanghai Institute of Digestive Disease, Shanghai, China

Background and Aims: Inflammatory bowel disease (IBD) is an emerging disease especially in Asia. Traditional medicine (TM), complementary and alternative medicine (CAM) are commonly used in western and Asian countries, yet very few published data are available of doctors’ perspectives in Asia. Methods: This is a cross-sectional self-administered survey conducted in annual Asian meeting for IBD in June 2018 in Shanghai. The survey contained questions about demographics, years of practice, and medical training. Doctors were asked to evaluate their acceptance of IBD patients in using TM/CAM. Their recommendation on TM/CAM is assessed. Results: One hundred thirty-seven doctors with 10.0 median years of medical practice (female: 63.5%; mean age: 38.6 ± 9.6 years; 57.8% IBD specialist) participated. Among them, 99 (72.3%) doctors were acceptable of their IBD patients in using TM/CAM. Having a recognized qualification of treating or prescribing TM/CAM was the only factor that significantly affects doctors’ acceptance (Table 1). Among doctors accepted TM/CAM as a therapy, 55.6% doctors recommended patients to use TM/CAM actively. Probiotics (72.7%), Chinese herbs (58.1%), and psychological counselling (45.5%) were the most commonly recommended treatments. Conclusion: In this self-administered survey on doctors’ attitudes and practices of TM/CAM for their IBD patients in Asia, doctors who are recognized practitioners or eligible for prescribing TM/CAM will have higher acceptance of their patients using TM/CAM. Probiotics, Chinese herbs, and psychological counselling were the most recommended treatments. For more understanding, further reports on doctors’ perceptions and practices are warranted.

Keywords: complementary and alternative medicine, doctors’ perspective, IBD, traditional medicine.

Table 1 Baseline characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N</th>
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<tbody>
<tr>
<td>No subjects</td>
<td>146</td>
</tr>
<tr>
<td>Male, n(%)</td>
<td>96 (65.75%)</td>
</tr>
<tr>
<td>Mean age ± SD</td>
<td>49 ± 14.9 years</td>
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<tr>
<td>Mean duration ± SD</td>
<td>49.4 ± 46.1 months</td>
</tr>
</tbody>
</table>

Disease extent, n(%)  
- Proctitis: 27 (18.5%)  
- L-sided colitis: 65 (44.5%)  
- Extensive colitis: 54 (37.0%)

Previous medications, n(%)  
- S-ASA: 142 (98.6%)  
- Corticosteroids: 127 (87.0%)  
- Thiopurine: 92 (63.9%)  
- Methotrexate: 3 (2.1%)  
- Anti-TNF: 35 (24.0%)

Mean Mayo score ± SD  
- 8.7 ± 1.5
**Table 1 Comparison of the factors**

<table>
<thead>
<tr>
<th>Acceptance N=99</th>
<th>Non-acceptance N=38</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
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</tr>
<tr>
<td>Male (n, %)</td>
<td>56 (56.5)</td>
<td>17 (44.7)</td>
</tr>
<tr>
<td>Female (n, %)</td>
<td>43 (43.5)</td>
<td>21 (55.3)</td>
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<tr>
<td><strong>Age (mean ± SD)</strong></td>
<td></td>
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<tr>
<td>39.4 ± 8.8</td>
<td>36.4 ± 8.7</td>
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<tr>
<td><strong>Affiliations</strong></td>
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<td>Academic institutions (n, %)</td>
<td>33 (33.3)</td>
<td>13 (33.8)</td>
</tr>
<tr>
<td>Public hospital / clinics (n, %)</td>
<td>58 (58.6)</td>
<td>27 (71.1)</td>
</tr>
<tr>
<td>Private hospital / clinics (n, %)</td>
<td>11 (11.1)</td>
<td>2 (5.3)</td>
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<tr>
<td><strong>Years of medical practice (mean ± SD)</strong></td>
<td>54.6 ± 10.0</td>
<td>11.1 ± 8.9</td>
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<td><strong>Specialty</strong></td>
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<td>Adult Gastroenterology (n, %)</td>
<td>59 (59.6)</td>
<td>23 (60.5)</td>
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<td>Gastroenterology and Internal Medicine (n, %)</td>
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<td>13 (34.2)</td>
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<tr>
<td>Pediatric Gastroenterology (n, %)</td>
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<td>2 (5.3)</td>
</tr>
<tr>
<td>Surgery (n, %)</td>
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<td>0 (0.0)</td>
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<tr>
<td>Others (n, %)</td>
<td>11 (11.1)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td><strong>Years of treating HBV patients (mean ± SD)</strong></td>
<td>8.7 ± 3.5</td>
<td>6.3 ± 6.5</td>
</tr>
<tr>
<td>Is an ID specialist</td>
<td>Yes (n, %)</td>
<td>55 (55.6)</td>
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<tr>
<td>No (n, %)</td>
<td>42 (42.3)</td>
<td>15 (39.5)</td>
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<tr>
<td><strong>Basic medical education cover TIM/CAM modules after medical graduation</strong></td>
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<tr>
<td>Yes (n, %)</td>
<td>57 (57.6)</td>
<td>15 (39.5)</td>
</tr>
<tr>
<td>No (n, %)</td>
<td>42 (42.4)</td>
<td>29 (70.5)</td>
</tr>
<tr>
<td><strong>Received training of TIM/CAM modules after medical graduation</strong></td>
<td></td>
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<tr>
<td>Yes (n, %)</td>
<td>27 (27.3)</td>
<td>6 (16.2)</td>
</tr>
<tr>
<td>No (n, %)</td>
<td>69 (71.9)</td>
<td>31 (83.8)</td>
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<tr>
<td><strong>Is a recognized practitioner or eligible for prescribing TIM/CAM for HBV patients</strong></td>
<td></td>
<td></td>
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<tr>
<td>Yes (n, %)</td>
<td>66 (66.7)</td>
<td>7 (18.4)</td>
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<tr>
<td>No (n, %)</td>
<td>32 (32.7)</td>
<td>31 (81.6)</td>
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**EP-0040 (PP-0029) Hormonal component of the pathogenesis of chronic liver disease**

**Authors:** SAIDRAKHIM NODIROVICH LUKMONOV[1]; OYBEK OTABEKOVICh USMONOVICh[1]; MUZAFFAR UKTAMOVICH ISMAILOVICh[2]; SERGEY ANATOLIEVICH KIM[3]; UMIID ABDULLAYEVICH ALLAZArov[4]; KURBANBAY ABDULLAYEVICH MADATOV[4]; ASLIDDIN NURIDDINOVICH SHARAPOV[4]; AZIZ ABOSSOVICH ISMATOV[1]; MUBARRAK ABDUG’APPOROVNA ROZIKOVA[1]; MADINA SAYIDVALIEVNA USMONOVA[1]

**Affiliation:** [1]Department of Gastroenterology, Tashkent Medical Academy, [2]Department of Surgery-Hepatology, Tashkent State Pediatric Institute, [3]Department of Surgery, Samarkand State Medical Institute, and [4]Department of Surgery, Republican Clinical Hospital 1, Tashkent, Uzbekistan

**Background and Aim:** Show the role of hormonal system disorders in the onset and course of chronic liver diseases. **Methods:** One hundred ten patients with chronic liver diseases of viral and alcoholic etiology (chronic hepatitis and cirrhosis of the liver). The levels of hormones were determined by the enzyme immunoassay using test systems. **Results:** It is shown that chronic liver diseases are accompanied by a change in the content and ratio of PG of two series (E2 and F2α) in blood plasma and liver tissue, depending on the etiology of the disease and the stage of development of the chronic process. At the heart of the observed hypoprostaglandinemia lie lipid metabolism disorders (insufficiency of PG precursors, a decrease in the activity of lipid metabolism enzymes). The etiological factors of chronic hepatitis and cirrhosis of the liver (viruses and alcohol) have a different effect on the PG system. Hepatitis C and B viruses cause immunoinflammatory reactions, the severity of which is determined by PG. Alcohol has a systemic damaging effect on all organs and tissues, inhibiting the synthesis of PG. **Conclusion:** Insufficiency of PGE in liver tissue and in blood plasma can serve as one of the important pathogenetic mechanisms of excessive accumulation of lipids in the liver with steatosis. Changes in biochemical blood parameters reflecting liver function in patients with chronic diseases of this organ are directly related to violations in the PG system and from the etiology of the disease.

**Keywords:** hepatitis C, liver cirrhosis, steatosis.

**EP-0166 (PP-0030) Inflammatory cytokines and the change of Th1/Th2 balance as prognostic indicators for HCC in patients treated with transarterial chemoembolization**

**Authors:** HAE LIM LEE[1]; JEONG WON JANG[2]; SUNG WON LEE[1]; SUN HONG YOO[3]; JUNG HYUN KWO[3]; SOON WOO NAM[3]

**Affiliation:** [1]Department of Internal Medicine-GI/Hepatology, The Catholic University of Korea Bucheon St. Mary’s Hospital, Bucheon, [2]Department of Internal Medicine-GI/Hepatology, The Catholic University of Korea Seoul St. Mary’s Hospital, Seoul, and [3]Department of Internal Medicine-GI/Hepatology, Incheon St. Mary’s hospital, The Catholic University of Korea, Incheon, South Korea

**Background and Aim:** Hepatocellular carcinoma (HCC) usually develops in chronically inflamed liver, suggesting that immune status can largely influence the behavior of HCC. This study evaluated the role of circulating regulatory T cells, T cell cytokines, and the change in Th1/Th2 cytokine ratio as prognostic markers for HCC. **Methods:** This study included a total of 206 newly diagnosed HCC patients treated with transarterial chemoembolization (TACE) between 2011 and 2012. We used cytometric bead immunoassays to measure 13 cytokines (IL-12p70, IFN-γ, IL-17A, IL-2, IL-10, IL-9, IL-22, IL-6, IL-13, IL-4, IL-5, IL-1β, and TNF-α) and regulatory T cells (CD4 + CD25+ T cell and CD4 + CD25 + FoxP3+ T cell) at the time of HCC diagnosis. **Results:** The proportions of detectable IL-4 and IL-6 were significantly higher in patients with Child–Turcotte–Pugh class B or C than with A. In regard to tumor characteristics, patients with large (> 5 cm), multiple tumors or portal vein thrombosis (PVT) had significantly higher proportions of detectable IL-6 levels, whereas those with extrahepatic metastasis had significantly lower proportion of detectable IL-17A. Patients with increased IL-1/IL-10 ratio at the time of diagnosis and before 2nd TACE had significantly longer survival than the patients without. Overall, the association of the interval increase in Th1/Th2 ratios with favorable outcome was more apparent when compared with those with the decreased Th1/Th2 ratios. In multivariate analysis, CTP class B or C, presence of PVT, extrahepatic metastasis, and higher IL-6 levels were independently predictive of poor overall survival. **Conclusion:** This study suggests that circulating IL-6 acts as an indicator of unfavorable outcome of HCC. A shift toward increased Th1 response among CD4 T cells subsets after treatment could exert favorable immunological effects on HCC prognosis.

**Keywords:** hepatocellular carcinoma, transarterial chemoembolization, T cell cytokines, regulatory T cells.
EP-0172 (PP-0031) Clinical characteristics of long-term survivors following sorafenib treatment for unresectable hepatocellular carcinoma: Korean national multicenter retrospective cohort study

Authors: YOUNG YOUN CHO[1]; DO YOUNG KIM[3]; YONG-HAN PAIK[4]; SI HYUN BAE[5]; SU CHEOL PARK[6]; KANG MO KIM[7]; EUN SUN JANG[8]; IN HEE KIM[9,10]; HYUNG JUN KIM[1]; YOON JUN KIM[2]

Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Chung-Ang University Hospital, [2]Department of Internal Medicine-GI/Hepatology, Seoul National University Hospital, [3]Department of Internal Medicine-GI/Hepatology, Severance Hospital, [4]Department of Internal Medicine-GI/Hepatology, Samsung Medical Center, [5] Department of Internal Medicine-GI/Hepatology, The Catholic University of Korea Seoul St. Mary’s Hospital, [6]Department of Internal Medicine-GI/Hepatology, Korea Cancer Center Hospital, [7] Department of Internal Medicine-GI/Hepatology, Asan Medical Center, Seoul, [8]Department of Internal Medicine-GI/Hepatology, Seoul National University Bundang Hospital, Bundang, [9]Department of Internal Medicine-GI/Hepatology, Chonbuk National University Hospital, and [10]Department of Internal Medicine-GI/Hepatology, Seoul National University Boramae Medical Center, Cheongju-si, South Korea

Background and Aim: Sorafenib is the standard systemic therapy for treatment of advanced stage hepatocellular carcinoma (HCC) and progressive HCC after locoregional therapy. Little data are available regarding clinical factors of good responders following sorafenib treatment. This study aimed to evaluate prognostic factors of long-term survivors. Methods: This multicenter retrospective cohort study included 1566 unresectable HCC patients who received sorafenib treatment between 2007 and 2014 in nine tertiary centers in Korea. The patients were classified into long-term survivor group (survival longer than 2 years, n = 246) or control group (n = 1359). The primary endpoint was prognostic factors on survival for overall patients. Secondary endpoints included time-to-progression and other safety profiles. Results: The patients were predominantly male (83.8%), chronic hepatitis B (77.3%), and Barcelona Clinic of Liver Cancer stage C (78.3%). The median overall survival was 9.0 months. After treatment, 8 patients (0.4%) achieved complete response and 147 patients (91.1%) achieved partial response by mRECIST criteria. The prognostic factors predicting long-term survival were metformin use (adjusted hazard ratio [aHR] = 3.464; \( P < 0.001 \)), hand foot skin reaction (aHR = 1.688; \( P = 0.003 \)), and concomitant treatment with chemoembolization or radiotherapy (aHR = 2.766; \( P < 0.001 \)). Prognostic factors against long-term survival were Child-Pugh score B (HR = 0.422; \( P < 0.001 \)), presence of extrahepatic metastasis (HR = 0.639; \( P = 0.005 \)), main portal vein invasion (HR = 0.502; \( P = 0.001 \)), and elevated AFP (> 1000 ng/mL; HR = 0.361; \( P < 0.001 \)). Conclusion: This large multicenter retrospective study showed that the objective response was 9.5%, and the proportion of long-term survivors was 16.4% in Korean patients. The prognostic factors derived by our study could be used in practice when deciding sorafenib treatment.

Keywords: good responder, prognosis, sorafenib, survivor.

OE-0080 (PP-0032) Assessing HCV distribution among hard to reach populations in London using whole genome sequencing: Report from the TB Reach study

Authors: DEWI NUR AISYAH[2]; LAURA SHALLCROSS[1]; ZISIS KOZLAKIDIS[3]; MYRTO KREMYDA VLACHOU[1]; ANDREW HAYWARD[4]

Affiliations: [1]Department of UCL Infectious Disease Informatics, Farr Institute of Health Informatics, and Departments of [3]Division of Infection and Immunity, [4]Institute of Epidemiology and Health Care, University College London, London, UK; and [2]Department of Epidemiology, Faculty of Public Health, Universitas Indonesia, Depok, Indonesia

Background and Aim: Hepatitis C virus (HCV) probably evolves and is transmitted in micro-epidemics within geographically or socially defined communities. Thus, it is likely that the genomic information from HCV-positive participants, when combined to the extant epidemiological characteristics, might provide some insight into HCV transmission between high risk individuals. Methods: Samples were collected from 39 homeless hostels, 20 drug treatment services and a prison between May 2011 and June 2013 in London. Blood samples were collected from participants to be tested for hepatitis C. RNA extraction was performed from residual diagnostic specimens and processed locally within the hospital virology laboratories for PCR library preparation and Next Generation Sequencing using Illumina MiSeq equipment. The QIAamp Virus BioRobot MDx Kits were used in combination with the BioRobot MDx instrument. Multiple data analyses were performed using phylogenetic approaches. Results: A total of 98 HCV positive samples were found during the study, including 51 from homeless hostels (52.6%), 30 from drug treatment centres (30.9%), and 16 from prison (16.5%). Only 88 of the 98 samples had sufficient concentration (viral load >100 000 IU/mL) to be further processed through NGS platform in attempt to generate more extensive viral genomes with high read-depth coverage. From the 88 complete HCV genomes assembled, 5088 (56.8%) were genotype 1, followed by 32/88 (36.4%) genotype 3, 4/88 (4.5%) genotype 2, and 1/88 (1.1%) genotype 4 and 6. Samples collected from drug treatment services have the highest number of genotype 1 (69%) and genotype 4 and 6 were only found in homeless shelters. Phylogenetics analysis showed high level of similarity of cases across venues suggests potential continuing ongoing active transmission within these overlapping populations and between venues. Conclusion: The application of NGS can help to visualize the transmission network among infected individuals, especially between high risk groups.

Keywords: hepatitis C, high risk, phylogenetics analysis, whole genome sequencing.

Authors: DEWI NUR AISYAH[1]; LAURA SHALLCROSS[2]; ANDREW HAYWARD[3]; NATASHA K MARTIN[4]


**Background and Aim:** Hepatitis C treatment revolution of new direct-acting antiviral agents (DAA) offers an opportunity to eliminate hepatitis C in the future if treatment can be targeted effectively to high-risk individuals. In this study, we project the impact of DAA therapy to reduce HCV incidence among people who inject drugs (PWID) in London to achieve the WHO incidence elimination target by 2030. **Methods:** We used a dynamic deterministic compartmental model describing HCV transmission among PWID population. Three model scenario used (i) no treatment, (ii) treatment scale-up from 2017 to 2030, and (iii) what level of treatment is needed to achieve the WHO incidence elimination target of 90% reduction from 2017 to 2030. Multiple univariate sensitivity analyses were also performed to assess the impact of SVR, duration of injecting, spontaneous clearance, and death rate. **Results:** Our model predicted that without treatment, the incidence of hepatitis C in PWID in London is 11.62% in 2017. By providing 10%, 20%, 30%, 40%, and 50% of chronically infected PWID per year started from 2017 until 2030, and (iii) what level of treatment is needed to achieve the WHO incidence elimination target of 90% reduction from 2017 to 2030. Multiple univariate sensitivity analyses were also performed to assess the impact of SVR, duration of injecting, spontaneous clearance, and death rate. **Conclusion:** Elimination of HCV in PWID in London by 2030 would require 43% annual treatment coverage of those infected—this represents a major scale-up from current activity and the needs to support adherence, prevent resistance and active engagement with drug treatment services. **Keywords:** DAA’s treatment, elimination, hepatitis C, incidence reduction, PWID.

OE-0222 (PP-0035) Evaluation of utility of predictive models for acute-on-chronic liver failure

Authors: LI PENG MARGARET TENG[1]; WAH WAH PHYO[1]; JIAYI ALEXA LAI[2]; GUAN-HUEI LEE[1]

Affiliation: Departments of (1)Gastroenterology and Hepatology (2)Internal Medicine, National University Health System, Singapore, Singapore

**Background and Aim:** Acute-on-chronic liver failure (ACLF) is a heterogeneous clinical entity associated with high mortality. Numerous models have been proposed to prognosticate outcomes in ACLF patients, including a novel one by Asian Pacific Association for Study of the Liver ACLF Research Consortium (AARC), but their utility remains inconclusive. The study aims to evaluate the utility of established and newer models in predicting mortality of ACLF patients. **Methods:** A retrospective study of 87 ACLF patients admitted to a tertiary hospital in Singapore between 2004 and 2017 was performed. Child–Turcotte–Pugh (CTP) score, Model for End-Stage Liver Disease (MELD)-Na, Chronic Liver Failure Consor-tium (CLIF)-SOFA, CLIF-C ACLF, and AARC prognostic scores (MELD-lactate, AARC-ACLF) were calculated on days 1, 4, 7 of hospital admission and days 1, 4, 7 of ICU admission. Outcomes assessed were survival to discharge without needing transplant, 30-day survival and 90-day survival. The scores were evaluated by measuring area under receiver operating characteristic (AUROC) curve at each time point and compared. **Results:** Twenty-six patients (29.9%) survived to discharge, 18 patients (20.7%) underwent urgent transplant, and 43 patients (49.4%) died before discharge; 30-day transplant-free survival was 23% (20 patients) and 90-day survival was 20.7% (18 patients). On admission, patients had median scores of CTP 11, MELD-Na 28, MELD-lactate 39, CLIF-SOFA 8, CLIF-C ACLF 50, and AARC-ACLF 10. CTP, MELD-lactate, and AARC-ACLF scores have increased accuracy in predicting hospital survival on day 4 admission (CTP D1 AUROC 0.699, D4 0.8; MELD-lactate D1 0.671, D4 0.816; AARC-ACLF D1 0.669, D4 0.8). CTP, MELD-Na, MELD-lactate, and AARC-ACLF scores also have high predictive utility on day 7 admission (CTP D7 0.853; MELD-Na 0.882; MELD-lactate 0.882; AARC-ACLF 0.853). **Conclusion:** CTP, MELD-lactate, and AARC-ACLF scores are superior at prognosticating outcomes on days 4 and 7 of admission. **Keywords:** acute-on-chronic liver failure.
OE-0233 (PP-0036) Early hepatitis is the strongest risk factor for the development of severe dengue infection: A points-based risk-score to predict critical disease in dengue fever

Authors: MADUNIL ANUK NIRIELLA[1]; ARUNDATI UDRESHKA[1]; ISURUJITH KOLANGA LIYANAGE[2]; ARJUNA PRIYADARSHIN DE SILVA[1]; HITHANADURA JANAKA DE SILVA[1]

Affiliation: [1]Department of Internal Medicine, Faculty of Medicine, University of Kelaniya, Ragama, and [2]Department of Pharmacology, Faculty of Medical Sciences, University of Sri Jayawardenepura, Negegoda, Sri Lanka

Background and Aim: Only some dengue fever (DF) patients develop plasma leakage (critical-phase [CP]), which may progress to multi-organ failure. We attempted to identify the early predictors of CP in DF.

Methods: This was a case-record-based study. Clinical, laboratory features in first 3 days of illness was used to formulate a risk prediction model (RPM). Patients with serologically confirmed DF, admitted to the University Medical Unit, Teaching Hospital, Ragama, Sri Lanka, from 01.01.2017 to 30.06.2017, were included. Patients were randomly assigned to training (TD) and validation datasets (VD) of equal size. Stepwise multivariate logistic regression (P < 0.05) was used to identify risk factors in TD. Versions of RPM were compared using Akaike criteria and McFadden’s adjusted R². Coefficients from the best RPM were used to derive weighted risk scores. Best RPM was validated in VD using C-statistic.

Results: Six hundred ninety-seven patients were included (mean age: 34.7 ± 16.1 years, females: 48.8%, TD = 350, VD = 346). CP developed in 227 (32.6%). Mortality was 1.0%. Risk predictors (P < 0.05) were female gender (OR = 2.1), diabetes (OR = 1.8), vomiting (OR = 1.9), platelets <120 000/mm³ (OR = 2.8), and AST > 60 IU/L (OR = 3.3). In multivariate analysis, female gender (score = 2), vomiting (score = 3), platelets <120 000/mm³ (score = 3), and AST > 60 IU/L (score = 4) were significant while diabetes was nonsignificant. Calculated RPM score ranged from 0–12. C-statistic for the TD was 0.78 and VD 0.77 ( Hosmer-Lemeshow test: P = 0.19 and 0.34, respectively). A cut-off of five was selected to maximize sensitivity (0.96), negative predictive value (0.95) with specificity of 0.44. Conclusion: This simple risk score seems useful in identifying those at risk of CP in early DF. The early presence of dengue hepatitis was the strongest predictor of CP.

Keywords: critical phase, dengue fever, hepatitis, prediction.

OE-0296 (PP-0037) Barriers to hepatocellular carcinoma (HCC) surveillance in at-risk individuals in Thailand

Authors: PALADA PITAKKITNUKUN[1]; PARINDA PRATHYAJUTA[1]; WICHAYA AUNANAN[1]; CHONLADA PHATHONG[2]; ROONGRUDEE CHAITEERAKIJ[2]

Affiliation: [1]Department of Medicine, Faculty of Medicine, Chulalongkorn University, and [2]Department of Internal Medicine-GI/Hepatology, Faculty of Medicine, King Chulalongkorn University and Chulalongkorn Memorial Hospital, Bangkok, Thailand

Background and Aim: In Thailand, adherence rate to HCC surveillance is particularly low, partially due to a knowledge gap among physicians. Here, we identified its other potential causes. Methods: We conducted a survey between July 2016 and March 2018 on patients with cirrhosis and/or chronic viral hepatitis at a referral center. They were asked to complete a questionnaire about their knowledge, attitude, concern, and perceived barriers to HCC surveillance. Multivariate logistic regression analysis was performed to identify prime factors associated with not performing ultrasound for HCC surveillance. Results: Of the 382 patients, 303 completed the questionnaire (79.3% response rate); 91 (30.1%) underwent ultrasound every 6 months for surveillance (regular group); 177 (58.6%) had ultrasound surveillance interval > 6 months (irregular group), and 34 (11.3%) did not perform any ultrasound during the follow-up period of 2 years (no surveillance group). Education and income level were significantly different among the three groups, P = 0.006 and 0.045, respectively. The regular surveillance group had more knowledge of optimal tool and interval for HCC surveillance, with adjusted odds ratio (AOR) of 0.84 (95% CI 0.69–1.03; P = 0.095). The main barrier of HCC surveillance was lack of follow-up appointment (54.5%) and long appointment intervals (54.5%). By multivariate analysis, seeing non-gastroenterologist physicians was the factor mostly associated with not performing ultrasound surveillance, with AOR of 2.96 (95% CI 1.12–7.8; P = 0.03). Conclusion: Education, income, knowledge of HCC surveillance, and non-gastroenterologist physicians contributes to the low HCC rate in Thailand. Implementing education program may potentially improve the adherence rate of HCC surveillance among at-risk population. Additionally, education program for non-specialist is crucial to increase the rate of HCC surveillance.

Keywords: barrier, HCC, surveillance, Thailand, ultrasound.
OE-0398 (PP-0038) Temporal profile of HEV RNA concentration in blood and stool in patients with acute hepatitis E

Authors: VIJAY KUMAR HALKURIKE JAYADEVAPPA[1,2]; AMIT GOEL[1,2]; HARSHITA KATIYAR[1,2]; PADMA PRAKASH K V[1,2]; MERCILENA BENJAMIN[1,2]; VISHWAJEET YADAV[1,2]; RAKESH AGGARWAL[1,2]

Affiliation: [1]Department of Gastroenterology, Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow, [2]Department of Gastroenterology, Command Hospital, Central Command, Lucknow, India

Background and Aim: Acute hepatitis E is a self-limiting illness caused by infection with hepatitis E virus (HEV). The duration of viremia and fecal viral shedding during this illness is short. However, no data are available on the temporal profile of viral titer in the blood and feces. Methods: Serial serum and stool specimens were collected on alternate days from patients with acute hepatitis E (ALT >5-fold ULN; IgM anti-HEV positive) presenting within 7 days of onset of symptoms. HEV RNA titer was measured in these specimens using a real-time amplification assay. Results: In all, 17 subjects (median age: 25 [range 19–61] years; all male; duration of illness at enrolment: 5 [3–7] days; maximum serum bilirubin 10.3 [5.9–43.4] mg/dL; ALT 45.4 [11–116] fold ULN; AST 25.4 [2.2–114] fold ULN) provided 113 serum specimens and 71 stool specimens. The level of viral titer in the blood and feces parallel each other decline rapidly after the onset of illness and disappear by day 21 of illness in all the subjects. Conclusion: The level of viremia and fecal excretion of HEV parallel each other decline rapidly after the onset of illness and disappear by day 21 of illness. This information should be helpful in better understanding the dynamics of HEV infectiousness and transmission.

Keywords: hepatitis E, hepatitis E virus, pathogenesis, viral excretion, viremia.

Figure HEV RNA in serum and stool.

OE-0531 (PP-0039) miRNA-221-5p promotes epithelial-mesenchymal transition of hepatocellular carcinoma through regulation of CD44/TGF-beta1

Authors: NA RI PARK; JUNG HOON CHA; SUNG WOO CHO; JEONG WON JANG; JONG YOUNG CHOI; SEOLG KEEW YOON; SI HYUN BAE

Affiliation: Department of Internal Medicine, The Catholic University of Korea, Seoul, South Korea

Background and Aim: CD44 have known as important modulators of epithelial-mesenchymal transition (EMT) together with transforming growth factor beta 1 (TGF-β1). Moreover, CD44 and TGF-β1 double positive more enhanced cancer stem cell characteristics acquisition, EMT, and metastasis. This study aimed to investigate the role of miRNA-221-5p regulating the EMT with CD44/TGF-β1 in HCC. Methods: We sorted CD44+ and CD44– liver cancer stem cells by fluorescence-activated cell sorting (FACS) in TGF-β1-positive SNU-368 cells and TGF-β1-negative SNU-354 cells. The miRNA profiles of CD44+ and CD44– HCC cells were analyzed by next-generation sequencing (NGS). miR-221-5p mimic and inhibitors were transfected into HCC cells. The expression of mRNA and protein was detected by quantitative real-time PCR (qRT-PCR) and western blot. Results: miRNA NGS data were compared among CD44 or TGF-β1 single expression HCC cells and CD44/TGF-β1 double positive HCC cells. The results showed that miR-221-5p expression was upregulated in CD44+/TGF-β1+ cells than an expression of either one alone. Over-expression of miR-221-5p in SNU-354 (CD44+/TGF-β1–) cells exhibited lower E-cadherin and higher β-catenin with upregulation of CD44/TGF-β1. The loss of miR-221-5p in SNU-368 (CD44+/TGF-β1+) cells showed increased E-cadherin with downregulation of CD44/TGF-β1. Also, TGF-β1-stimulated SNU-354 cells induced EMT and TGF-β1 inhibitor-treated SNU-368 cells inhibited EMT. Furthermore, TGF-β1-stimulated SNU-354 cells upregulated miR-221-5p compared control cells. In contrast, inhibition of TGF-β1 in SNU-368 cells reduced miR-221-5p. In addition, miR-221-5p inhibitors in SNU-354 suppressed the effects of TGF-β1 on cancer cells, as determined by cell motility and migration. Conclusion: We identified CD44/TGF-β1-related miRNAs (miR-96-5p, miR-221-5p, miR-186-5p and miR-224-5p) and among them, miR-221-5p have been confirmed to regulate EMT. The results suggest that CD44/TGF-β1-regulated miR-221-5p may serve as specific biomarkers and therapeutic targets for HCC.

Keywords: CD44, epithelial-mesenchymal transition (EMT), hepatocellular carcinoma (HCC), miR-221-5p, transforming growth factor beta 1 (TGF-beta1).
OE-0736 (PP-0040) Understanding recurrence related oncogenic kinases and metabolites in liver cancer
Author: HONGPING XIA
Affiliation: Department of CMR, National Cancer Center, Singapore, Singapore

Background and Aim: Hepatocellular carcinoma (HCC) is the most common type of primary liver cancer and is the second leading cause of cancer-related death worldwide. Once diagnosed with HCC, only 30% of patients are eligible for curative treatments. Even after curative resection in patients with early-stage disease, tumor recurrence is estimated to occur in 70% of patients. Hence, there is an unmet need for understanding of the mechanism contributed to recurrence of HCC.

Methods: Through comprehensive whole kinome expression analysis and global metabolomics profiling of HCC patients’ tumor and matched normal samples with recurrence and nonrecurrence information. The significantly dysregulated kinases and metabolites were further validated and characterized in HCC cells and xenograft models.

Results: We have identified a panel of HCC overexpressed oncogenic kinases and metabolites. The expression of some kinases and metabolites is significantly associated with recurrence and patients’ survival of HCC patients. HCC recurrence is characterized by increasing glycolysis with increasing expression of PRKAA2 kinase and α-ketoglutarate and NAD+/NADH metabolites. Overexpression of PRKAA2 promotes glycolysis in different HCC cells by seahorse assay analysis. Meanwhile, stable overexpression of PRKAA2 also promotes cell growth and tumorigenicity of HCC cells with increasing of α-ketoglutarate and NAD+/NADH metabolites. Conclusion: The results from this study will understand the important role of recurrence related oncogenic kinases and metabolites in hepatocarcinogenesis and recurrence. It is promising to develop novel kinase inhibitors as personalized targeted therapeutic strategies for advanced HCC.

Keywords: kinases, liver cancer, metabolites, PRKAA2, recurrence.

OE-0388 (PP-0041) Maternal western-style diet alters gut microbiota of offspring and exacerbates intestinal inflammation in adulthood
Authors: RUNXIANG XIE; HAILONG CAO; YUE SUN; BANGMAO WANG
Affiliation: Department of Gastroenterology and Hepatology, General Hospital, Tianjin Medical University, Tianjin, China

Background and Aim: Accumulating evidence shows that western-style diet is closely associated with inflammatory bowel disease. However, the effects and underlying mechanisms of maternal western-style diet (MWSD) on the susceptibility of offspring to colitis in adulthood lack confirmation.

Methods: C57BL/6 pregnant mice were given western-style diet (MWSD group) and normal diet (MND group) during gestation and lactation, respectively. After weaning, the intestinal development, mucosal barrier function, microbiota, and mucosal inflammation of 3-week-old offspring were assessed. Subsequently, pups in both groups received normal diet till adult (8 weeks) and were fed with 2% DSS solution for 5 days. Then, the severity of colitis was assessed. Results: At the age of 2, 3, 4 weeks, the offspring in MWSD group were significantly heavier than those in MND group. No differences were found in the body weight between the MWSD and MND group. Compared with MND group, MWSD significantly inhibited intestinal development and disrupted barrier function in 3-week-old offspring mice. Moreover, HE staining showed no obvious microscopic inflammation in both groups of 3-week-old offspring mice. Increased production of inflammatory cytokines indicated low grade of inflammation was induced in MWSD group. 16S sequence indicated that the microbial compositions and diversity of these two groups differed significantly. After DSS treatment in adult, MWSD significantly exacerbated the severity of colitis (Fig. 1). Conclusion: Our data reveal that maternal western-style diet in early life can inhibit intestinal development and lead to the disruption of intestinal mucosal barrier and dysbiosis in offspring mice and then enhance intestinal inflammation in adulthood.

Keywords: colitis, intestinal development, maternal western-style diet, microbiota, offspring.

Figure 1 MWSD exacerbates offspring colitis.

**Authors:** JAE HO CHO[1]; CHEOL MIN SHIN[1]; DONG HO LEE[1]; YOON KEON KIM[3]; JINHO YANG[3]; WON HEE LEE[3]; MI JIN SEOL[2]; YU RA LEE[2]; KYUNG MI KIM[3]; DONG JIN SONG[1]; HYUK YOON[1]; NAYOUNG KIM[1]; YOUNG SOO PARK[1]

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**Background and Aim:** Alternations of gut microbiota is well-known in colorectal carcinogenesis. Gut microbiota-derived extracellular vesicles (EVs) are widely distributed throughout the body including the blood and urine. In this study, we investigated profiles of bacteria-derived EVs in stool, blood, and urine and evaluated whether they can be a useful marker for the metagenomic analysis of colorectal cancer (CRC).

**Methods:** This study incorporated 50 healthy controls and 14 patients with CRC. We analyzed and compared the bacteria-derived EVs of the study subjects by using 16S ribosomal RNA gene sequencing of their stool, blood, and urine samples, which allowed us to identify over 3200 operational taxonomic units corresponding to gut microbiota reported in previous studies.

**Results:** In stool, non-EV bacterial microbiome, microbial diversity was significantly increased in CRC patients (Shannon index, \( P = 0.006 \)); relative abundance of phylum Proteobacteria was decreased (FDR \( q = 0.003 \)) and abundance of phylum Bacteroidetes was increased (\( q = 0.023 \)) in CRC patients; abundances of families Rikenellaceae and Porphyromonadaceae were significantly different between controls and CRC patients (\( q < 0.05 \)). In stool bacteria-derived EVs, relative abundances of family Comamonadaceae was significantly increased in CRC patients (\( q < 0.001 \)). In urine bacteria-derived EVs, abundances of phylum Bacteroidetes (\( q = 0.003 \)) was increased, whereas abundances of Fusobacteria was decreased (\( q = 0.005 \)); abundances of families Pseudomonadaceae, Rhodocyclaceae, Comamonadaceae, and Oxalobacteraceae were different between the two groups (\( q < 0.01 \)). In serum bacteria-derived EVs, abundances of phyla Proteobacteria and Bacteroidetes were increased (\( q < 0.001 \)) and abundances of family Comamonadaceae was increased (\( q = 0.002 \)).

**Conclusion:** In stool, EV-derived microbiome shows a distinct profile comparing to non-EV bacterial microbiome. These results suggest that some of the bacteria-derived EVs such as Comamonadaceae in stool, blood, or urine may play a role in colorectal carcinogenesis and they might be surrogate markers for the diagnosis of CRC.

**Keywords:** colorectal cancer, extracellular vesicles, gastrointestinal microbiome, microbiota.

**OE-0250 (PP-0044) Characteristics of mucosa-associated fungal microbiota during treatment in Crohn’s disease**

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**Affiliation:** Department of Gastroenterology, The First Affiliated Hospital of Nanchang University, Nanchang, China

**Background and Aim:** The dysbiosis of fungal microbiome seems relevant to the pathogenesis of Crohn’s disease (CD), with differences between patients with CD and healthy subjects (HS) in both diversity and composition. However, it is not clear how the fungal microbiota changed from active CD to remission after treatment. The aim of this study was to characterize the dynamic alterations of mucosa-associated fungal microbiota in CD patients after induction of remission.

**Methods:** The ITS2 sequencing approach was applied to determine the structures of fungal communities in mucosal samples including terminal ileal, ascending colon, and descending colon. The composition of mucosa-associated fungal microbiota was compared between paired samples from CD patients in active and remission stage during treatment.

**Results:** The global fungus diversity of CD in remission was not significantly different from active disease. The principal coordinate analysis revealed that samples of active CD clearly separated from those in remission which clustered close to HS. Significantly abundant active CD-associated taxa included Aspergillus, Zasmidium, Devriesia, Gliocladium, and Setophoma. Agaricus, Pleurotus, Spizellomyces, Leptosphaeria, and Lichenomphalia were significantly depleted in active CD compared to quiescent stage.

**Conclusion:** The dysbiosis of mucosa-associated fungal microbiota was associated with disease phenotype, which could be partly restored after the induction of remission. These data emphasize the potential importance of fungal microbiota as early biomarkers for disease relapse.

**Keywords:** Crohn’s disease, fungal microbiota, gut mucosa, high-throughput sequence.
OE-0390 (PP-0045) The impact of Helicobacter pylori infection, eradication therapy, and probiotic supplementation on gut microenvironment homeostasis: An open-label, prospective clinical trial
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Background and Aim: Helicobacter pylori infection is associated with remodeling of gastric microbiota. However, comprehensive analyses of the impact of H. pylori infection, eradication therapy, and probiotic supplementation on gut microbiota are still lacking. We aimed to provide evidence for clinical decision-making. Methods: Seventy H. pylori-positive and 35 H. pylori-negative patients (group C) were enrolled. H. pylori-positive patients were randomly assigned to group A (14-day bismuth-containing quadruple therapy) and group B (supplemented with Clostridium butyricum). Stool samples of groups A and B were collected on days 0, 14, and 56 while stool samples of group C were collected on day 0. Gut microbiota was investigated by 16S rRNA sequencing. Results: The Sobs index (richness estimator) was significantly higher in H. pylori-positive samples than H. pylori-negative samples (P < 0.05). Several metabolic pathways were more abundant in H. pylori-positive communities while some disease-associated pathways had higher potential in H. pylori-negative community through KEGG pathway analysis (P < 0.05). Abundances of most butyrate-producing bacteria significantly decreased, and several detrimental bacteria increased immediately after therapy. More gastrointestinal symptoms were relieved in group C with no significant eradication rate improvement. Conclusion: Eradication of H. pylori was associated with widespread changes in gut microbial ecology and structure. H. pylori may be better viewed as a pathobiont which can cause complications in approximately 20% of infected individuals but may also have a symbiotic relationship with the host. As such, the decision to eradicate should be based on comprehensive analyses of individual patients.

Keywords: bismuth-containing quadruple therapy, Clostridium butyricum, gut microbiota, Helicobacter pylori, 16S rRNA sequencing.

OE-0749 (PP-0046) Bloating and its association with functional gastrointestinal disorders according to ROME III diagnostic criteria
Authors: KEWIN TIEN HO SIAH[1]; XIAO-RONG GONG[2]; MIN-HU CHEN[2]; XIAO-HUA HOU[3]; ABDULLAH MURDANI[4]; NITESH PRATAP[5]; UDAY GHOSHAL[6]; CHING LIANG LUI[7]; SUTEP GONLACHANVIT[8]; JUSTIN WU[9]; KOK-ANN GWEE[10]; SENG BOON CHUA[10]; MYUNG-GYU CHO[11]; YOUNG-TAE BAK[12]
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Background and Aim: Bloating is one of the most common gastrointestinal symptoms in the community, often the most bothersome symptom of patients suffering from FGIDs. Bloating has also been considered as a supportive criteria for IBS until the advent of ROME IV. Majority of ROME III IBS patients with discomfort or bloating are now classified as RIV FAB/FAD. We plan to study the relevance of ROME III Functional Bloating before we consign it into history. Methods: Consecutive patients presenting any gastrointestinal complaints to gastroenterology outpatient clinics across 11 cities (Guangzhou, Wuhan, Lucknow, Hyderabad, Jakarta, Seoul, Taipei, Bangkok, Ipoh, Manila, and Singapore) in Asia were screened. Only patients with no red flag or alarm features and no organic pathology were recruited for the project. A translated Rome III questionnaire (EARIIIQ) was applied to each participant. Results: We recruited 1819 FGID patients. There were 794 male and 1025 female patients; 703 (38.6%) patients were bloaters; 45.1% of bloaters claimed that bloating was their most bothersome symptom; 45.5% of bloaters related their symptoms with a more or less frequent stool and 67.6% felt relief with defecation. Male patients presented more bloating complaints than female patients (P < 0.05). Several gender differences were recorded (male 35.8%, female 32.7%). There was no significant gender difference in FB-RIII patients (male 9.3% vs female 7.0%). Taiwan (11.4%) recorded the highest prevalence of RII-FB patients, followed closely by India (10.4%) and Korea (10.0%). Only 54.8% of RII-FB patients claimed that treatment improved.
their symptoms. **Conclusion:** This study provides information on naturally co-occurring bloating symptoms in Asian community and its association with other FGIDs. We need to compare the usefulness of ROME III versus ROME IV functional bloating diagnostic criteria for planning of investigation and treatment algorithms for bloating.

**Keywords:** Asian, bloating, functional, IBS, Rome.

### OE-0905 (PP-0047) Transcriptome and methylome profiling in a rat model of irritable bowel syndrome induced by stress

**Authors:** SHENGTAO ZHU; LI MIN; QINGDONG GUO; JUNCHAO GU; SHUTIAN ZHANG

**Affiliation:** Department of Gastroenterology, Capital Medical University, Beijing, China

**Background and Aim:** Irritable bowel syndrome (IBS) is a common gastrointestinal disorder that is associated with psychological stress. However, the full landscape of IBS-related epigenetic factors is still unveiled and needs to be elucidated. **Methods:** Water-avoidance stress (WAS) model was used to induce the rat IBS model. Each rat was monitored, and the defecation and behavior were recorded \((n=5\) for each group). Total colon RNA was isolated and subjected to Affymetrix GeneChip analysis. Reduced representation bisulfate sequencing (RRBS) was applied to determine the genome-wide methylation pattern in both IBS and control groups. **Results:** The rats with IBS egested significantly increased amount of dry and loose stools than the control animals without significant change of body weight. Compared with the control group, 309 genes were upregulated and 224 genes were downregulated in the colon of the IBS rats. Notch signaling and focal adhesion were enriched in the differentially methylated regions (DMGs). Few genes were identified in both DEGs and DMGs, suggesting that most differentially expressed genes were not changed by promoter methylation. RT-qPCR validation showed that the mRNA levels of SSX2IP, PARD3, and VCL were significantly downregulated in the IBS group, in accordance with hypermethylation of their promoters. **Conclusion:** This WAS rat model can provide a promising transcriptome and methylome profiling to mimic IBS pathogenesis. Most DEGs are Notch signaling and focal adhesion associated, and only a few differentially expressed genes were changed by promoter methylation. Our results demonstrated that psychological stress could influence the integrity of intestinal mucosa barrier and regulate inflammatory response.

**Keywords:** IBS, methylome, rat model, transcriptome.

### OE-0953 (PP-0048) Investigating the functional role of Clostridium hathewayi in colorectal carcinogenesis

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**Affiliation:** Department of Institute of Digestive Diseases, The Chinese University of Hong Kong, Hong Kong, Hong Kong

**Background and Aim:** Emerging data have demonstrated the association of microbial dysbiosis with colorectal cancer (CRC). Metagenomic association studies showed *Clostridium hathewayi* is among one of the novel bacterial species that enriched in the CRC microenvironment, thus suggesting a causal role of *C. hathewayi* in colorectal carcinogenesis. In this study, we investigated the functional role of *C. hathewayi* in CRC development. **Methods:** *In vitro* studies were carried out by coculturing *C. hathewayi* with normal or cancerous human colon epithelial cells: NCM460, HT-29, and Caco-2. Effect of *C. hathewayi* on host protein expression level was analyzed by western analysis and flow cytometry. The AOM-mice model was further employed to determine the effect of *C. hathewayi* on CRC development *in vivo*. Intestinal tissues and blood were harvested for biochemical and histological analyses. **Results:** *C. hathewayi* was demonstrated to upregulate the production of cell proliferation-related proteins *in vitro*, including proliferating cell nuclear antigen (PCNA) and Ki-67. In addition, animal study also showed an elevated Ki-67 production in *C. hathewayi* infected mice colon tissue by IHC staining (Fig. 1). **Conclusion:** Our results shed light on the direct effect of *C. hathewayi* in colorectal carcinogenesis. Gene expression profile will be further investigated by RNA-sequencing to fully investigate the association between *C. hathewayi* and CRC in a mechanistic context.

**Keywords:** carcinogenesis, *Clostridium hathewayi*, colorectal cancer, microbiota.

**Figure 1** Ki-67 immunohistochemical staining.

**Graph:** Ki-67 immunohistochemical staining

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OE-0985 (PP-0049) The impact of veterinary antibiotic residue in foods on obesity and antibiotic resistance through modulation of gut microbiota

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Affiliation: [1]Department of Internal Medicine, National Taiwan University Hospital, Bei-Hu Branch, and [2]Department of Internal Medicine, [3]Department of Institute of Food Science and Technology, National Taiwan University, Taipei, Taiwan

Background and Aim: The veterinary antibiotic had been used as a growth promoter for a long time in livestock husbandry. The early exposure of antibiotics was showed to have permanent impact on gut microbiota and might relate to childhood obesity. Besides, the seriousness of antibiotic resistant genes (ARG) spreading by veterinary antibiotic use is gaining attention. However, the potential risks of overweight and acquiring ARGs by consuming antibiotic residues in foods have not been addressed. Methods: We used early-life exposure model by treating mother mice with a veterinary antibiotic, tylosin during pregnancy, and continuously treated the offsprings until 20 weeks age. The offspring mice were separated into Control group and three tylosin dosage groups (Growth promoter, GP; Acceptable daily intake, ADI; theoretically maximal daily intake, TMDI). Each group was subgrouped into chow diet and high fat diet (HFD); 16S rRNA gene sequencing of mice feces were performed in NGS platform. The body composition and metabolic profiles as well as fecal ARGs were measured. Results: The dosage of potential intake of dietary antibiotic residue are associated with enhanced obesity, insulin resistance, and steatohepatitis if mice were fed with HFD (Fig. 1). The impact of tylosin on gut microbiota composition and diversity had a dose-dependent relationship. However, the GP dose of tylosin used in livestock caused weight loss and increased ARGs in our mice model. Conclusion: Dietary veterinary antibiotic residue intake might be a potential risk to enhance childhood obesity in a high-fat dietary habit. Further population-based study is required to address this health issue.

Keywords: antibiotic residue, antibiotic resistance gene, gut microbiota, obesity, tylosin.

Figure 1

OE-0740 (PP-0050) Overlapping functional GI disorders (FGID) and new-onset constipation associated with more GI symptom severity in FGID patients during hospitalization

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Affiliation: Departments of [1]Medicine, King Chulalongkorn Memorial Hospital, Thai Red Cross Society and Center of Excellence in Neurogastroenterology and Motility, Faculty of Medicine, [2]Internal Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

Background and Aim: Effects of FGID on GI symptom severity in hospitalized patients have not clearly demonstrated. Methods: Consecutive 200 hospitalized patients were prospectively evaluated. Rome IV was used for diagnosis of functional dyspepsia (FD), functional constipation (FC), and irritable bowel syndrome (IBS). Preadmission and in-hospital (at day 3) GI symptoms, and hospital anxiety and depression scale were compared between FGID and non-FGID. Results: Ninety-two patients (46%) had FGID (FD = 74, IBS = 31, overlapping FD, FC or IBS = 26, FC = 13). At preadmission, FGID patients had more global GI symptoms severity (GSS) and higher prevalence of depression than non-FGID (Table). At day-3 of admission, 62% of non-FGID patients had >20% increase of GSS score whereas 35.1% of FGID patients had >20% GSS score improvement. Patients with overlapping-FGID had higher GSS score than patients with one FGID, 6.6 ± 3.0 vs 3.9 ± 2.9. Conclusions: FGID associated with more depression and more severe overall GI symptoms especially patients with overlapping-FGID and those with newly developed constipation. The GI symptoms severity that not improved during admission suggested of unrecognized or ineffective treatment of GI problems in hospitalized patients.

Keywords: constipation, functional gastrointestinal disorders, hospitalization.

FGID versus non-FGID characteristics

<table>
<thead>
<tr>
<th></th>
<th>FGID N=92 (46%)</th>
<th>Non-FGID N=108 (54%)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year), mean±SD</td>
<td>59.4±11.6</td>
<td>54.4±15</td>
<td>0.99</td>
</tr>
<tr>
<td>Gender, MF</td>
<td>53±39</td>
<td>59±49</td>
<td>0.67</td>
</tr>
<tr>
<td>Underlying disease, n(%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Hypertension</td>
<td>54(59%)</td>
<td>51(47%)</td>
<td>0.11</td>
</tr>
<tr>
<td>· Coronary artery disease</td>
<td>23(25%)</td>
<td>15(14%)</td>
<td>0.05</td>
</tr>
<tr>
<td>· Diabetes</td>
<td>38(41%)</td>
<td>38(35%)</td>
<td>0.37</td>
</tr>
<tr>
<td>· Cerebrovascular disease</td>
<td>5(5%)</td>
<td>4(4%)</td>
<td>0.37</td>
</tr>
<tr>
<td>In-admission medication, n(%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Opioids</td>
<td>10(10.9%)</td>
<td>9(3.8%)</td>
<td>0.63</td>
</tr>
<tr>
<td>· Diuretics</td>
<td>9(9.8%)</td>
<td>10(9.3%)</td>
<td>1</td>
</tr>
<tr>
<td>· Iron</td>
<td>9(9.8%)</td>
<td>7(6.5%)</td>
<td>0.44</td>
</tr>
<tr>
<td>· Calcium channel blockers</td>
<td>13(14.7%)</td>
<td>10(9.3%)</td>
<td>0.37</td>
</tr>
<tr>
<td>· Psychiatric agents</td>
<td>5(5.4%)</td>
<td>10(9.3%)</td>
<td>0.42</td>
</tr>
<tr>
<td>· Laxatives</td>
<td>3(3.3%)</td>
<td>8(7.4%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Preadmission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Global GI symptoms, VAS 0-10</td>
<td>5.6±2.3</td>
<td>1.5±2.6</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>· Depression (HADS &gt;8), n(%)</td>
<td>31(34%)</td>
<td>19(18%)</td>
<td>0.01</td>
</tr>
<tr>
<td>· Anxiety (HADS&gt;8), n(%)</td>
<td>11(12%)</td>
<td>11(10%)</td>
<td>0.69</td>
</tr>
<tr>
<td>In-admission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Global GI symptoms, VAS 0-10</td>
<td>4.7±2.9</td>
<td>2.4±2.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>· Depression (HADS &gt;8), n(%)</td>
<td>52(57%)</td>
<td>39(36%)</td>
<td>0.004</td>
</tr>
<tr>
<td>· Anxiety (HADS&gt;8), n(%)</td>
<td>29(32%)</td>
<td>24(22%)</td>
<td>0.14</td>
</tr>
</tbody>
</table>
EE-0038 (PP-0052) Prevalence of *Helicobacter pylori* in Eastern province Mongolia

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**Affiliation:** Department of Internal Medicine-GI/Hepatology, Dornod Medical Center, Choibalsan, Mongolia

**Background and Aim:** *Helicobacter pylori* infection has been recognized as one of the most common chronic bacterial infections in humans and associated with peptic ulcer disease, gastric adenocarcinoma. The overall prevalence varies globally from one geographical region to another with occurs mainly in developing countries. Mongolia has not only prevalence *H. pylori* infection but also the second highest incidence gastric cancer globally. **Methods:** We performed prospective study from May 2017 until May 2018. Screening was conducted at Eastern province Mongolia on a randomly group, representing child and adult population. We examined the prevalence of *H. pylori* infection using by enzyme-linked immunosorbent assay test. The R statistical software package was used for all statistical analyses. **Results:** A total of 878 patients were enclosed to this study including 679 adults and 199 children. Mean age was 43 years of adult, men were 235, and women were 444. Mean age was of children 8 years, men were 85, and women were 114; 83.5% (567/679) of adult were positive and 76% (153/199) of children were positive for *H. pylori*. **Conclusion:** We concluded that *H. pylori* infection is a high prevalence both adults and children in Eastern province, Mongolian. **Keywords:** Eastern province Mongolia, *Helicobacter pylori*, prevalence.

EE-0380 (PP-0053) The role of migration inhibitory factor (MIF) in *H. pylori* infection and gastric cancer development

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**Background and Aim:** Epidemiological studies report that gastric cancer is one of the most common cancers worldwide and is also the second leading cause of cancer-related mortality. The poor prognosis of gastric cancer may be partly attributed to the complicated molecular networks operating the aggressiveness of gastric cancer. *Helicobacter pylori* (*H. pylori*) infection will increase the incidence of gastric cancer (GC). Here, we will investigate the expression of macrophage migration inhibitory factor (MIF) in *H. pylori*-infected human gastric cells, and the role of MIF in cell motility and sphere formation in human gastric cancer cells. **Methods:** We analyze the MIF in the human gastric cancer cells that are infected by *H. pylori*. The motility of gastric cancer cells was measured using modified Boyden chambers with filter inserts for 24-well dishes containing 8-mm pores. The sphere formation of gastric cancer cells also was observed. Recombinant MIF protein was used to measure the effect on motility and sphere formation in gastric cancer cells. **Results:** The results from human cytokine arrays showed that *H. pylori*-infected human gastric cancer cells notably express MIF protein. Treatment of recombinant MIF confirmed the role of MIF in upregulating cell motility and sphere formation. **Conclusion:** These results suggest that MIF induces motility and sphere formation in human gastric cancer cells. **Keywords:** gastric cancer, *H. pylori* infection, MIF.

Authors: KHIEN VAN VU; THANG MINH DUONG; TRANG THI HUYEN TRAN; DUAT QUANG NGUYEN; KHANH HONG PHAM; HA THUY DANG; BINH THANH TRAN; DUNG QUY DANG HO; YAMAOKA YOSHIO

Affiliation: Department of GI Endoscopy, 108 Central Hospital, Hanoi, Vietnam

Background and Aim: Antibiotic resistance is the most important factor leading to the failure of eradication regimens. This review focuses on the prevalence of Helicobacter pylori primary and secondary resistance to clarithromycin, metronidazole, amoxicillin, levofloxacin, tetracycline, and multidrug in Vietnam. Methods: We searched the PubMed, EMBASE, the Vietnamese National Knowledge Infrastructure, and Vietnamese Biomedical databases from January 2000 to December 2016. The search terms included the following: H. pylori infection, antibiotic (including clarithromycin, metronidazole, amoxicillin, levofloxacin, tetracycline, and multidrug) resistance in Vietnam. The data were summarized in extraction table and analyzed manually. Finally, Excel 2007 software was used to draw charts. Results: Ten studies (3 studies in English and 7 in Vietnamese) were included in this review. A total of 308, 412, 523, 408, 399, and 268 H. pylori strains were included in this review to evaluate the prevalence of H. pylori primary resistance to amoxicillin, clarithromycin, metronidazole, levofloxacin, tetracycline, and multidrug resistance, respectively. Overall, the primary resistance rates of amoxicillin, clarithromycin, metronidazole, levofloxacin, tetracycline, and multidrug resistance were 15.0%, 34.1%, 69.4%, 27.9%, 17.9%, and 48.8%, respectively. Secondary resistance rates of amoxicillin, clarithromycin, metronidazole, levofloxacin, tetracycline, and multidrug resistance were 9.5%, 74.9%, 61.5%, 45.7%, 23.5%, and 62.3%, respectively. Conclusion: In Vietnam, primary and secondary resistance to H. pylori is increasing over time and affects the effectiveness of H. pylori eradication. Keywords: Helicobacter pylori.

EP-0132 (PP-0055) Risk of overall mortality after Helicobacter pylori treatment in patients with hypertension

Authors: YOUNG-IL KIM[1]; YOUNG AE KIM[2]; JANG WON LEE[3]; HAK JIN KIM[4]; SU-HYUN KIM[5]; JIN IL KIM[6]; JAE J KIM[7]; IL JU CHO[1]

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Background and Aim: A recent meta-analysis in the general population trials suggested overall mortality might be increased after H. pylori eradication despite a decrease in gastric cancer incidence and mortality. This study investigated whether the overall mortality is increased after the H. pylori treatment in patients with hypertension, who might have higher cardiovascular death risk than in general population. Methods: We used the database of Korean National Health Insurance Service-National Sample Cohort, and a total of 198 462 hypertension patients were selected between January 2002 and December 2010. Of these, 5541 patients who received H. pylori eradication therapy (Hp-treatment group) were matched to patients who did not (control group) at a 1:2 ratio. The primary outcome was overall mortality. The secondary outcomes were mortalities due to cardiovascular disease, cerebrovascular disease, and overall cancer. Outcomes were evaluated from 6 months after H. pylori treatment to December 2013. Results: In the matched cohort, the male proportion was 55.2% and proportion of person older than 60 years was 28.6%. During median follow-up periods of 4.8 years (interquartile range, 2.6–7.3 years), death was reported in 229 patients (4.1%) in the Hp-treatment group and 608 (5.5%) in the control group. Overall mortality was significantly lower in the Hp-treatment group than in the control group (adjusted hazard ratio [aHR] for overall mortality in the Hp-treatment group, 0.70; P < 0.001). According to the cause of mortality, Hp-treatment group had significantly lower risk of mortality due to cerebrovascular disease mortality (aHR, 0.46; P = 0.008) as compared with the control group. However, mortalities due to overall cancer (aHR, 0.75; P = 0.0502) and cardiovascular disease (aHR, 0.96; P = 0.887) were not different in both groups. Conclusion: H. pylori treatment seems not be associated with an increase in overall mortality or cardiovascular mortality in patients with hypertension. Keywords: Helicobacter pylori treatment, hypertension, mortality.
OE-0127 (PP-0056) Efficacies of genotypic resistance-guided versus empirical therapy for refractory Helicobacter pylori infection: A randomized controlled trial

Authors: JYH-MING LIOU[1]; PO-YUEH CHEN[2]; JIANG-CHUAN LUO[3]; YO-JIYU LEE[4]; YU-JEN FANG[4]; TSUNG-HUA YANG[4]; CHI-YANG CHANG[7]; MING-JONG BAIR[5]; JAW-TOWN LIN[7]; EMAD M EL-OMAR[6]; MING-SHIANG WU[1]

Affiliations: [1]Department of Internal Medicine-GI/Hepatology, National Taiwan University Hospital, National Taiwan University College of Medicine; [2]Department of Internal Medicine-GI/Hepatology, Chia-Yi Christian Hospital, Chia-Yi, Taiwan; [3]Department of Internal Medicine-GI/Hepatology, National Taiwan University Hospital, Yun-Lin Branch, Yun-Lin, and [7]Department of Internal Medicine-GI/Hepatology, School of Medicine, Fu Jen Catholic University, New Taipei City, and [5]Department of Internal Medicine-GI/Hepatology, Mackay Memorial Hospital, Taitung Branch, Taitung, Taiwan and Mackay Medical College, New Taipei City, Taiwan; and [6] Department of Internal Medicine, St George and Sutherland Clinical School, University of New South Wales, Sydney, Australia

Background and Aim: We aimed to compare the efficacy of genotypic resistance-guided therapy versus empirical therapy for eradication of refractory H. pylori infection in randomized controlled trials. Methods: We performed two multicenter, open-label, trials of patients with H. pylori infection (20 years or older) failed by two or more previous treatment regimens, from Oct 2012 through Sep 2017 in Taiwan. The patients were randomly assigned to groups given genotypic resistance-guided therapy for 14 days (n = 21) in trial 1, n = 205 in trial 2) or empirical therapy according to medication history for 14 days (n = 20 in trial 1, n = 205 in trial 2). Patients received sequential therapy containing esomeprazole and amoxicillin for the first 7 days, followed by esomeprazole and metronidazole, with either levofloxacin, clarithromycin, or tetracycline (doxycycline in trial 1, tetracycline in trial 2), for another 7 days (all given twice daily) based on genotype markers of resistance, determined from gastric biopsy specimens (group A) or empirical therapy according to medication history. Resistance-associated mutations, in 23S rRNA or gyrA A, were identified by PCR with direct sequencing. Eradication status was determined by13C-urea breath test. The primary outcome was eradication rate. Results: H. pylori infection was eradicated in 17/21 patients receiving genotype resistance-guided therapy (81%) and 12/20 patients receiving empirical therapy (60%) (P = 0.181) in trial 1. This trial was terminated ahead of schedule due to the low rate of eradication in patients given doxycycline sequential therapy (15/26, 57.7%). In trial 2, H. pylori infection was eradicated in 160/205 patients receiving genotype resistance-guided therapy (78%) and 148/205 patients receiving empirical therapy 72.2% (P = 0.170), according to intent to treat analysis. The frequencies of adverse effects and compliance did not differ significantly between groups. Conclusion: Properly designed empirical therapy, based on medication history, is an acceptable alternative to genotypic resistance-guided therapy for eradication of refractory H. pylori infection after consideration of accessibility, cost, and patient preference.

Keywords: empirical, gyrase A, H. pylori, refractory, 23S rRNA.

OE-0289 (PP-0057) Discriminating subjects with past Helicobacter pylori infection among seronegative and unimpaired gastric secretary ability

Authors: HYUNGYUNG KWON; SUN-YOUNG LEE; SANG PYO LEE; JEONG HWAN KIM; IN-KYUNG SUNG; HYUNG SEOK PARK; CHAN SUP SHIM

Affiliation: Department of Internal Medicine-GI/Hepatology, Konkuk University Medical Center, Seoul, South Korea

Background and Aim: It is difficult to distinguish seroreversed individuals with past Helicobacter pylori infection among seronegative subjects, if the gastric secretary ability is unimpaired. This study aimed at determining the proportion of seroreversed subjects among seronegative Koreans. Methods: Seronegative Koreans who underwent serum anti-H. pylori IgG and serum pepsinogen (PG) assays on the day of endoscopy were included. As per ABC classification, group D seronegative subjects with gastric corpus atrophy were excluded. Group A seronegative subjects without gastric corpus atrophy was further divided into three groups: (i) true group A without past infection, (ii) pseudo group A1 after H. pylori eradication, and (iii) pseudo group A2 with abnormal endoscopic findings (xanthoma, metaplasia, or advanced atrophy) without past eradication, suggesting spontaneous regression. Results: After excluding 70 group D subjects from 2690 seronegative subjects, 448 (17.1%) and 133 (5.1%) were classified into pseudo group A, respectively. Differences were observed among the groups in age (P < 0.001), gender (P < 0.001), smoking (P < 0.001), hypertension (P = 0.004), and serum PG II level (P = 0.005). Of these variables, age was an independent risk factor (OR = 1.057, 95% CI = 1.044–1.069) for classification into pseudo A group, with a cut-off value of 49.5 years of age (AUC = 0.661, 95% CI = 0.638–0.685). Conclusion: Among the seronegative Koreans with unimpaired gastric secretary ability, 22.2% belonged to pseudo group A. Before classifying seronegative subjects into group A, subjects older than 49.5 years should be checked for past infection.

Keywords: age, Helicobacter pylori, pepsinogen, seronegative.

Comparison between true group A

<table>
<thead>
<tr>
<th>Variables</th>
<th>All seronegative subjects (n=2660)</th>
<th>Subjects without evidence of previous H. pylori infection (n=2639)</th>
<th>Subjects with a history of successful eradication (n=446)</th>
<th>Subjects with endoscopy finding suggesting past infection (n=133)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (year-old)</td>
<td>15.9 ± 11.3</td>
<td>14.5 ± 11.3</td>
<td>15.4 ± 9.7</td>
<td>15.7 ± 9.7</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Gender (male)</td>
<td>1.041</td>
<td>1.010 (1.00%0</td>
<td>2.2 (7.3%)</td>
<td>1.308</td>
<td>0.181</td>
</tr>
<tr>
<td>Cigarette smoking</td>
<td>0.181</td>
<td>Current smoker</td>
<td>42%</td>
<td>32%</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>0.685</td>
<td>Past smoker</td>
<td>52%</td>
<td>54%</td>
<td>0.685</td>
</tr>
<tr>
<td></td>
<td>0.004</td>
<td>Non-smoker</td>
<td>44%</td>
<td>30%</td>
<td>0.004</td>
</tr>
<tr>
<td>Alcohol drinking</td>
<td>0.694</td>
<td>Heavy drinker*</td>
<td>81%</td>
<td>88%</td>
<td>0.694</td>
</tr>
<tr>
<td></td>
<td>0.333</td>
<td>Social drinker</td>
<td>94%</td>
<td>93%</td>
<td>0.333</td>
</tr>
<tr>
<td></td>
<td>0.300</td>
<td>Non-drinker</td>
<td>25%</td>
<td>22%</td>
<td>0.300</td>
</tr>
<tr>
<td>Hypertension</td>
<td>0.004</td>
<td>365 (27.8%)</td>
<td>162 (22.8%)</td>
<td>28 (33.3%)</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>0.315</td>
<td>Diabetic mellitus</td>
<td>3%</td>
<td>3%</td>
<td>0.315</td>
</tr>
<tr>
<td></td>
<td>0.500</td>
<td>Coronary heart disease</td>
<td>8%</td>
<td>8%</td>
<td>0.500</td>
</tr>
<tr>
<td></td>
<td>0.403</td>
<td>Cerebrovascular attack</td>
<td>14%</td>
<td>16%</td>
<td>0.403</td>
</tr>
<tr>
<td></td>
<td>0.100</td>
<td>Angina</td>
<td>17%</td>
<td>17%</td>
<td>0.100</td>
</tr>
<tr>
<td></td>
<td>0.690</td>
<td>MI</td>
<td>1%</td>
<td>1%</td>
<td>0.690</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>NOSAD</td>
<td>2%</td>
<td>2%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>0.100</td>
<td>Serum anti-H. pylori IgG</td>
<td>0.630</td>
<td>0.420</td>
<td>0.230</td>
</tr>
<tr>
<td></td>
<td>0.333</td>
<td>V62 (mm/ml)</td>
<td>5.38 ± 1.55</td>
<td>5.27 ± 1.35</td>
<td>6.28 ± 1.01</td>
</tr>
<tr>
<td></td>
<td>0.685</td>
<td>Urine</td>
<td>5.22 ± 2.21</td>
<td>5.18 ± 2.21</td>
<td>5.42 ± 2.54</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>PG I (mg/ml)</td>
<td>5.29 ± 2.43</td>
<td>4.9 ± 2.43</td>
<td>4.7 ± 2.43</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>PG II ratio</td>
<td>6.3 ± 2.43</td>
<td>6.4 ± 2.43</td>
<td>6.2 ± 2.43</td>
</tr>
</tbody>
</table>

*Age, gender, and smoking status were independently associated with past infection.
OE-0319 (PP-0058) Helicobacter pylori eradication with bismuth quadruple therapy leads to dysbiosis of gut microbiota with an increased relative abundance of Proteobacteria and decreased relative abundances of Bacteroidetes and Actinobacteria

Author: PING-I HSU
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Background and Aim: Bismuth quadruple therapy is the treatment of choice for the first-line therapy of H. pylori infection in areas of high clarithromycin resistance. The study aimed to investigate the short-term and long-term impacts of bismuth quadruple therapy on gut microbiota.

Methods: Adult patients with H. pylori-related gastritis were treated with 14-day bismuth quadruple therapy. Fecal samples were collected before treatment and at week 2, week 8, and week 48. Nucleic acid extraction from fecal samples was performed. The V3–V4 region of the bacterial 16S rRNA gene was amplified by PCR and sequenced with the MiSeq followed by data analysis.

Results: Eleven patients received complete follow-up. Before treatment, the most abundant phyla were Firmicutes (45.3%), Bacteroidetes (24.3%), Proteobacteria (9.9%), and Actinobacteria (5.0%). At the end of therapy, the relative abundances of Bacteroidetes and Actinobacteria decreased to 0.5% (P < 0.001) and 1.3% (P = 0.038), respectively. In contrast, the relative abundances of Proteobacteria and Cyanobacteria increased (P < 0.001 and P = 0.003, respectively). At week 8 and week 48, the relative abundances of all phyla restored to the levels at baseline. During eradication therapy, the relative abundance of phylum Proteobacteria in patients with adverse effects was more than that in patients without adverse effects (68.7% ± 8.8% vs 43.4% ± 25.5%; P = 0.048).

Conclusion: Bismuth quadruple therapy for H. pylori eradication can lead to dysbiosis of gut microbiota. The increase of Proteobacteria in gut microbiota may attribute to the development of adverse effects.

Keywords: bismuth quadruple therapy, dysbiosis, Helicobacter pylori, microbiome, microbiota.

Figure 1

OE-0339 (PP-0059) Modified amoxicillin triple therapy versus standard triple therapy for eradication of Helicobacter pylori infection: A randomized control trial

Authors: DENNIS FRANCO FERNANDEZ; JOSE DECENA SOLLANO
Affiliation: Department of Gastroenterology, University of Santo Tomas Hospital, Manila, Philippines

Background and Aim: Helicobacter pylori (H. pylori) infection has a role in the pathogenesis of chronic gastritis, ulcer disease, and gastric malignancies. Amoxicillin standard triple therapy (STT) remains the usual care in most of the countries for H. pylori infection, achieving 70–85% eradication. The aim of this study is to determine the effect of a modified (500-mg QID) dosing of amoxicillin (MTT) in the eradication rates of H. pylori.

Methods: Ninety (90) subjects were included in the study. Inclusion criteria were symptomatic patients seen in multiple tertiary institutions who tested positive for H. pylori either by rapid urease test, stool antigen, or by giemsa staining. Patients with active recent PPI and NSAID use, active gastrointestinal bleeding, and those who did not consent were excluded from the study.

Results: The eradication rate of each therapy was evaluated by intention-to-treat (ITT) and per-protocol (PP) analyses. Z-test for proportions was performed to compare the percentage of success rates of H. pylori eradication as well non-compliance and adverse effects. Eighty-five (84.6%) percent eradication rate of H. pylori was achieved with MTT (compared to 71.05% in STT) was significant with a P value of 0.0386. Lower adverse effect profile (45.5% vs 69.7% P value 0.0274) and higher compliance rate (88.63% vs 82.6% P value 0.0441) was also noted with MTT.

Conclusion: Modified triple therapy dosing for amoxicillin leads to higher eradication rates for H. pylori infection well as a lower adverse effect profile and higher overall compliance rates compared to the standard dosing.

Keywords: amoxicillin, Helicobacter pylori infection, rapid urease testing.

Table 1 Outcomes of therapy

<table>
<thead>
<tr>
<th>Eradication Rate</th>
<th>Standard Triple Therapy</th>
<th>Modified Triple Therapy</th>
<th>z-test</th>
<th>p-value (Two-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention-to-Treat</td>
<td>31/46 (67.39%)</td>
<td>34/44 (77.27%)</td>
<td>-1.05</td>
<td>0.2955</td>
</tr>
<tr>
<td>Per-Protocol</td>
<td>27/38 (71.05%)</td>
<td>33/39 (84.62%)</td>
<td>-2.07</td>
<td>0.0386*</td>
</tr>
<tr>
<td>Adverse Events</td>
<td>32/46 (69.57%)</td>
<td>20/44 (45.45%)</td>
<td>2.21</td>
<td>0.0274*</td>
</tr>
<tr>
<td>Compliance</td>
<td>38/46 (82.60%)</td>
<td>39/44 (88.63%)</td>
<td>-2.01</td>
<td>0.0441*</td>
</tr>
</tbody>
</table>

*Significant at ≤ 0.05 level
†Significant at ≤ 0.01 level
OE-0340 (PP-0060) The microbiota regulates bone marrow-derived mesenchymal stem cells in gastrointestinal cancer
Authors: HUIYING SHI; CHAOQUN HAN; MENGKE FAN; LIANLIAN CUI; LINGJUN MENG; ZHEN DING; WEI QIAN; XIAOHUA HOU; RONG LIN
Affiliation: Department of Gastroenterology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

Background and Aim: The microbiota has been reported to be associated with gastrointestinal cancer. Bone marrow-derived mesenchymal stem cells (BM-MSCs) can promote gastrointestinal cancer progression. However, the underlying effect of the microbiota on BM-MSCs in gastrointestinal cancer progression remains unknown. Methods: To establish the model of chronic Helicobacter pylori (H. pylori) infection-BM-MSCs transplantation model in APCMin/+ mice. Results: Here, we investigated that the local BM-MSCs transplantation significantly promoted the incidence of dysplasia and gastric cancer in mice with a 52-week mouse-adapted H. pylori infection. H. pylori pretreated BM-MSCs injection, but not untreated BM-MSCs alone, initiated the tumor growth and Ki-67 expression of gastric carcinogenesis in nude mice. H. pylori infection accelerated the proliferation and migration in BM-MSCs. Compared with mice infected with H. pylori alone, the Wnt/β-catenin signaling was dramatically activated in mouse stomachs with chronic H. pylori infection-BM-MSCs transplantation model in APCMin/+ mice. Conclusion: Together, these findings implicate local BM-MSCs transplantation promotes gastric carcinogenesis in a mouse model of chronic H. pylori infection. BM-MSCs have the potential to accelerate F. nucleatum-induced colorectal tumorigenesis by modulating the tumor microenvironment and further promoting the activation of tumorigenesis by related Wnt pathway. In all, specific microbiota can promote gastrointestinal cancer through BM-MSCs.

Keywords: bone marrow-derived mesenchymal stem cells, colorectal cancer, gastric cancer, Helicobacter pylori, microbiota.

OE-0422 (PP-0061) Association of Helicobacter pylori infection with fatty liver infiltration in dyspeptic patients
Authors: BASIT SIDDIQUI; RABEEA AZMAT; ZAIGHAM ABBAS
Affiliation: Department of Medicine, Aga Khan University Hospital, Karachi, Pakistan

Background and Aim: Fatty liver is a common finding on ultrasound of the liver reveals increased echogenicity and represents the intramytoplasmatic accumulation of triglycerides (TGs) as small vacuoles in hepatocytes. It can be alcoholic or non-alcoholic attributed to obesity or metabolic syndrome, that is, non-alcoholic fatty liver disease (NAFLD). The prevalence of “fatty liver” in Asia ranges from 12–24%. Presence of obesity, type II diabetes, high TGs, and low HDL have strong association with NAFLD. Methods: In this cross-sectional study, patients underwent investigations for H. pylori infection. Body mass index (BMI) was calculated. Normal BMI was up to 22.9 and abnormal 23 and greater. Data were collected for age, gender, smoking, alcohol intake, hypertension, type II diabetes, ischemic heart disease, and dyslipidemia. Ultrasound liver diagnosed fatty liver infiltration. Results: Six hundred ninety-eight patients were enrolled with mean age 44 ± 16. Male were 373 (53%). H. pylori infection was positive in 399 (57%). Fatty liver was documented in 153 (22%). In H. pylori infection, liver fatty infiltration was positive in 31–50 years 31 (35%) and in 51–65 years 37 (42%) and fatty infiltration was absent in 127 (41%) and 88 (28%) (P < 0.001) in these groups, respectively. In patients with H. pylori infection, BMI greater than 23, liver fatty infiltration was seen as in the table along with others. Conclusion: H. pylori infection was associated with an early onset of fatty liver infiltration in the 30- to 50-year age group. Patients with a BMI greater than 23, type 2 diabetes and dyslipidemia with H. pylori infection predisposed to fatty liver.

Keywords: BMI > 23, fatty liver, H. pylori, type II diabetes.

Table showing association H. P and FattyL

<table>
<thead>
<tr>
<th>Age (year)</th>
<th>H. pylori positive (n=399)</th>
<th>H. pylori negative (n=200)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Negative</td>
<td>Positive</td>
</tr>
<tr>
<td>18-30</td>
<td>5(6)</td>
<td>76(25)</td>
</tr>
<tr>
<td>31-50</td>
<td>31(35)</td>
<td>127(41)</td>
</tr>
<tr>
<td>51-60</td>
<td>37(42)</td>
<td>86(28)</td>
</tr>
<tr>
<td>65 and &gt;</td>
<td>15(17)</td>
<td>23(7)</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
<td>43(47)</td>
<td>168(54)</td>
</tr>
<tr>
<td>Female</td>
<td>47(53)</td>
<td>143(46)</td>
</tr>
<tr>
<td>BMI</td>
<td>Upper 23</td>
<td>4(4)</td>
</tr>
<tr>
<td></td>
<td>23 and &gt;</td>
<td>84(96)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>Positive</td>
<td>55(59)</td>
<td>20(3)</td>
</tr>
<tr>
<td>Negative</td>
<td>45(48)</td>
<td>84(38)</td>
</tr>
<tr>
<td>Type 2 Diabetes</td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>Positive</td>
<td>46(52)</td>
<td>27(5)</td>
</tr>
<tr>
<td>Negative</td>
<td>43(48)</td>
<td>84(38)</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>Positive</td>
<td>47(53)</td>
<td>25(5)</td>
</tr>
<tr>
<td>Negative</td>
<td>45(47)</td>
<td>20(4)</td>
</tr>
<tr>
<td>Ischemic Heart Disease</td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>Positive</td>
<td>33(37)</td>
<td>19(4)</td>
</tr>
<tr>
<td>Negative</td>
<td>56(63)</td>
<td>22(4)</td>
</tr>
<tr>
<td>Histology</td>
<td>Gastritis</td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>38(44)</td>
<td>18(3)</td>
</tr>
<tr>
<td>Moderate</td>
<td>46(52)</td>
<td>12(2)</td>
</tr>
<tr>
<td>Severe</td>
<td>62(71)</td>
<td>20(4)</td>
</tr>
</tbody>
</table>

Keywords: BMI > 23, fatty liver, H. pylori, type II diabetes.
OE-0548 (PP-0062) Online registry for nationwide database of current trend of Helicobacter pylori eradication in Korea: Correlation of the density of antibiotics usage with eradication success

Authors: BEOM JIN KIM[1]; CHANG-HUN YANG[2]; HYUN JOO SONG[3]; SEONG WOO JEON[4]; GWANG HA KIM[5]; HYUN-SOO KIM[6]; TAE HO KIM[7]; KI-NAM SHIM[8]; IL-KWUN CHUNG[9]; MOO IN PARK[10]; IL JU CHOI[11]; JI HYUN KIM[12]; BYUNG-WOOK KIM[13]; GWANG HO BAIK[14]; SOK WON HAN[7]; HYANG EUN SEO[15]; WOON TAE JUNG[16]; JUNG HWAN OH[17]; SANG GYUN KIM[18]; JAE G KIM[1]; KOREAN COLLEGE OF HELICOBACTER AND UPPER GASTROINTESTINAL RESEARCH

Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Chung-Ang University Hospital, Seoul, [2]Department of Internal Medicine-GI/Hepatology, Dongguk University College of Medicine Gyeongju Medical School, Gyeongju, [3]Department of Internal Medicine-GI/Hepatology, Jeju National University School of Medicine, Jeju, [4]Department of Internal Medicine-GI/Hepatology, Kyungpook National University Medical Center, Daegu, [5]Department of Internal Medicine-GI/Hepatology, Pusan National University Hospital, Busan, [6]Department of Internal Medicine-GI/Hepatology, Chonnam National University Hospital, Gwangju, Departments of [7]Internal Medicine-GI/Hepatology, Bucheon St. Marys Hospital, College of Medicine, Bucheon, [8]Department of Internal Medicine-GI/Hepatology, Ewha Womans University Mokdong Hospital, Seoul, [9]Department of Internal Medicine-GI/Hepatology, Soon Chun Hyang University Cheonan Hospital, Cheonan, [10]Department of Internal Medicine-GI/Hepatology, Kosin University Gospel Hospital, Busan, [11]Department of Center for Gastric Cancer, National Cancer Center, Gyeonggi, and [12]Department of Internal Medicine-GI/Hepatology, Pusan Paik HospitalInje University College of Medicine, Busan, [14]Department of Internal Medicine, Hallym University College of Medicine, Seoul, [17]Department of Internal Medicine, St. Paul's Hospital, College of Medicine, The Catholic University of Korea, Departments of [18]Internal Medicine and Liver Research Institute, [20]Preventive Medicine, Seoul National University College of Medicine, [19]Department of Medicine, Samsung Medical Center, Sungkyunkwan University School of Medicine, [21]Department of Biomedical Science, Seoul National University Graduate School, and [22]Cancer Research Institute, Seoul National University, Seoul, [15]Department of Internal Medicine, Daegu Fatima Hospital, Daegu, [16]Department of Internal Medicine, Gyeongsang National University School of Medicine, Jinju, South Korea

Methods: A total of 9318 patients with H. pylori eradication therapy from 49 hospitals were enrolled through “on-line database registry” from October 2010 to July 2015. Demographic data, detection methods, treatment indication, regimens, durations, compliance, adverse events, and eradication results were collected. The usage of all commercially available eradication antibiotics was analyzed through the Korean national health insurance data of the Health Insurance Review and Assessment Service (HIRA). The defined daily dose of antibiotics was used to standardize the comparison of drug usage. Results: Among them, 6738 patients were finally analyzed. Eradication success rate of first-line therapy was 71.8% (Figure). The most common first-line therapy regimen was standard triple therapy (STT) for 7 days. The eradication success rates were 71.5% in STT, 86.9% in quadruple therapy, and 74.0% in concomitant therapy. The overall usage of eradication antibiotics increased while the eradication rate steadily decreased during the period. However, there was no significant correlation between eradication success and density of antibiotics usage. Conclusion: Our data show a decreased eradication rate of H. pylori with increasing antibiotic usage, suggesting that a novel therapeutic strategy is warranted to improve the efficacy of first-line treatment for H. pylori infection in Korea.

Keywords: antibiotic usage, eradication success, first-line therapy, Helicobacter pylori, on-line registry.

Figure Overall eradication results

OE-0780 (PP-0063) 14-Day bismuth high dose dual therapy is a robust second-line rescue therapy of H. pylori infection

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Affiliation: Department of Medicine, University of Malaya, Kuala Lumpur, Malaysia

Background and Aim: The clarithromycin resistance rate is increasing in this region as reflected by high failure rate after 1st line standard triple therapy. Treating this group of patients has proven to be challenging. This study is aimed to determine the effectiveness of two combination rescue therapies after failing 1st line eradation treatment. Methods: Consecutive patients who failed 1st line triple therapy were randomly assigned to groups given amoxicillin (Ospamox) 1 g q.i.d and lansoprazole (Dexilant) 60 mg b.i.d (HDDT) and amoxicillin (Ospamox) 1 g q.i.d, lansoprazole (Dexilant) 60 mg b.i.d and combination with bismuth subcitrate (De-Noltra) 240 mg b.i.d. (bismuth + HDDT). Total duration of treatment for both arms were 14 days. H. pylori status was determined by a C13 urea breath test performed at least 4 weeks post-treatment. Results: As an interim analysis, 57 patients have been recruited thus far. In the intention-to-treat and per-protocol analysis, H. pylori was eradicated in 87.1% (27/31) (95%CI: 71.5–94.87%) in the HDDT arm and 92.3% (24/26) (95% CI: 75.86–97.86%) in the bismuth + HDDT combination arm. (P value = 0.424) The treatments were well tolerated in both arms. Though some patients expressed inconvenience of multiple dosing time, none affected the overall adherence of treatment. Conclusion: Both 14-day high dose dual therapy and bismuth high dose dual combination therapy appears to be promising rescue therapies for H. pylori 1st line treatment failures. Though statistically not significant, we are particularly excited on the high eradication rate seen in the bismuth + HDDT combination arm. We await analysis on a larger sample population to confirm our preliminary findings described here.

Keywords: clarithromycin resistance, H. pylori, rescue therapy, treatment failure.
OE-0870 (PP-0064) Suspicous pathogenic bacteria with high affinity binding with IgA in the stomach

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Affiliation: Department of Peking University Third Hospital, Jinzhe Liu, China

Background and Aim: H. pylori may not be the only species that could colonize in the gastric mucosa, and the other potential pathogens may trigger gastric disease. IgA combines those bacteria that threaten to host, therefore identifying the IgA-coated bacteria can give an insight into the potential pathogens in the stomach. This study aim to investigate the IgA-coated gastric bacteria and its potential pathogenicity. Methods: Gastric juice specimens were collected, flow cytometer were used to separate the IgA positive and IgA negative bacteria in gastric juice. Gastric microbiota were strained with FITC-conjugated goat-anti-human-IgA antibody and isotype antibody (Abcam). Sorting of IgA+ and IgA− bacteria was performed by flow cytometer (BD Aria II ... φ). V4 region of 16S rDNA gene sequencing was performed by MiSeq sequencer (Illumina). IgA-coating index (ICI) was used to assess the affinity of bacteria with IgA. Results: The proportion of IgA positive bacteria was higher in atrophic gastritis juice (35.55% vs 23.15%). ICI of Rothia aeria and Rothia dentocariosa were as high as 19.2 and 18.2, respectively, while the ICI of H. pylori was about 6.8. And other species with a higher ICI than H. pylori were Streptococcus anginosus (8.6), Streptococcus infantis (7.9), and Prevotella melaninogenica (6.9). (Fig. 1) Conclusion: The high affinity of Rothia aeria, Rothia dentocariosa, Streptococcus anginosus, Streptococcus infantis, and Prevotella melaninogenica with IgA in the stomach indicates that they may be the potential pathogens in the stomach.

Keywords: chronic gastritis, gastric microbiota, Helicobacter pylori, IgA-sequence.

Figure 1 Heatmap of IgA coating index.

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<th>Species</th>
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<th>IgA-</th>
<th>ICI</th>
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Relative abundance (%) 0 ICI 20

EE-0054 (PP-0065) Efficacy of cumulative corticosteroid dose before the treatment with biologics on the outcome of UC patients: A retrospective multicenter experience

Authors: JUNKO KUMADA[1]; RYOHEI HAYASHI[1]; SAKIKO HIRAOKA[2]; SHUNJI ISHIHARA[3]; MANABU ISHIHARA[4]; TOMOKI INABA[5]; KENICHI TARUMI[6]; SHINICHI HASHIMOTO[7]; TOSHIYA OKAHTA[8]; KAZUO YASHIMA[9]; SHINJI TANAKA[1]; YOSHITAKA UENO[1]
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Background and Aim: Recently, biologics are widely used for steroid-refractory or dependent ulcerative colitis (UC). However, the relationship between the cumulative dose of corticosteroid (CS) and the response to anti-tumor necrosis factor (TNF-α) antibodies (biologics) remains unclear. We herein evaluated the prior dose or duration of CS use to predict the response to biologics. Methods: A retrospective multicenter study was conducted in nine Chugoku–Shikoku regional Japanese academic centers from August 2010 to December 2014, including all UC patients having received at least 1 month of biologics. Patients were monitored by clinical and laboratory examinations, and the data were recorded for 1 year. At week 52, patients who achieved a partial Mayo (pMayo) score of ≥2 with no individual subscore exceeding 1 were judged as responders. Results: Eighty-six patients (mean age 39.5 years; male:female ratio 58:28; mean disease duration 6.0 years; IFX:ADA ratio 69:17) were included. pMayo scores at week 8 were significantly lower in the responders of both IFX and ADA groups. Eighty-two patients (95.3%) had a history of CS usage before the treatment of biologics. The mean cumulative dose and period of CS before biologics were 6871 ± 7093 mg (0–222), respectively. There was no difference between the clinical remission at 52w and the dose/period of CS. Even the dose of CS for 1 month before the treatment with biologics did not influence the 52w-outcome. Conclusion: The effect of biologics on 54w-remission was not affected by the amount or period of prior CS use. Biologics could be considered even for the UC patients with prior heavy CS exposure.

Keywords: biologics, corticosteroid, UC.
EE-0065 (PP-0066) Clinical significance of granulomas in Crohn’s disease: A meta-analysis

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Background and Aim: Epithelioid granulomas are one of the histologic features of Crohn’s disease. However, the clinical significance of granulomas after diagnosis in Crohn’s disease is unclear. We performed a meta-analysis to evaluate the characteristics associated with granulomas and clinical significance of granulomas in Crohn’s disease. Methods: We searched the MEDLINE, EMBASE, and Cochrane databases for studies dated between January 1, 1960 and December 31, 2017. Inclusion criteria were the comparative studies that reported the clinical factors and outcomes depending on the presence or absence of granulomas in endoscopic biopsy or surgical specimen. A random-effects model was applied using the Mantel–Haenszel method. Heterogeneity among studies was assessed using Cochrane’s Q and $I^2$ statistics. Results: Twenty studies were included in this meta-analysis. The presence of granulomas in Crohn’s disease was associated with higher rates of manifestation of perianal disease (pooled OR, 2.47; 95% CI, 1.49–4.10; $P = 0.0004$), higher rates of disease involving both small and large bowel (pooled OR, 1.38; 95% CI, 1.10–1.74; $P = 0.005$), more hospitalization (pooled RR, 1.84; 95% CI, 1.09–3.11; $P = 0.02$), and more frequent use of biologic agents (pooled RR, 1.30; 95% CI, 1.01–1.66; $P = 0.04$). There was significant heterogeneity among the studies ($P = 0.07$, $I^2 = 52\%$). (Fig. 1.) Conclusion: This meta-analysis demonstrated that the clinical manifestations were significantly different according to the presence of granulomas in Crohn’s disease; it may indicate a more aggressive phenotype of Crohn’s disease.

Keywords: Crohn’s disease, granulomas, meta-analysis.

Figure 1 Clinical features.

EE-0104 (PP-0067) Dose medical acceleration improve outcomes in ulcerative colitis patients who are in clinical remission but have endoscopic inflammation?

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Affiliation: Department of Internal Medicine-GI/Hepatology, Severance Hospital, Seoul, South Korea

Background and Aim: Discrepancies between clinical symptoms and mucosal inflammation have been reported in up to 50% of patients with ulcerative colitis (UC). However, there are no guidelines and only limited information for appropriate treatment manipulation. We aimed to evaluate long-term outcomes according to treatment strategies and determine predictive factors for disease relapse in UC patients who are in clinical remission (CR) but still have endoscopic inflammation. Methods: A total of 204 patients who were confirmed as achieving CR but still had mucosal inflammation were included. CR was defined as “partial Mayo score ≤ 1” with no changes in medications or use of any corticosteroids during the past 3 months. An active mucosal lesion was defined as “endoscopic Mayo subscore ≥2.” Results: The mean patient age was 43.5 years, and 53.9% were male. The mean disease duration was 89.9 months. During a mean follow-up of 34 months, 90 patients (44%) experienced disease relapse. The cumulative relapse-free rate did not differ by treatment strategy (maintenance of current therapy vs dose elevation or step-up therapy). Multivariate analysis revealed that left-side colitis or pancolitis at diagnosis (OR, 2.10; 95% CI, 1.04–4.27; $P = 0.040$) and number of extraintestinal manifestations $\geq 2$ (OR, 5.62; 95% CI, 1.10–28.68; $P = 0.038$) were independent predictive factors for disease relapse. Conclusion: The current medical acceleration treatment strategy did not have a significant influence on the long-term outcomes of UC patients in CR but with active mucosal inflammation. Disease extent at diagnosis and extraintestinal manifestations were independently predictive of disease relapse.

Keywords: clinical remission, mucosal inflammation, relapse, ulcerative colitis.
EE-0163 (PP-0068) Increased risk of end-stage renal disease in metabolically healthy patients with Crohn’s disease: A nationwide population-based study

Authors: SEONA PARK[1]; JAEYOUNG CHUN[1]; KYUNGDO HAN[2]; HOSIM SOH[1]; KOOKHWAN CHOI[1]; JI HYE KIM[2]; JOOYOUNG LEE[4]; JONG PIL IM[1]; JOO SUNG KIM[1]

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Background and Aim: The association between end-stage renal disease (ESRD) and Crohn’s disease (CD) remains unclear. We investigated the risk of ESRD among patients with CD using a nationwide population-based claim data. Methods: We conducted a retrospective cohort study using data from the National Health Insurance (NHI), a mandatory health insurance program covering about 97% of the Korean population. From 2010 to 2013, patients with CD who were registered in the NHI data were identified through both ICD-10 codes (K50) and the rare/intractable disease registration program codes which provide co-payment reduction of up to 90% in Korea. We compared 12,585 CD patients with 37,755 non-CD age and sex-matched individuals with a ratio of 1:3. Patients who were newly diagnosed with ESRD were identified through ICD-10 code. The Kaplan–Meier method was used to estimate the cumulative probability of ESRD in patients with CD. Results: During a mean follow-up of 4.9 years, ESRD was detected in 31 (0.24%) of the patients with CD and 166 (0.06%) of the controls, respectively. The incidence rate (per 1000 person-years) of ESRD in patients with CD was 0.51, compared to 0.13 in controls (adjusted HR, 10.08; 95% CI, 3.28–30.97), compared to those with metabolic diseases (adjusted HR, 3.13; 95% CI, 1.65–5.92; P = 0.074 by interaction analysis). Conclusion: The risk of ESRD increased in patients with CD. Patients with CD should be monitored carefully for the development of renal insufficiency, especially in those without metabolic syndrome.

Keywords: claims data, Crohn’s disease, end-stage renal disease, epidemiology, inflammatory bowel disease.

EE-0164 (PP-0069) Increased risk of Parkinson’s disease in young patients with Crohn’s disease: A nationwide population-based study

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Background and Aim: The association between Parkinson’s disease (PD) and inflammatory bowel disease (IBD) remains unclear. We evaluated the risk of PD among patients with IBD using a nationwide population-based claim data. Methods: From 2010 to 2013, patients with Crohn’s disease (CD) and ulcerative colitis (UC) were identified, based on both the International Classification of Diseases, 10th revision (ICD-10) and the rare intractable disease registration program codes from the National Health Insurance database in Korea. We compared 38,861 IBD patients with non-IBD age and sex-matched individuals with a ratio of 1:3. Patients with newly diagnosed PD were identified through ICD-10 code and RID registration program codes in the study population. Results: During the mean follow-up was 4.9 years, PD was detected in 92 (0.24%) patients with IBD, and 132 (0.11%) controls. The incidence rate (IR) of PD in patients with IBD was 0.49 per 1000 person-years. The risk of PD in patients with IBD was significantly higher compared to control group (adjusted hazard ratio [HR], 1.95; 95% confidence interval [CI], 1.49–2.54; P < 0.001). Among patients with CD, IR of PD was 0.24, compared to 0.10 in controls (adjusted HR, 2.44; 95% CI, 1.22–4.86; P = 0.012). In patients with UC, the IR of PD was also significantly higher compared to controls (0.60 vs 0.30 per 1000 person-years; adjusted HR, 1.92; 95% CI, 1.43–2.56; P < 0.001). The impact of CD on PD was more prominent in patients aged less than 60 years (adjusted log HR, 0.89 vs 0.01; interaction P value 0.012). Conclusion: The risk of PD increased in patients with IBD. Patients with IBD should be monitored carefully for the development of PD, especially with young patients with CD.

Keywords: claims data, end-stage renal disease, epidemiology, inflammatory bowel disease.
EE-0191 (PP-0070) Increased risk of diabetes in inflammatory bowel disease: A nationwide population-based study in Korea

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Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Seoul National University Hospital, and [2]Department of Medical Statistics, The Catholic University of Korea Seoul St. Mary’s Hospital, Seoul, South Korea

Background and Aim: The risk of diabetes mellitus (DM) in patients with inflammatory bowel disease (IBD) still remains unclear. The aim of this nationwide population-based study was to investigate the risk of DM in patients with IBD. Methods: Using the Korean National Health Insurance database from January 2010 to December 2014, we identified 8070 patients diagnosed with IBD who were identified by ICD-10 code (K50 and K51) and V code for rare intractable diseases (V130 for Crohn’s disease [CD] and V131 for ulcerative colitis [UC]). We compared IBD patients with 40 350 non-IBD individuals matched by age, sex, body mass index (BMI), smoking, drinking, exercise, and income with a ratio of 1:5. Patients with newly diagnosed DM in both groups were identified using ICD-10 code (E11–14) and the use of medication. Results: Mean age of the study population was 44.5 ± 12.7 years. During a mean follow-up period of 4.1 years, incidence rate of DM in patients with IBD was significantly higher than that in control group when adjusted for baseline glucose level and steroid use (23.19 vs 22.02 per 1000 person-years; hazard ratio [HR], 1.135; 95% confidence interval [CI], 1.048–1.228). Compared to controls, HR of DM was 1.677 and 1.061 in patients with CD (95% CI, 1.156–2.108; P = 0.0026) and UC (HR, 1.156; 95% CI, 1.073–1.156), respectively. Especially, patients younger than 40 years of age had a significantly higher risk of DM in CD (HR, 2.395; 95% CI, 1.715–3.345; P < 0.0026) and UC (HR, 1.589; 95% CI, 1.198–2.108; P = 0.0026) compared to controls. Conclusion: The risk of DM is increased in the patients with IBD, especially CD. Regular monitoring for the development of DM is recommended even for younger IBD patients.

Keywords: Crohn’s disease, colitis, diabetes mellitus, epidemiology, inflammatory bowel diseases, ulcerative.

EE-0209 (PP-0071) Increased risk of anxiety and depressive disorders associated with inflammatory bowel disease: A nationwide population-based study

Authors: JAEYOUNG CHUN[1]; GUKHWAN CHOI[1]; KYUNGDO HAN[2]; JONG PIL IM[1]; JOO SUNG KIM[1]
Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Seoul National University Hospital, and [2]Department of Medical Statistics, The Catholic University of Korea Seoul St. Mary’s Hospital, Seoul, South Korea

Background and Aim: Inflammatory bowel disease (IBD) is associated with psychological disorders. We investigated the risk of anxiety and depression in Korean IBD patients. Methods: We conducted a retrospective study using claims data from the National Healthcare Insurance service (NHIS) in Korea. The patients with Crohn’s disease (CD) and ulcerative colitis (UC) were identified through ICD-10 codes, and the rare and intractable disease registration system which provides co-payment reduction of up to 90%. We compared 15 569 IBD patients with 46 707 non-IBD individuals matched by age and sex with a ratio of 1:3. Cases with newly diagnosed anxiety and depression were identified using ICD-10 codes in the study populations, respectively. Results: During a mean follow-up of 6 years, IBD patients experienced anxiety and depression more frequently than non-IBD controls, respectively (anxiety: 12.2% vs 8.7%, P < 0.001; depression: 8.0% vs 4.7%, P < 0.001). In patients with CD, incidence of anxiety (per 1000 person-years) was 19.51, compared to 13.26 among non-IBD controls (hazard ratio [HR], 1.60; 95% CI, 1.30–1.98; P = 0.001). Incidence of depression (per 1000 person-years) was 12.79, compared to 6.6 among controls (HR, 2.09; 95% CI, 1.73–2.52; P < 0.001). In UC patients, incidence of anxiety (per 1000 person-years) was 19.51, compared to 13.26 among non-IBD controls (HR, 1.56; 95% CI, 1.24–1.97; P = 0.001). Incidence of depression (per 1000 person-years) was 16.49, compared to 9.23 among controls (HR, 2.02; 95% CI, 1.74–2.30; P < 0.001). The impact of CD on developing depression was more pronounced in male gender (P = 0.025 by interaction analysis). Conclusion: Korean IBD patients had the increased risk of anxiety and depressive disorders compared to general population.

Keywords: anxiety, depression, inflammatory bowel disease.
OE-0161 (PP-0072) High-sensitivity C-reactive protein/albumin ratio are associated with disease activity of inflammatory bowel disease
Authors: AILING LIU; HONG LV; JIAMING QIAN
Affiliation: Department of Gastroenterology, Peking Union Medical College Hospital, Beijing, China

Background and Aim: To examine the correlations between the high-sensitivity C-reactive protein/albumin ratio (CRA) and disease activity in patients with IBD. Methods: The clinical data of 231 IBD patients (137 CD and 94 UC) from 2012 to 2018 were retrospectively analyzed. Demographic characteristics (sex, age, smoking status, duration), BMI, and laboratory examinations (PLT, HGB, ALB, ESR, hsCRP) on admission were collected. The patients with IBD were subdivided into patients with active disease (Crohn’s disease activity index [CDAI] ≥ 150 or modified Mayo scores ≤ 2) and those in remission. Results: (i) There were 182 patients in the active group and 49 patients in the remission group. No significant difference between the two groups was found in the age, the proportion of men, the proportion of smokers, and duration \( P > 0.05 \). (ii) The levels of PLT, ESR, hsCRP, and CRA were higher in the active group \( (P < 0.001) \). The levels of HGB, ALB, and BMI were lower in the active group \( (P < 0.001) \). (iii) The hsCRP \( (r = 0.391) \), CAR \( (r = 0.453) \), and ALB \( (r = -0.539) \) correlated with CD activity \( (P < 0.001) \). The hsCRP \( (r = 0.770) \), CAR \( (r = 0.767) \), and ALB \( (r = -0.577) \) correlated with UC activity \( (P < 0.001) \). (iv) The area under the curve (AUC) of CRA (0.829) was more prominent than hsCRP (0.808) and ALB (0.791). The AUCs of CAR, hsCRP, and ALB in UC patients were more prominent than those in CD patients. CAR (0.06), hsCRP (2.14 mg/L) and ALB (39.50 g/L) had sensitivities of 83.05%, 82.32%, 68.89%, and specificities of 68.09%, 68.75%, 75.00%, respectively, for disease activity. Conclusion: CRA was useful biomarker for identifying IBD activity. Higher CRA level predicted higher activity. CAR maybe more valuable in UC than that in CD.
Keywords: albumin, Crohn’s disease, disease activity, high-sensitivity C-reactive protein.

OE-0214 (PP-0073) Characteristics of extraintestinal manifestations (EIM) in a local cohort of patients with inflammatory bowel disease (IBD)
Authors: HUIYU LIN; WEE CHIAN LIM
Affiliation: Department of Gastroenterology and Hepatology, Tan Tock Seng Hospital, Singapore, Singapore

Background and Aim: EIM involving musculoskeletal, cutaneous, ocular, and hepatobiliary systems can occur in IBD patients. EIM can occur before or after IBD is diagnosed and is reportedly more common in smokers and in Crohn’s disease (CD) (compared to ulcerative colitis [UC]). Western populations have a higher prevalence of EIM (up to 41%) as compared to India (33%) and East Asia (6–14%). We aim to determine the characteristics of EIM in IBD patients at our local center. Methods: Electronic records of 247 adult patients with IBD treated at our center from 2002–2017 were retrospectively reviewed. Results: Eighteen patients (7.3%) displayed EIM. None exhibited EIM before IBD was diagnosed. EIM occurred more frequently in CD (12 patients: 10.7%) compared to UC (6 patients, 4.4%), and in females (12.4%) more than males (4%); 22.2% (4 CD patients) had more than 1 EIM, 66.6% were non-smokers and 22.2% were Indian (comparable to the racial distribution). The most common manifestations were spondyloarthritides (SpA), cutaneous, and ocular. Eight (3.3%) patients had SpA: 1 axial SpA, 7 peripheral SpA; 6 (2.5%) patients had skin manifestations: 4 erythema nodosum, 1 pyoderma gangrenosum, and 1 leukocystoclastic vasculitis. Five (2%) patients had ocular manifestations: 4 uveitis, 1 scleritis. There was only one CD patient with primary sclerosing cholangitis and one UC patient with primary biliary cholangitis. Conclusion: The prevalence of EIM (4.4% in UC, 10.7% in CD) in our cohort is comparable to other East Asian populations. EIM was more common in females, CD patients. However, no strong association with smoking nor ethnicity; none presented with EIM before diagnosis of IBD.
Keywords: extraintestinal manifestations, inflammatory bowel disease, spondyloarthritis.
OE-0706 (PP-0074) Microbial signature associated with prognosis of Crohn’s disease
Authors: SOO-KYUNG PARK; HYO JOON YANG; DONG-IL PARK
Affiliation: Department of Internal Medicine-GI/Hepatology, Kangbuk Samsung Medical Center, Seoul, South Korea

Background and Aim: Limited studies have examined the intestinal microbiota composition in relation to prognosis of inflammatory bowel disease (IBD). We aim to analyze the alteration of the intestinal microbial community structure in Crohn’s disease (CD) patients according to the prognosis.

Methods: 16S rRNA genes from fecal samples of 32 CD patients and 58 healthy controls (HC) were amplified using a universal primer set and sequenced with Illumina Mi-Seq. CD patients who used two or more biologics or undergone bowel resection (poor prognosis group, n = 17) and who used only 5-ASA or immunomodulators (good prognosis group, n = 15) were included in this study. The microbial composition and diversity of each sample were analyzed with the QIIME, and the association between prognosis was investigated.

Results: The contribution of bacterial groups to the intestinal microbial composition differed between CD and HC and between CD with good and poor prognosis. On taxonomic comparison at a genus level, relative abundances of Fusobacterium and Sutterella were increased in CD patients with poor prognosis compared to good prognosis group or HC. The relative abundances of Ruminococcus were similar between HC and CD good prognosis group, but higher than poor prognosis group. The relative abundances of Lachnospira and Clostridium were higher in HC than both good and poor prognosis group of CD patients (all false discovery rate, P < 0.05).

Conclusion: Our 16S rRNA sequence data demonstrate different intestinal dysbiosis in CD patients compared to HC and according to prognosis of CD. Specific microbiome might be used as microbiomarkers to predict prognosis of CD.

Keywords: Crohn’s disease, microbiome, prognosis.

OE-0714 (PP-0075) A comparative study of infusion reactions associated with infliximab, vedolizumab, and ustekinumab: Experience from a tertiary hospital in Singapore
Authors: ANDREW XIA HUANG TAN; YU JUN WONG; HANG HOCK SHIM; WEBBER CHAN
Affiliation: Department of Gastroenterology, Singapore General Hospital, Singapore, Singapore

Background and Aim: Infliximab, vedolizumab, and ustekinumab are monoclonal antibodies used in the treatment of inflammatory bowel disease (IBD). They may be associated with different infusion reactions. We aim to identify the incidence and characteristics of infusion reactions in IBD patients on these agents.

Methods: This was a retrospective review of IBD patients treated with infliximab, vedolizumab, or ustekinumab between July 2008 and May 2018. Demographics, total number of infusions, infusion reactions, severity, and outcomes were collected (Table 1).

Results: A total of 79 patients who received 1399 infliximab infusions, 25 patients who received 183 vedolizumab infusions, and 11 patients who received 11 ustekinumab infusions were evaluated. The incidence of infusion reactions to infliximab was 0.42% (6 out of 1399 infusions) whereas no infusion reactions were identified in those receiving vedolizumab or ustekinumab. Moderate infusion reactions (rash, breathlessness) occurred in 0.36% (5 out of 1399 infusions) and severe infusion reactions (loss of consciousness) occurred in 0.07% (1 out of 1399 infusions). All patients who developed infusion reactions were on premedications (diphenhydramine and hydrocortisone). Three out of the 6 patients who developed infusion reactions were on immunomodulators (either azathioprine or methotrexate). One patient was on a drug holiday but developed infusion reaction after reintroducing infliximab. Five out of 6 patients who developed infusion reactions resulted in a switch of biologic (adalimumab, vedolizumab, or ustekinumab). One patient was switched to a slow infusion protocol.

Conclusion: Infliximab is associated with more infusion reactions compared to vedolizumab and ustekinumab suggesting that infliximab is associated with more immunogenicity.

Keywords: biologics, inflammatory bowel disease, infusion reaction.
Patients' characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Infliximab</th>
<th>Vedolizumab</th>
<th>Ustekinumab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients</td>
<td>79</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Total number of infections</td>
<td>1199</td>
<td>183</td>
<td>11</td>
</tr>
<tr>
<td>Current Age (Mean)</td>
<td>41.7</td>
<td>41.3</td>
<td>41.2</td>
</tr>
<tr>
<td>Type of IBD</td>
<td>Crohn Disease</td>
<td>65</td>
<td>13</td>
</tr>
<tr>
<td>Ulcerative Colitis</td>
<td>16</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Current Users of Immunosuppressors</td>
<td>47</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Number of Infection reactions</td>
<td>6 (0.42%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Premedication prior to infection reaction</td>
<td>6</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Reactions Severity</td>
<td>Mild</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Moderate</td>
<td>5 (0.36%)</td>
<td>10 (0.70%)</td>
<td>0</td>
</tr>
<tr>
<td>Severe</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Reaction Symptoms</td>
<td>Rash</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Shortness of breath</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Loss of consciousness</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Switch to a different biological</td>
<td>5</td>
<td>0</td>
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<tr>
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</tbody>
</table>

OE-0879 (PP-0077) Development of machine learning model to predict the prognosis in patients with inflammatory bowel disease (IBD)

Authors: YOUNI CHOI; DONG KYUN PARK; YOON JAE KIM
Affiliation: Department of Internal Medicine-GI/Hepatology, Gachon University Gil Medical Center, Incheon, South Korea

Background and Aim: Incidence and global burden of inflammatory bowel disease (IBD) has been steadily increasing for decades. Improvements of risk stratify and predicting disease-related outcomes are one of important unmet needs in IBD. Therefor, we developed and validated a machine learning (ML) model to predict the risk of prognosis for IBD patients.

Methods: In this study, we used de-identified structured and unstructured patient data from the electronic medical records (EMR) of a Gil medical center in Korea. We applied a ML method to develop a model to predict the risk of prognosis for IBD patients. Derivation dataset were extracted from IBD patients who were diagnosed with IBD from January 2010 to June 2018 in Gil medical center (n = 1293). We define a disease progression as a first use of biologic agents in IBD patients. Patient data are divided into 1136 train data and 168 test data, and the training is performed on 1136 train data. Accuracy evaluation is performed on 168 test data. Results: The ML model for prediction of prognosis for IBD patients yielded mean accuracy of 0.94 (95% CI 0.87–0.99) and AUCs of 0.99 (95% CI 0.82 to 0.99).

Conclusion: Our ML-based prediction model can be used to identify IBD-related outcomes with patients at risk, enable physicians to close follow up based on patients level estimation through ML algorithm.

Keywords: Chron’s colitis, inflammatory bowel disease, machine learning, prediction model, ulcerative colitis.

OE-0809 (PP-0076) Low intestinal alkaline phosphatase ratio may predict clinical recurrence in patients with Crohn’s disease

Authors: SEON-YOUNG PARK; HYUNSOO KIM; JI YOUNG KIM; SUMI LEE; JI-HO SEO; SUNMIN KIM; CHANG-HWAN PARK; SUNG KYU CHOI; JONG SUN REW
Affiliation: Department of Internal Medicine-GI/Hepatology, Chonnam National University Hospital, Gwangju, South Korea

Background and Aim: Intestinal alkaline phosphatase (iAP) plays important role in gut homeostasis. We aimed to evaluate the expression of endogenous iAP and to assess the clinical course according to the expression of endogenous iAP in 32 patients with Crohn’s disease (CD).

Methods: A total of 32 consecutive patients (14 males) with CD were included in the study. We measured the level of endogenous iAP in inflamed and noninflamed colonic mucosa. To verify the inflammation status, we measured the level of mRNA for IL-6, TNF-α, and TLR-4. We monitored the clinical courses of patients during follow-up after acquisition of biopsy specimens.

Results: Median age of patients was 22.5 years (range, 15–49). Median CDAI (range) was 93.7 (22.8–154.9). There was colonic involvement in all patients and perianal involvement in 43.8% patients. The mRNA levels of IL-6 (P = 0.005) and TLR-4 (P = 0.013) in inflamed mucosa were significantly higher than those in noninflamed mucosa. However, there was no difference of expression of TNF-α mRNA (P = 0.345). During a 14-month follow-up (range, 9–54 months), there were 19 patients with clinical recurrences. There were nine patients (9/10, 90.0%) with clinical recurrences in group of IAP ratio ≤ 1.0 compared to 10 patients (10/22, 45.5%) with clinical recurrences in group of IAP ratio > 1.0 (P = 0.024).

Conclusion: Lower expression of iAP in inflamed mucosa compared to noninflamed mucosa may be associated with clinical recurrence in patients with CD.

Keywords: Crohn’s disease, inflammation, recurrence.
OE-0969 (PP-0078) Prevalence and associated factors of anemia in Taiwanese inflammatory bowel disease patients
Authors: YEW LOONG LEONG; SHU CHEN WEI; CHIEN CHIH TUNG; MENG TZU WENG
Affiliation: Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

Background and Aim: Anemia is one of the most frequent complications of IBD, it affects 9–73% in outpatients and 32–74% in admissions of IBD patients. Anemia plays a key role in affecting IBD patient’s quality of life, ability to work, cognitive functions, and increasing health-care cost. The aims of this study are to determine the prevalence of anemia in our web-based IBD patient registration and to find out the associated factors of anemia. Methods: The IBD patients for analysis come from web-based IBD patient registration in Taiwan. These patients came from 19 different hospitals in Taiwan. Anemia is defined as a hemoglobin level of <13.0 g/dL in men and <12.0 g/dL in women. An objective marker of inflammation, CRP, is used to represent the disease activity of our IBD patients and albumin as the indicator of their nutritional status. Results: A total of 2201 IBD (CD: 759; UC: 1378; indeterminate: 64) patients were registered till Feb 2018. The prevalence of anemia is 48.9% in our IBD patients (47.3% in men and 53.5% in women; 45.8% in patient with UC; and 53.4% in patient with CD). The average CRP levels are 9.35 mg/dL in IBD patients of anemia and 3.15 mg/dL without anemia (P < 0.05). The average albumin levels are 3.67 g/dL in IBD patients of anemia and 4.46 g/dL without anemia (P < 0.05). Conclusion: Anemia occurred in nearly half of our IBD patients, which we should raise more concern about this issue. Anemia associated with active disease and poorer nutritional status (higher CRP and lower albumin level), therefore, we need to control the disease activity as well as treat the anemia and improve the nutritional support in order to improve the quality of life for our IBD patients.
Keywords: Anemia, IBD, Taiwan.

EP-0129 (PP-0079) Protocatechuic acid-mediated sirtuin3 activation promotes fatty acid metabolism in non-alcoholic fatty liver disease
Authors: JIHONG YAO[1]; RUIMIN SUN[1]; ZHANYU WANG[2]; YANG LI[2]; RONG FU[1]; RUIWEN WANG[1]
Affiliation: [1]Department of Pharmacology, Dalian Medical University, and [2]Department of General Surgery, The Second Affiliated Hospital of Dalian Medical University, Dalian, China

Background and Aim: Fatty acid metabolism disorder is a risk factor of non-alcoholic fatty liver disease (NAFLD), which is characterized by the imbalance of fatty acid synthesis and oxidation. The NAD-dependent deacetylase sirtuin3 (SIRT3), of which essential effect in improving the liver disease is through regulating the hepatic fatty acid metabolism. Protocatechuic acid (PCA) has shown promise in protecting from the hepatic steatosis, ROS, and inflammation. Therefore, we investigated whether the protective effect of PCA against NAFLD involves SIRT3 regulation and promotion of fatty acid metabolism. Methods: Rats were randomly assigned to pretreatment with PCA (10 or 20 mg/kg/day), which were fed with standard diet or high-fat diet (HFD). In vitro, AML-12 cells were exposed to palmitic acid (PA) to mimic NAFLD. In vivo, PCA upregulated the protein expression of SIRT3 in HFD-induced NAFLD in rats. Meanwhile, PCA decreased the mRNA and protein levels of fatty acid synthase (FASN) and sterol response element binding protein (SREBP), the rate-limiting enzymes of fatty acid synthesis, while increased the mRNA and protein levels of CPT1, ACOX1, and PPARα, the rate-limiting enzymes of fatty acid oxidation in rat liver. In parallel with the above in vivo data, PCA treatment reversed PA stimulation induced the inhibition of SIRT3 expression and fatty acid metabolism, as indicated by the upregulation of FASN, SREBP and downregulation of CPT1, ACOX1, PPARα; however, PCA-mediated the promotion of fatty acid metabolism was mostly abolished by short interfering RNA (siRNA)-induced SIRT3 knockdown, which indicated that PCA regulated fatty acid metabolism disorder was involved in SIRT3 upregulation. Conclusion: Activation of SIRT3 by PCA confers protection against HFD/PA-induced fatty acid metabolism disorder in NAFLD and may represent an attractive pharmacological target to arrest NAFLD progression.
Keywords: fatty acid metabolism, non-alcoholic fatty liver disease, protocatechuic acid, sirtuin3.
OE-0120 (PP-0080) Effectiveness of probiotics in improving minimal hepatic encephalopathy in patients with compensated liver cirrhosis: A meta-analysis

Authors: AKEMI KIMURA; HIGINIO MAPPALA

Affiliation: Department of Internal Medicine-GI/Hepatology, Jose Reyes Mem. Medical Center, Manila, Philippines

Background and Aim: Hepatic encephalopathy describes a spectrum of potentially reversible neuropsychiatric abnormalities seen in patients with liver dysfunction and/or portosystemic shunting. Minimal HE (MHE), previously known as subclinical or latent encephalopathy, represents the earliest stage of the spectrum and, by definition, is not clinically apparent. Present treatment strategies, including lactulose and poorly absorbable antibiotics, may not be optimal therapy for all patients with liver disease due to side effects and cost. Compliance with therapy, particularly for minimal HE, is often low. Probiotics have multiple mechanisms of action that may make them superior to conventional therapy. To determine the efficacy of probiotics on improving minimal hepatic encephalopathy among patients with compensated liver cirrhosis in comparison to the conventional treatment.

Methods: Four (4) randomized controlled studies were included in this meta-analysis which included a total of 222 patients. One hundred nine and 113 patients were included in the probiotics and placebo/no treatment arm, respectively. The main outcome measured was improvement in minimal hepatic encephalopathy as evidenced by improvement in several psychometric tests, which were also initially used in diagnosing MHE. Odds ratios (OR) were calculated with 95% confidence intervals (CI). Study heterogeneity was assessed using the I2 statistics. Results: Probiotics showed significant improvement in MHE (OR: 3.36, 95% CI: 1.84–6.15, P < 0.0001). Conclusion: Probiotics can be used in improving or potentially reversing minimal encephalopathy and subsequently preventing the progression to overt hepatic encephalopathy in patients with liver cirrhosis.

Keywords: minimal hepatic encephalopathy, NAFLD, probiotics.

Forrest plot

OE-0122 (PP-0081) Antioxidants in patients with alcoholic liver disease

Author: LE THI THU HIEN

Affiliation: Department of Internal Medicine, Thai Nguyen University of Medicine and Pharmacy, Thai Nguyen, Vietnam

Background and Aim: Alcoholic liver disease (ALD) is associated with a spectrum of liver injury ranging from steatosis and steatohepatitis to fibrosis and cirrhosis. Many studies have shown that ethanol consumption may result in increased oxidative stress with increased formation of lipid peroxides and free radicals. To investigate the antioxidative status of patients with alcoholic liver disease (ALD) in northeast Vietnam. Methods: This study was conducted in Thai Nguyen Nation Hospital and 103 MilitaryHospital, located in northeast Vietnam (from January 2015 to June 2017). Microscopic assessment of liver was performed. Evaluate the stage of liver fibrosis according to Metavir classification. Total antioxidant status (TAS), superoxide dismutase (SOD), glutathione peroxidase (GPx), and malondialdehyde (MDA) were measured in 83 cases of ALD and 35 healthy volunteers which was regarded as the control group. Using ELISA kit supplied by Wkea Med Supplies Corp, China, we used median for comparison because of nonstandard distribution. Results: Compared to the control group, patients with ALD showed significantly lower TAS (12.89 U/mL vs 18.04 U/mL, P < 0.001); SOD (600.2 ng/mL vs 681.02 ng/mL, P < 0.001); GPx (231.45 pg/mL vs 236.05 pg/mL, P < 0.05). ALD patients had significantly higher MDA than that in the control group (4.14 mmol/L vs 3.2 mmol/L, P < 0.05). Levels of serum SOD is associated with liver fibrosis stage (P < 0.05). Levels of serum TAS is associated with Child–Pugh score (P < 0.05). Levels of serum MDA is associated with fatty liver grade (P < 0.05). Conclusion: The results of our study suggests that there was higher oxygen free radical production, supporting the hypothesis that there is increased oxidative stress in patients with ALD. These antioxidants are able to use in clinical medicine as biomarkers on prognosis ALD.

Keywords: alcoholic liver disease, glutathione peroxidase, malondialdehyde, superoxide dismutase, total antioxidant status.
OE-0123 (PP-0082) Relationship between cytokines and alcoholic liver disease
Authors: LE THI THU HIEN; LE QUOC TUAN
Affiliation: Department of Internal Medicine, Thai Nguyen University of Medicine and Pharmacy, Thai Nguyen, Vietnam

Background and Aim: Alcoholic liver disease (ALD) is a major cause of morbidity and mortality worldwide. Chronic alcohol consumption leads to hepatocellular injury, fat accumulation, liver inflammation, liver fibrosis, and cirrhosis or hepatocellular carcinoma. Cytokines are inflammatory mediators and one of the key factors in the various aspects of pathophysiology of ALD. To investigate cytokines in patients with ALD. Methods: Our study was conducted in Thai Nguyen National Hospital and 103 Military Hospital. Tumor necrosis factor alpha (TNF-α), transforming growth factor beta (TGF-β), interleukin-1β (IL-1β), and interleukin-12 (IL-12) were measured in 105 cases of ALD and 40 healthy volunteers which was regarded as the control group. Using ELISA kit supplied by Wkea Med Supplies Corp, China, we used median for comparison because of nonstandard distribution. Results: Age of 45–59 accounts for the highest rate of 50.5%. Compared to the control group, patients with ALD showed significantly lower TGF-β (1172.28 ng/L vs 110 829.44 ng/L, P < 0.001), TNF-α (158.8 pg/mL vs 173.64 pg/mL, P < 0.005). ALD patients had significantly higher IL-1β (14.56 ng/mL vs 3.19 ng/mL, P < 0.001), IL-12 (27.47 ng/L vs 4.0 ng/L, P < 0.001) than that in the control group. Levels of serum TGF-β and IL-1β are associated with liver fibrosis stage (P < 0.001). Serum IL-12 and TNF-α levels reflected the different stages of alcoholic liver disease (P < 0.05). Conclusion: Cytokines play important roles in the development of ALD. They have the potential to be biomarkers of alcoholic liver disease. More studies are needed to increase the understanding of the pathogenesis of ALD to open new therapeutic avenues for ALD. Keywords: alcoholic liver disease, 122 interleukin-1, interleukin-12, transforming growth factor beta, tumor necrosis factor alpha.

OE-0207 (PP-0083) Severity of non-alcoholic fatty liver disease in Hong Kong and Australia
Authors: NICOLE PHOEBE TANNER[1]; HENRY LIK YUEN CHAN[1]; FEI WEN CHAN[2]; MOHAMMED ESLAM[2]; JACOB GEORGE[2]; VINCENT WAI SUN WONG[1]
Affiliations: [1]Department of Internal Medicine-GI/Hepatology, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong, Hong Kong; and [2]Department of Internal Medicine-GI/Hepatology, Storr Liver Centre, The Westmead Institute for Medical Research, Westmead Hospital and The University of Sydney, Sydney, Australia

Background and Aim: Although Asians have a lower body mass index than Caucasians, they develop central obesity more readily. It is unclear if the severity of non-alcoholic fatty liver disease (NAFLD) differs in different ethnic groups and in different environments. To compare the severity of NAFLD between Hong Kong Chinese, Caucasian, and non-Caucasian Australian patients. Methods: Subjects who underwent liver biopsy for the evaluation of NAFLD were recruited from Westmead Hospital, Sydney, and Prince of Wales Hospital, Hong Kong. We compared the metabolic profile and histological severity of three cohorts: Hong Kong Chinese, Caucasian Australian patients, and non-Caucasian Australian patients. Non-alcoholic steatohepatitis (NASH) was defined histologically based on the presence of steatosis, lobular inflammation, and hepatocyte ballooning. Advanced fibrosis was defined as stage 3 or above. Results: Six hundred fifty-two patients were recruited, with 247 Caucasian Australians (37%), 105 non-Caucasian Australians (16%), and 300 Hong Kong Chinese (46%) (Table 1). Caucasian patients had a higher body mass index and waist circumference than Hong Kong patients and non-Caucasians. Hong Kong patients had significantly lower total cholesterol and triglycerides levels and higher HDL-cholesterol levels compared to Caucasian and non-Caucasian Australians. However, Hong Kong patients also had higher rates of type 2 diabetes mellitus and hypertension. Hong Kong patients were more likely than both Caucasian and non-Caucasian Australians to have NASH and had significantly higher NAFLD activity scores. However, a similar proportion of patients had advanced fibrosis. Conclusion: While Caucasians were more obese with more severe dyslipidemia, Hong Kong patients had more severe steatohepatitis compared to Australians. Keywords: Asians, Caucasians, metabolic syndrome

Table 1. Results

<table>
<thead>
<tr>
<th></th>
<th>Caucasians</th>
<th>Non-Caucasians</th>
<th>Hong Kong</th>
<th>p-value</th>
</tr>
</thead>
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<tr>
<td>Age</td>
<td>52</td>
<td>51</td>
<td>53</td>
<td>0.504</td>
</tr>
<tr>
<td>Body mass index</td>
<td>31.5</td>
<td>26.9</td>
<td>27.7</td>
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<tr>
<td>Waist circumference</td>
<td>105.9</td>
<td>93</td>
<td>94</td>
<td>0.0005</td>
</tr>
<tr>
<td>Total cholesterol</td>
<td>4.95</td>
<td>5.1</td>
<td>3.9</td>
<td>0.0005</td>
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<tr>
<td>Triglycerides</td>
<td>1.67</td>
<td>1.61</td>
<td>1.4</td>
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<tr>
<td>HDL-cholesterol</td>
<td>1.2</td>
<td>1.2</td>
<td>1.5</td>
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<tr>
<td>Diabetes mellitus type 2 (%)</td>
<td>33.2</td>
<td>26</td>
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<tr>
<td>Hypertension (%)</td>
<td>31.8</td>
<td>32.7</td>
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<tr>
<td>NASH (%)</td>
<td>37.9</td>
<td>17.6</td>
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<td>NAFLD activity score</td>
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<tr>
<td>Advanced fibrosis</td>
<td>22.5</td>
<td>18.1</td>
<td>26.5</td>
<td>0.204</td>
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</tbody>
</table>
OE-0236 (PP-0084) Alcoholic fatty liver disease among unsafe drinkers: A prospective, community cohort, 7-year follow-up study

Authors: MADUNIL ANUK NIRIELLA[1]; SHAMILA THIVANSHI DE SILVA[1]; ANURADHINI KASTHURIRATNE[1]; K RUWAN PERERA[2]; CHAMILA E SUBASINGHE[2]; CHATHURA L PIYARATHNE[2]; K VITHIYA RISHIKESAWAN[2]; ANURADHA SUPUN DASSANAYAKE[1]; ARJUNA PRIYADARSHI DE SILVA[1]; ARUNASAM PATHMESWARAN[1]; A RAJITHA WICKRAMASINGHE[1]; NORIHIRO KATO[3]; ARUNASAM PATHMESWARAN[1]; K VITHIYA RISHIKESAWAN[2]; CHATHURA L PIYARATHNE[2]; CHAMILA E SUBASINGHE[2]; SHAMILA THIVANSHI DE SILVA[1];

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Background and Aim: We investigated alcoholic fatty liver disease (AFLD), among urban, adult, Sri Lankans. Methods: Study population (selected by age-stratified random sampling) was screened initially in 2007(35–64 years) and in 2014. On both occasions, structured-interview, anthropometric measurements, liver ultrasound, biochemical, and serological tests were performed. AFLD was diagnosed on ultrasound criteria, unsafe alcohol consumption (Asian standards: males > 14 units, females > 7 units per week) and absence of hepatitis B/C. Controls were individuals with unsafe alcohol consumption but had no ultrasound fatty liver. Case-control genetic-association for PNPLA3 (rs738409) in AFLD was performed. Results: Of 3012, 2983 (99%) were included; 272/2983 (9.1%) were unsafe drinkers (males: 70; mean age 51.9 [SD: 8.0] years); 86/2983(2.9%) of cohort and 86/272 (31.6%) of unsafe drinkers had AFLD (males: 85; mean age 50.2 [SD: 8.6] years). Males (>0.001), increased waist circumference (WC) (P = 0.001), BMI > 23 kg/m² (P < 0.001), raised triglycerides (TG) (P < 0.001), low-education level (LEL; not completed secondary-education) (P < 0.01) and low monthly household income (<median: Rs.20 000) (P < 0.001) were associated with AFLD. Of 3012, 2983 (92.2%) (males: 911; mean age 59.2 [SD: 7.7] years) attended follow up in 2014; 118/186 who initially did not have AFLD but consumed unsafe amounts of alcohol and presented for follow up; 47/118 (39.8%) (males: 47, mean age 57.9 [SD: 7.9] years) had developed AFLD after 7 years (annual incidence: 5.7%). Males (P < 0.001), increased WC (P < 0.001), BMI > 23 kg/m² (P < 0.001), raised TG (P < 0.001), and LEL (P < 0.05) independently predicted incident AFLD. The genetic association study (133 cases [combined 2007–2014], 97 controls) showed no association with AFLD at PNPLA3 (rs738409).

Conclusion: The prevalence of AFLD was 2.9% in 2007 and annual incidence among heavy drinkers, on follow up was 5.7%. Incident AFLD was associated with males, obesity, raised TG, and LEL.

Keywords: alcohol, fatty liver, Sri Lanka

OE-0631 (PP-0085) Lifestyle intervention enabled by mobile technologies leading to weight loss in patients with non-alcoholic fatty liver disease: A randomized controlled trial

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Background and Aim: Non-alcoholic fatty liver disease (NAFLD) is the leading cause of chronic liver disease resulting in cirrhosis and the need for liver transplants. Weight reduction is typically recommended but challenging to achieve. This randomized controlled trial aims to evaluate the effect of lifestyle intervention enabled by mobile technology on weight loss in patients with NAFLD. Methods: Adults with NAFLD confirmed by steatosis on ultrasound and body mass index > 23 kg/m² were randomized to a control group of dietary and exercise counselling or an intervention group utilizing a mobile app (Nutritionist Buddy or nBuddy app) in addition to dietary and exercise counselling. Body weight, alanine aminotransferase (ALT), aspartate aminotransferase (AST), waist circumference, hip circumference, and blood pressure were measured at baseline and 3 months. Results: Eighty-six patients have completed 3 months of the study; 95% of participants in the mobile app group experienced weight loss compared to 49% in the control group. The mobile app group experienced greater weight loss (3.2 ± 2.5 kg; CI: 2.45–3.99) compared to the control group (0.9 ± 2.0 kg; CI: 0.32–1.56). P < 0.001. ALT was reduced by 35.3 ± 39.3U/L in the intervention group versus 9.6 ± 23.2U/L in the control group (P < 0.001). Reductions in AST were significantly higher in the intervention group (19.3 ± 26.1U/L versus 5.1 ± 13.7U/L, P < 0.006). Reductions in waist and hip circumferences and systolic blood pressure were significantly higher in the intervention group. The results remained significant after adjusting for age, gender, race, and baseline measurements. Conclusion: Lifestyle intervention enabled by a well-designed mobile application is effective in improving anthropometric indices, liver enzymes, and blood pressure in patients with NAFLD. This modality of intervention is scalable and can be extended to the larger population.

Keywords: fatty liver, lifestyle intervention, mobile applications, obesity, weight loss
**OE-0663 (PP-0086) 5% weight loss induces NAFLD fibrosis as defined through interval elastography: Preliminary data from a single tertiary hospital in Singapore**

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**Background and Aim:** Loss of > 7% body weight in western population has been shown to improve NAFLD activity score. While 10% weight reduction in Asian patients has been shown to improve NAFLD steatosis, little Asian data supporting NAFLD fibrosis regression through weight reduction exist. **Methods:** We conducted a retrospective data analysis of 81 NAFLD patients with interval (≥ 1 year) transient elastography (TE) performed in National University Hospital between July 2011 and December 2017, excluding patients with concomitant etiologies and drug-induced hepatitis. Statistical analysis using Cox regression was performed using SPSS v.21. **Results:** Thirty-four patients were found to have F3/4 fibrosis (TE score ≥ 9.6 kPA). Patients with F3/4 fibrosis had higher BMI (P < 0.01), increased waist circumference (P < 0.01), higher ALT and AST (P < 0.01), more likely to have diabetes (P < 0.01), and more likely to receive either vitamin E or pentoxiphylline (P < 0.01). Ten patients (29.4%) demonstrated regression of fibrosis (TE < 7.9 kPA) in the interval scan. Median time interval to regression was 2.52 years (range 1.1–5.5 years). Patients with ≥ 5% weight loss were more likely to regress over time (HR 6.01; 95% CI: 1.04–34.61, P < 0.05), independent of age, gender, glycemic control, lipid therapy, and pharmacotherapy with either vitamin E or pentoxiphylline (P < 0.01). **Conclusion:** Our result validates that overnutrition remains the dominant risk factor for NAFLD. We should thus enforce at least 5% weight loss in our NAFLD patients, with the aim of eventually achieving NAFLD fibrosis regression.

**Keywords:** Asian, NAFLD, regression

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**EE-0286 (PP-0087) Body mass index and mortality in patients with gastric cancer: A large cohort study**

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**Background and Aim:** Excessive body weight has been associated with improved survival in some cancers. However, the effects of obesity on prognosis in gastric cancer are controversial. So we aim to evaluate the association between body mass index (BMI) and mortality in patients with gastric cancer. **Methods:** A single-institution cohort of 7765 patients with gastric cancer undergoing curative gastrectomy between October 2000 and June 2016 was categorized into six groups based on BMI: underweight (< 18.5 kg/m²), normal (18.5 to < 23 kg/m²), overweight (23 to < 25 kg/m²), moderately obese (25 to < 30 kg/m²), severely obese (28 to < 30 kg/m²), and obesity (≥ 30 kg/m²). Hazard ratios (HRs) for overall survival (OS) and disease-specific survival (DSS) were calculated using Cox proportional hazard models. **Results:** We identified 1279 (16.5%) all-cause deaths and 763 (9.8%) disease-specific deaths among 7765 patients over 83.05 months (range, 1.02–186.97) median follow up. In multivariable analyses adjusted for statistically significant clinicopathological characteristics, preoperative BMI was associated with OS in a non-linear pattern. Compared with normal-weight patients, underweight patients had worse OS (HR 1.42; 95% confidence interval [CI] 1.15–1.77), whereas overweight (HR 0.84; 95% CI: 0.73–0.97), mildly obese (HR 0.77; 95% CI: 0.66–0.90), and moderately obese (HR 0.77; 95% CI: 0.59–1.01) patients had better OS. DSS exhibited a similar pattern, with lowest mortality in moderately obese patients (HR 0.58; 95% CI: 0.39–0.85). Spline analysis showed a bell-shaped curve, with lowest all-cause mortality risk at a BMI of 26.67 kg/m². **Conclusion:** In patients undergoing curative gastric cancer surgery, those who were overweight or mildly to moderately obese (BMI 23 to < 30 kg/m²) preoperatively had better OS and DSS than normal-weight patients.

**Keywords:** body mass index, gastrectomy, gastric cancer, mortality, obesity
**OE-0098 (PP-0089) Translation and validation of EORTC QLQ - CR 29 quality of life questionnaire (Sinhala version)**

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**Background and Aim:** The aim of this study was to validate the Sinhala version of the EORTC QLQ-CR29 quality of life questionnaire for colorectal cancer. **Methods:** We translated and pilot tested (n = 10) the original questionnaire in Sri Lanka. We assessed reliability, factor structure, and construct validity. The testing was done in two tertiary care hospitals in Sri Lanka. **Results:** Of 110 participants, 103 (93%) returned the questionnaire, and 15 out of 20 (75%) returned the repeat-test questionnaire within a period of 2 weeks. Of the original four scales, two had better reliability than the original scales (urinary frequency: Cronbach α period of 2 weeks. Out of the original four scales, two had better reliability than the original scales (urinary frequency: Cronbach α = 0.82 vs original α = 0.71, blood and mucus in stools: α = 0.85 vs original α = 0.56). The defecation problems scale had sufficient reliability (α = 0.76 vs original α = 0.84). The body image scale showed low reliability (α = 0.33) compared to the original (α = 0.80). However, when one of the three items in the scale was omitted, it showed sufficient reliability (α = 0.74). Factor analysis showed good reliability for overall assessment of the two-item scale for stool frequency (α = 0.82) and six-item scale for defecation problems (α = 0.76). Correlations between all the subscales and the QLQ-C30 subscales were below 0.40, except for body image, which correlated moderately (r = 0.44) with emotional functioning. **Conclusion:** The scales for urinary frequency, blood and mucus in stools, and defecation problems which were reliable and had good validity. The six-item scale for defecation problems showed less reliability when assessing patients with stoma; however, the two item stool frequency scale showed very high reliability. Body image scale failed to show sufficient reliability with the three-item scale, and we suggest to omit one of the items to improve the overall reliability of the questionnaire. Construct validity was comparable to published data. **Keywords:** Sinhala version, translation, validation

**OE-0130 (PP-0090) Enhanced recovery after colorectal surgery (ERAS) protocol in Sri Lanka: An assessment of current practice of colorectal surgery among general surgical units in a developing country in South Asia**

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**Background and Aim:** Practices on elective colorectal surgery are largely reformed after the introduction of ERAS which is evidence-based clinical practice aiming a better, speedy postoperative recovery. Assessment of current practice is important as barriers to introduction of naive evidence-based clinical practice do exist, and one factor is the surgeon. Study was conducted to assess perioperative trends in elective colorectal surgery among general surgical units in Sri Lanka. **Methods:** A modified version of anonymous, self-administered questionnaire developed based on ERAS and used in similar study was distributed to consultant or registrar of respective surgical units. **Results:** Seventy-two participated. Pre-surgery patient education is practiced in all units; 60% prefers open surgery; 73% and 69% utilize mechanical bowel preparation (MBP) routinely before elective colonic and rectal surgeries, respectively. Adherence to steps of ERAS are as follows: preoperative carbohydrate loading (21%), DVT prophylaxis preoperatively with subcutaneous enoxaparin (28%), restrictive intravenous fluids during surgery (41%), routine use of naso-gastric tube (49%), abdominal drains (61%). Opioid analgesics were used in 87%. Median postoperative day of drain removal is 3 (range 2–7 days) and catheter removal is 3 (range 1–7 days). Median postoperative days of starting oral clear fluids and solids are day 3 (range 1–5) and day 5 (range 1–7), respectively. Patient mobilization starts on postoperative day 2 (range 1–6). Median postoperative day of discharge is day 7 (range 4–14 days). No significant difference found between open and laparoscopy groups. **Conclusion:** Level of practice of crucial elements of ERAS protocol (highly selective bowel preparation, preoperative DVT prophylaxis, selective drain use, early removal of catheter, early enteral feeding, and avoidance of opioid) is still low among Sri Lankan surgical community according to our data. Disseminating knowledge on ERAS among surgical units in the form of National guidelines on ERAS protocol would be beneficial as ERAS protocol has a proven benefit in postoperative recovery. **Keywords:** ERAS, practice, South Asia
OE-0246 (PP-0091) Non-exposure simple suturing endoscopic full-thickness resection (NESS-EFTR) with sentinel basin dissection in patients with early gastric cancer

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Background and Aim: Laparoscopic and endoscopic cooperative surgery (LECS) is limited by their transmural communication and exposure of tumor to the peritoneum. Recently, non-exposure simple suturing endoscopic full-thickness resection (NESS-EFTR) was developed. NESS-EFTR includes the steps of laparoscopic seromuscular suturing, which results in inversion of the stomach wall; EFTR of the inverted stomach wall from inside the stomach; and finally, endoscopic mucosal suturing with endoloops and clips. These steps lead to non-exposure of tumor to peritoneal cavity. The aim of this study was to evaluate the feasibility of NESS-EFTR with sentinel basin dissection for early gastric cancer.

Methods: From July 2017 to January 2018, 20 patients with early gastric cancer less than 3 cm without absolute indication for endoscopic submucosal dissection were prospectively enrolled. Sentinel basin was detected using Tc99m-phytate and indocyanine green, and sentinel nodes were evaluated by frozen pathologic examination. After it is confirmed that all sentinel nodes were tumor-free, NESS-EFTR procedures were performed (Phase I trial, Senorita III pilot). Primary outcome measurement was the rates of complete resection (en bloc resection with clear resection margin). Secondary outcomes were the procedure times, complication rate, and postoperative outcomes.

Results: Among 20 enrolled patients, one patient dropped out due to out of indication, and one underwent conventional laparoscopic gastrectomy due to metastatic sentinel lymph nodes. In 18 patients, the complete resection rate was 94.4% (17/18). Rate of intraoperative perforation during EFTR was 27.8% (5/18), and endoscopic clipping or laparoscopic suturing or stapling was done for the perforation site. In the postoperative period, one patient underwent endoscopic clipping for mucosal tearing on postoperative day 2, and others discharged without postoperative complications. Conclusion: NESS-EFTR with sentinel basin dissection is a feasible treatment option for early gastric cancer. Further Phase II study is needed.

Keywords: early gastric cancer, endoscopic full-thickness resection, non-exposure technique, sentinel lymph node.

OE-0312 (PP-0092) Survival outcomes of local excision versus radical resection for early colorectal cancer in young patients: A propensity matching study

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Background and Aim: The incidence of colorectal carcinoma is rising in young adults. This propensity matching study aimed to compare survival outcomes of local excision with radical resection for early localized colorectal cancer (CRC) in young patients. Methods: Patients under 45 years old with T1 colon or rectal adenocarcinoma who underwent local excision or radical resection were included from the Surveillance, Epidemiology, and End Results (SEER) database between 1998 and 2014. Survival curves were plotted using the Kaplan-Meier method. Cancer-specific survival (CSS) were compared using adjusted hazard ratios (HRs) between local excision and radical resection. Results: After propensity score matching procedure, a total of 1719 patients were included in the analysis. The median follow up was 80 months (interquartile range [IQR]: 37–132), with 1074 patients followed for ≥ 5 years; 5-year CSS of local excision versus radical resection were 93.4% versus 96.7% for colon cancer and 96.6% versus 98.4% for rectal cancer. On multivariable analysis, compared with radical resection, local excision was not associated with inferior CSS for colon (HR 1.74, 95% CI: 0.92–3.29, P = 0.090) and rectal cancer (HR 2.16, 95% CI: 0.99–4.71, P = 0.052). Conclusion: There is no evidence of differential survival outcomes between local excision and radical resection. These findings may support clinical application of local excision for early colon and rectal cancer in young adults.

Keywords: colorectal cancer, local excision, radical resection, survival outcomes, young patients.
OE-0450 (PP-0093) Treatment strategy of intraperitoneal and systemic chemotherapy combined with gastrectomy for gastric cancer with peritoneal metastasis

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Background and Aim: Peritoneal metastasis (P) is the most crucial factor for gastric cancer (GC). Combination of intraperitoneal (IP) and systemic chemotherapy followed by gastrectomy after response can be a promising treatment modality. A retrospective study was performed to evaluate the multidisciplinary treatment strategy. Methods: Primary GC cases with P who were diagnosed to have no other distant metastasis were enrolled. IP paclitaxel or docetaxel with systemic chemotherapy have been repeated until unacceptable toxicity or disease progression. Gastrectomy was performed when peritoneal cytology turned negative, and the disappearance or marked shrinkage of P was confirmed by laparoscopy. Results: From 2010 to 2017, a total of 31 patients were enrolled. The male/female ratio was 14/17, and the median age was 58 (27–74). The median value of Peritoneal Cancer Index (PCI) was 17 (2–39). The median survival time (MST) was 13.7 months (2.3–37.7), and 1-year OS rate was 64% since the initiation of chemotherapy. Gastrectomy was performed in 12 patients after response to chemotherapy. Patients with subsequent gastrectomy had lower PCI than those without gastrectomy (11 vs 25) and higher percentage of cytology converted negative after the first treatment course (83% vs 38%). The MST of 12 patients with gastrectomy was 17.1 months (8.5–37.7) since the initiation of chemotherapy and 9.2 months (2.0–29.2) since the gastrectomy. The MST of 19 patients without gastrectomy was 11.9 months (2.3–24.6). Five patients who have survived for more than 300 days after gastrectomy demonstrated higher pathological treatment effect by chemotherapy than seven who had not (80% vs 14%). Conclusion: IP and systemic chemotherapy is effective for GC with P. The gastrectomy after confirming the elimination of P could achieve more prolonged survival especially for the patients who had not so severe P and showed better response to chemotherapy.

Keywords: docetaxel, gastric cancer, intraperitoneal chemotherapy, paclitaxel, peritoneal metastasis

OE-0689 (PP-0094) A single institution experience of laparoscopic gastrectomy in advanced gastric cancer: Analysis of postoperative morbidities and long-term oncologic outcomes

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Background and Aim: Laparoscopic gastrectomy for clinical stage 1 cancer has been upgraded from an investigational treatment to an option in general practice. It is recommended by the Japanese Society for Endoscopic Surgery (JSES). The long-term outcomes by JCOG0912 and KLASS01 will be soon published. However, laparoscopic gastrectomy for advanced gastric cancer has no evidence to recommend yet. Long-term outcome and safety by JLSSG0901, KLASS02, and CLASS01 have not been reported yet. In Seoul National University Bundang Hospital, we have started laparoscopic gastrectomy on advanced cancer on November 2008 as an AGC trial. Methods: There were 1593 cases of laparoscopic gastrectomy on advanced gastric cancer at Seoul National University Bundang Hospital have been analyzed. Results: One hundred nine cases were converted to open surgery because of various reasons: advanced stage, uncontrollable bleeding, severe adhesion, small cavity, unstable vital sign and intraoperative pleural injury. Basic patient characteristics have been gathered and analyzed by surgery types such as distal, total, and proximal gastrectomy. There were differences between total gastrectomy and distal/proximal gastrectomy patients in severity of disease. There were 135 cases of early complications, and most importantly, leakage rate was 2.2% and pancreatic fistula rate was 0.06%. Postoperative mortality rate was 0.07% which comprised of one death with delayed postoperative bleeding. Risk factor analysis was done according to postoperative complications. Old age was the only independent risk factor. Overall survival was analyzed according to pathologic stage: Stage IB 96.8%, IIA 95.1%, IIB 93.7%, IIA 88.5%, IIB 81.6%, IIC 45.3%, and IV 25%. The most common recurrence pattern was to the peritoneum which was 37.5%. Conclusion: Laparoscopic gastrectomy in AGC can be performed safely, and it is technically feasible. This study shows acceptable short-term morbidity and long-term oncologic outcome.

Keywords: advanced gastric cancer, complication, laparoscopy, survival
OE-0888 (PP-0096) Risk factor and treatments of chylothorax after esophageal cancer surgery

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Background and Aim: Chylothorax is an unusual complication after esophageal cancer surgery. Its frequency has been reported to be around 3%. Chylothorax could damage systemic status such as respiration, circulation, and nutrition. It is known that low-fat diet, medication, interventional drainage, lymphangiogram, and surgical operation are effective for chylothorax. The aim of this study is to evaluate risk factors and treatments of chylothorax after thoracic esophageal cancer surgery. Methods: From 2011 to 2017, 17 patients with thoracic esophageal cancer developed chylothorax after surgical resection. We compared them with control group, 230 patients who underwent esophageal cancer surgery from 2011 to 2014. We retrospectively investigated patients’ characteristics, operative outcomes, and treatments of chylothorax. Results: Regarding 17 patients with chylothorax, 13 patients were male and 4 patients were female. The median age was 69 (range 54–84). Location of tumor (Ut/Mt/Lt) was 3/11/3. It was suggested that patients with chylothorax were significantly associated with cirrhosis, smoking (Brinkman Index: 5%–400%), longer thoracotomy time, and thoracic duct sparing compared with control group. The severity of chylothorax (Clavien-Dindo Classification Grade III/II/I/Ha/IIb/ V) was 1/10/2/2/2. Two patients died of ARDS and cancer pleurisy, respectively. Treatments of chylothorax were elemental diet (n = 15), octreotide (n = 6), albumin (n = 12), etilefrine (n = 4), lymphangiogram (n = 4), operation of thoracic duct ligation (n = 2). Lymphangiogram was performed prior to surgical operation in each patient. It was effective for two patients, and the other two patients didn’t cure to require surgical operation. A patient who couldn’t keep circulation dynamics was decided to undergo operation earlier than other patients. Conclusion: Our results suggested that cirrhosis, smoking, longer thoracotomy time, and thoracic duct sparing might be associated with chylothorax. Treatment of chylothorax was decided considering each patient’s severity and systemic status. Keywords: chylothorax, esophageal cancer, lymphangiogram, operative complication, thoracic duct

OE-0895 (PP-0097) A single center experience of 50 fundoplications in Hong Kong

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Background and Aim: Recent studies have shown that the prevalence of gastroesophageal reflux disease (GERD) in Hong Kong is increasing. At the same time, the number of fundoplication performed is also increasing. This retrospective study aims at reviewing the indication, results, and lessons learned from the past 10 years. Methods: Retrospective analysis of patient demographics, intraoperative findings, and clinical outcome of patients undergoing fundoplication during June 2009–May 2018. Intraoperative Endoluminal Functional Lumen Imaging Probe (EndoFLIP) data were available after 2014. Results: Fifty fundoplications were performed. Over 66% of the patients were overweight by the WHO recommendation (BMI > 23). The main reasons for surgery were to avoid long-term medications and for refractory symptoms to proton pump inhibitor (PPI). High-resolution manometry showed 42% of patient were having abnormal esophageal contractility. Laparoscopic Toupet fundoplication was the preferred approach (92%) due to abnormal contractility. A significant proportion of patients (12.8%) experienced dysphagia at first visit postoperatively, and 4.4% remained symptomatic at 3 months. Only three patients had postoperative acid exposure time > 6% in pH study, and five patients had persistent PPI usage for various reasons. Since 2014, 23 patients had EndoFLIP assessment intraoperatively. The distensibility index (mm^3/mmHg) was significantly lower after fundoplication compared to before, 3.9 (0.7–20) versus 1.7 (0.5–4.2), P = 0.022. The minimum diameter (mm) is also significantly different, 8.51 (4.8–15.4) versus 7.3 (4.8–9.6), P = 0.005. The length of lower esophageal sphincter/narrowing is lengthened after the procedure. Conclusion: Fundoplication is an effective option for well-selected patients with chronic GERD. Intraoperative EndoFLIP assessment is giving more insight into the morphology of the lower esophageal sphincter after fundoplication. The significance and metrics of EndoFLIP are yet to be defined, to achieve the goal of tailor making the right wrap for the right patient. Keywords: endoFLIP, esophageal motility, gastroesophageal reflux, fundoplication
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Background and Aim: Evaluate the motility of the stomach and rectum in patients with functional dyspepsia (FD) and irritable bowel syndrome (IBS).

Methods: The study involved 52 patients on the basis of the Department of Gastroenterology of the Tashkent Medical Academy, whose average age was (33.8 ± 2.7) years. The majority of these patients are women (92.3%). The criteria for inclusion in the study group of patients with FD and IBS met Roman Criteria III. The control group consisted of 15 healthy volunteers. The study of the parameters of rectal and anal motility was carried out by the method of anorectal manometry (ARM). The following parameters were assessed: basal rectal pressure (BRP), rectal sensitivity threshold (RST), and rectal stretch ratio in response to the filling of the balloon (CR). Also, all patients underwent a gastric motility study using the electrogastrography (EGG) method for two sessions: before and after balloon stretching of the rectum. The gastric motility was estimated by the following factors: the percentage ratio of slow stomach waves (brady, normo, tachigastria) and the dominant frequency of cycles per minute (DF).

Results: ARM indices revealed that in patients with IBS and FD, high BRP, low RST, decrease in CR. In all patients with EGG before balloon stretching, bradygastrias and a low index of DF prevailed; during the second session with balloon stretching of the rectum, a decrease in the indices of tachigastria, an increase in normogastric, and the appearance of tachigastric episodes were reliably revealed.

Conclusion: In the study, we found that in IBS, a violation of intestinal motility leads to gastric dysrhythmia, which is manifested by the symptoms of FD.

Keywords: anorectal manometry, basal rectal pressure, irritable bowel syndrome, functional dyspepsia

EP-0091 (PP-0099) Objective and subjective approaches in the treatment of patients with GERD with a syndrome of vegetative dystonia
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Background and Aim: The aim of the work was to study the internal picture of the disease and the quality of life in patients with gastroesophageal reflux disease (GERD) with autonomic dystonia syndrome.

Methods: Twenty-two patients with GERD with ADS were examined on the basis of the Department of Gastroenterology of the Tashkent Medical Academy. In all patients, psychological characteristics and quality of life were studied on the Piers-Harris scale. With the help of questionnaire and projective methods in patients, emotional-volitional sphere, self-esteem, and level of claims were investigated. All patients in the dynamics of endoscopic examination of the esophagus, stomach and duodenum, intragastric pH-metry. The initial vegetative tone, vegetative reactivity, and provision of functions were determined.

Results: The patients studied had a high level of both situational and personal anxiety (85.71%), a fairly high level of unproductive neuropsychic tension, which consisted in excessively overestimated use of neuropsychic resources with a low efficiency (60%). The study of the characteristics of self-esteem and the level of claims showed that these indicators are adequate (54.28%). In the course of the study, we obtained the average value of the quality of life of patients on the Pierce–Harris Scale (which contains WHO criteria). The values of the criteria for assessing the quality of life (behavior, labor status, appearance, anxiety, popularity, happiness, health, psychosocial status) in chronically ill people in the hospital are generally close to average, which may indicate a normally satisfactory state of these individuals.

Conclusion: Thus, the comparison of objective (quality of life) and subjective (internal picture of the disease) approaches in the treatment of patients with GERD with ADS and their correction will increase the effectiveness of therapy and prolong the period of remission.

Keywords: ADS, GERD, Piers–Harris scale
OE-0190 (PP-0100) Duodenal eosinophil and mast cell count and its relation with functional dyspepsia: A case control study

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Background and Aim: Exact cause of functional dyspepsia has not been established yet. This study was designed to see any etiological relation of functional dyspepsia with duodenal infiltration of eosinophils and mast cells. Methods: A case control study including consecutive patients presenting with symptoms of functional dyspepsia and matched healthy controls were included. Endoscopic biopsy tissue was collected from duodenum of both patients and controls. In addition to routine histology, numbers of eosinophils and mast cells in duodenal mucosa per five high power fields were counted. Independent sample t-test and chi-squared tests were done for statistical comparison; P value < 0.05 was taken as significant. Results: A total of 111 patients (69 cases and 42 controls) were taken. Duodenal eosinophil count per five high power fields varied from 1 to 92 (mean 21.59) in case groups and from 3 to 51 (mean 14.9048) in controls with P value 0.009. Eosinophil count was abnormally high among 29 cases (42.02%) and 08 controls (19.02%), respectively, and the difference was statistically significant (P = 0.013). Mast cell density was evaluated for 56 cases and 23 controls from the same sample. Mast cell count per five high power fields varied from 1 to 139 (mean 20.0536) in case groups and from 3 to 57 (mean 20.86) in controls, respectively (P value = 0.627). Conclusion: Functional dyspepsia is found to be associated with significantly increased eosinophil infiltration in duodenum. But association of duodenal mast cell infiltration functional dyspepsia is yet to be determined.

Keywords: duodenal, eosinophil count, mast cell

OE-0194 (PP-0101) Efficacy of endoscopic therapeutic procedures in non-variceal upper gastrointestinal bleeding in Hanoi Medical University Hospital from 2013 to 2017

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Background and Aim: Upper gastrointestinal bleeding (UGIB) is an emergency requiring immediate management and a multidisciplinary approach. Non-variceal UGIB is most commonly seen among the causes of UGIB. Initial assessment, determining prognostic factors and appropriate interventions, will help to reduce the recurrent bleeding rate. The main objectives of our study are to evaluate the characteristics of non-variceal UGIB and identify related factors of recurrent bleeding. Methods: This is a retrospective descriptive study on non-variceal UGIB patients admitted to Hanoi Medical University Hospital with ICD 10 code K92.2 from January 2013 to March 2017. Results: In total, there were 444 patients with the mean age of 49.1 ± 18.1. There were 69.8% of patients with comorbidities in which 25.9% had a past history of UGIB. The median Rockall score was 3, and the median Glasgow–Blatchford Bleeding Score (GBS) was 7. The rate of endoscopic interventions was 48.4% of which 99.1% achieved success. The rate of recurrent bleeding in hospital was 4.5% and within 30 days after discharge was 1.1%. There was no difference in the rate of recurrence between the groups treated with monotherapy and combined therapy. Male gender and blood transfusion were factors associated with in-hospital recurrent bleeding. The GBS and Rockall score had poor prognostic performance for in-hospital bleeding recurrence with area under curve (AUC) being 0.63 and 0.55, respectively. Conclusion: The rates of both recurrence in hospital and within 30 days in non-variceal UGIB patients were low. Risk scoring systems such as the GBS and the Rockall scores showed limited ability to predict in-hospital recurrent bleeding.

Keywords: non-variceal upper gastrointestinal bleeding, GBS score, recurrent bleeding, Rockall score
OE-0197 (PP-0102) The association between electronic cigarette smoking and dyspepsia in adult urban population

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Background and Aim: Dyspepsia is associated with lifestyles. Electronic cigarette (e-cig) smoking is a new trend of lifestyle. Yet the relationship between e-cig smoking and dyspepsia is unknown. This study was aimed to investigate the association between e-cig smoking and dyspepsia among adult urban population.

Methods: A cross-sectional study was conducted among 267 adult people in Cirebon, West Java, Indonesia. A self-administered questionnaire was given. It consisted of demographic characteristics and dyspepsia-related symptoms. Data were analyzed using descriptive statistics and chi-squared test. This study has been approved by an ethical committee.

Results: The median age of the subjects was 24.0 years old. E-cig smoking was frequent (74.2%) among the subjects, with the median duration 2.0 years. The median of its dose was 30.0 mL weekly. The e-cig smoking was positively associated with nausea (PR = 3.016, 95% CI: 1.024–8.882; P = 0.037), vomitus (PR = 1.388, 95% CI: 1.284–1.500; P = 0.006), flatulence (PR = 4.889, 95% CI: 1.455–16.429; P = 0.005), and epigastric pain (PR = 5.982, 95% CI: 1.391–25.736; P = 0.007).

Conclusion: This population-based study showed that there is positive association between e-cig smoking and dyspepsia in adult urban population.

Keywords: adult urban population, dyspepsia, electronic cigarette smoking

OE-0202 (PP-0103) Current risk factors for peptic ulcer disease in the background of declining frequency of Helicobacter pylori infection in patients with dyspepsia

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Affiliation: Department of Gastroenterology, CMC, Vellore, India

Background and Aim: The frequency of Helicobacter pylori infection in Asian countries is declining as evidenced by multiple studies recently. We aimed to assess the current risk factors of peptic ulcer disease (PUD) in the backdrop declining H. pylori infection.

Methods: We conducted a prospective case–control study on patients with dyspepsia. Cases were patients with PUD diagnosed on endoscopy, and controls were age and sex matched healthy subjects with non-ulcer dyspepsia as per ROME IV criteria. Patients with recent antibiotic or PPI use, gastrointestinal bleed, malignant ulcer, and pregnancy were excluded. Risk factors for PUD including H. pylori infection were assessed. H. pylori infection was assessed using rapid urease test (RUT). Adjusted and unadjusted conditional logistic regressions were performed to determine the risk factors for PUD. The study was approved by institute ethics committee.

Results: A total of 100 cases and 100 matched controls were included in the study. Overall, H. pylori infection was found in 68 cases compared to 39 controls. NSAID use was noted in 18 of cases compared to six of the controls. On univariate analysis, Helicobacter pylori infection (P < 0.05), NSAID use (P = 0.02) and presence of comorbid illness (P = 0.02) were significantly different between cases and controls. On multivariate analysis, the significant risk factors for PUD were presence of comorbid illness (Table 1, OR 6.9, 95% CI [1.4–32.8]), H. pylori infection (OR 4.86, 95% CI [2.3–10.3]), and NSAID use (OR 5.35 [1.7–16.5]).

Conclusion: Despite decreasing frequency of H. pylori infection, it still remains an important risk factor for PUD, and NSAID use is also a frequent cause.

Keywords: H. pylori, peptic ulcer disease, risk factors

Table 1–Baseline characteristics and risk factors for PUD

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th>Controls</th>
<th>P value</th>
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<tbody>
<tr>
<td>Total no. of patients</td>
<td>100</td>
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<td></td>
</tr>
<tr>
<td>Males</td>
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<tr>
<td>Mean Age</td>
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<tr>
<td>Endoscopy</td>
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<td>Gastric ulcer</td>
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<tr>
<td>Duodenal ulcer</td>
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<td>GU and DU</td>
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<td></td>
<td></td>
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<tr>
<td>H. pylori infection</td>
<td>68</td>
<td>39</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Comorbidities</td>
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<td>3</td>
<td>0.02</td>
</tr>
<tr>
<td>NSAID</td>
<td>18</td>
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Dyspepsia and impact on quality of life

Keywords: dyspepsia, quality of life, type 2 diabetes, upper gastrointestinal symptom

Dyspepsia and impact on quality of life in type 2 diabetes patients: Preliminary study in Banten Province Hospital, Indonesia

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Background and Aim: Gastrointestinal (GI) symptoms are common in diabetes and account for morbidity related to quality of life. This study aimed to determine the prevalence of upper gastrointestinal symptoms among people with diabetes and the impact on disease specific quality of life.

Methods: A cross-sectional study was conducted in May 2018. Reflux disease was evaluated using GERDQ questionnaire, and dyspepsia was evaluated using ROME IV diagnostic criteria for functional dyspepsia. The Validated Short-Form Nepean Dyspepsia Index (SF-NDI) was used to examine the impact of dyspepsia on disease specific quality of life.

Results: This study included 66 patients with type 2 diabetes. The prevalence of dyspepsia in the study population was 32 (58.5%) with the number of epigastric pain syndrome, postprandial fullness, and mixed dyspepsia symptoms among them were 18 (56.2%), 5 (15.6%), and 9 (28.2%), respectively. A total of 16 (24.2%) had reflux disease and dyspepsia. Prevalence of patients with reduced quality of life, shown by SF-NDI score below 15, were 46 (69.7%). Subject with dyspepsia and both reflux disease and dyspepsia had higher SF-NDI score than those without symptoms in every aspects of SF-NDI which included anxiety/tension, interference with daily activity, eating/drinking, and lack of control and knowledge including fear of serious illnesses and work-related activity ($P < 0.001$).

Conclusion: Upper GI symptoms are associated with lower quality of life in type 2 diabetes patients.

OE-0416 (PP-0105) Systematic review and meta-analysis: Prevalence of small intestinal bacterial overgrowth in irritable bowel syndrome

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Background and Aim: We aimed to compare the prevalence of small intestinal bacterial overgrowth (SIBO) in patients with IBS and controls.

Methods: Electronic databases were searched up to May 2018 for all studies reporting prevalence of SIBO in IBS patients. The prevalence rate of SIBO among IBS patients and the odds ratio (OR) and 95% CI of SIBO in IBS patients compared with controls were calculated. Result: Final dataset included 21 studies (2422 IBS patients and 2879 controls). Across all methods, the odds for the prevalence of SIBO in patients with IBS was increased at 3.37 (95% CI: 1.91–5.67, $P < 0.001$). Utilizing breath tests, the prevalence of SIBO in IBS was 44.25% (95% CI: 38.86–46.63) compared to 23.71% (95% CI: 21.53–25.89) in controls. Utilizing culture techniques, the prevalence of SIBO in IBS was 13.96% (95% CI: 11.49–16.43) versus 5.03% (95% CI: 3.9–6.17) in controls when the cut-off value was $10^2$ cfu/mL (colony forming unit/mL), and 33.51% (95% CI: 30.14–36.88) versus 8.18% (95% CI: 6.76–9.61) in controls when the cut-off value was $10^3$ cfu/mL. The odds for prevalence of SIBO in patients with IBS-D was 1.914 (95% CI: 1.21–3.01, $P < 0.005$). PPI did not increase SIBO risk in IBS patients (OR = 0.89, 95% CI: 0.45–1.52, $P = 0.55$).

Conclusion: Regardless of the diagnostic modalities, prevalence of SIBO is significantly increased in IBS patients, especially in IBS-D when compared to controls. However, while culture-based diagnostic methods for SIBO are the gold standard, they yield substantially lower SIBO prevalence rates in IBS as compared to breath tests. PPI use was not identified as a risk factor for SIBO in IBS patients.

Keywords: bacterial overgrowth, breath tests, irritable bowel syndrome, SIBO
OE-0457 (PP-0106) The association between peptic ulcer disease and osteoporosis: A 12-year follow up of the Korean genome and epidemiology study

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Affiliation: Department of Internal Medicine, Catholic Kwandong University International St. Mary’s Hospital, Incheon, Korea

Background and Aim: The association between peptic ulcer disease and osteoporosis remains unclear. Methods: We investigated the association between PUD and osteoporosis by separating the sexes in a prospective study including 10 038 Korean adults at 12-year follow up. Results: During a mean follow-up, osteoporosis developed 11.1% (21/189) and 29.9% (56/187) in men and women of PUD group, respectively. In non-PUD group, 4.8% (70/1464) and 16.5% (271/1639) in men and women, respectively. The incidence rate in per 1000 person-years were 20.5 and 68.5 in men and women of PUD group, and 11.2 and 42.3 in men and women of non-PUD group. The risk of osteoporosis was higher in PUD group than non-PUD in men (hazard ratio \[HR\] = 1.62, 95% confidence interval \[CI\] = 1.20–2.18) and women (HR = 1.74, 95% CI = 1.02–2.92). Calcium intake did not increased the risk of osteoporosis in men and women of both groups. Risk factors of osteoporosis in men were over 50 years old, BMI (30–34.9), and hepatitis. Risk factors of osteoporosis in women were over 50 years old, BMI (25.0–34.9), high physical activity, chronic pulmonary disease, coronary artery disease, and menopause. Conclusion: The risk of osteoporosis was significantly increased in men and women of PUD group compare to non-PUD group. Based on our research, future prospective studies are needed to elucidate the mechanism for the associations between PUD and osteoporosis.

Keywords: calcium, cohort studies, dietary, osteoporosis, peptic ulcer, risk

OE-0612 (PP-0107) H. pylori genotyping and genomic diversity assessment ingastric biopsies from residents of high altitude (Ladakh) and lower plains of North India

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Affiliation: Department of Pathology, All India Institute of Medical Sciences, Delhi, India

Background and Aim: In Ladakh, prevalence of H. pylori infection, severity of gastric mucosal changes is higher than lower plains of North India. This is only related to environmental factors such as diet, environmental conditions, or related to genetic diversity of the organism. Assessment of genotypic diversity in these two patient populations, in regard to the H. pylori virulence gene expression. Methods: All biopsies (50 of Ladakh and 50 of North India) were taken, and DNA from paraffin-embedded gastric biopsies was amplified using primers specific for CagA, DupA, VacA, and for H. pylori 16S rRNA. Results: H. pylori infection was detected by molecular assays in all 100 (100%) biopsies; we did genotyping with PCR for CagA, Dup, VacS1, VacS2, VacM1, VacM2 virulence genes with DNA isolated from FFPE biopsies of gastric antrum from both of these regions. While in North India strains CagA was present in 68% cases, in H. pylori, strains from Ladakh CagA genotype was present in 42% of biopsy isolates (\[P\] = 0.009). VacM1 was present in 56% of North India strain and 16% in Ladakh strains (\[P\] < 0.001). VacS1 was also present in 76% strains of plains of North India and 64% strains from Ladakh (\[P\] = 0.21). VacS2 and VacM2 genes were not present in biopsy isolates from either North India or Ladakh cases. Hence, from the results of this study, it appears that virulence genotypes of H. pylori strain were more prevalent in cases of North India in comparison to that of Ladakh. Conclusion: Prevalence of H. pylori genotype CagA1 and VacAs1m1 are higher in patients with gastritis from North India, than in Ladakh. H. pylori genotypes alone do not determine severity of mucosal inflammation. It appears that other environmental factors, habitat, and dietary habits influence the effect of H. pylori genotypes on gastric mucosa, leading to heterogeneous outcomes.

Keywords: altitude, CagA, gastritis, H. pylori, S and M vaca alleles, 16srrna, paraffin-embedded biopsies, PCR
OE-0846 (PP-0108) Cost-effectiveness of a tailored Helicobacter pylori eradication strategy based on the presence of a 23S ribosomal RNA point mutation that causes clarithromycin resistance in Korean patients

Authors: JUN-HYUNG CHO[1]; SEONG RAN JEON[1]; HYUN GUN KIM[1]; JUNSEOK PARK[1]; SO-YOUNG JIN[2]; SERI RYU[1]

Affiliation: Departments of [1]Internal Medicine-GI/Hepatology [2]Pathology, Soon Chun Hyang University Seoul Hospital, Seoul, Korea

Background and Aim: The Helicobacter pylori eradication rate using conventional triple therapy has decreased due to clarithromycin (CLA) resistance in H. pylori. Recently, dual priming oligonucleotide (DPO)-based multiplex polymerase chain reaction (PCR) can be used to detect H. pylori and point mutations in the 23S ribosomal RNA gene causing CLA resistance. This study aimed to evaluate the success rate and cost-effectiveness of tailored H. pylori eradication using DPO-PCR. Methods: The H. pylori-positive patients diagnosed by a rapid urease test (RUT) or DPO-PCR were enrolled from a single academic hospital. The patients with positive RUT results received a CLA-based triple regimen. In the tailored therapy group that underwent DPO-PCR testing, patients with A2142G and/or A2143G point mutations were treated with a bismuth-containing quadruple regimen. The cost-effectiveness of H. pylori eradication success was evaluated according to the average cost per patient and the incremental cost-effectiveness ratio (ICER). Results: A total of 243 patients were allocated to the triple therapy group and 124 patients to the tailored therapy group. The first-line eradication rate of H. pylori was significantly higher in the tailored therapy group than in the conventional triple therapy group (92.7% vs 76.5%, P < 0.001). The average costs per patient for tailored therapy were $307.37 and $299.59 for first- and second-line treatments, respectively. Compared with triple therapy, the ICERS of tailored therapy were $3.96 and $3.81 per patient for first- and second-line treatments, respectively. Conclusion: In Korea, tailored H. pylori eradication using DPO-PCR may be more cost-effective than conventional triple therapy.

Keywords: clarithromycin resistance, cost-effectiveness, dual priming oligonucleotide-based polymerase chain reaction, eradication, Helicobacter pylori

EP-0101 (PP-0109) The COX-2/PGE₂ pathway is central for efficacy of TNF inhibitors and intestinal epithelial regeneration in ulcerative colitis

Authors: OLE HAAGEN NIELSEN[1]; YUAN LI[1]; CHRISTOFFER SOENDERGAARD[1]; FREDRIK HOLMBERG BERGENHEIM[1]; DAVID ARONOFF[2]; JAKOB BENEDICT SEIDELIN[1]; KIM BAK JENSEN[3]

Affiliations: Departments of [1]Gastroenterology D112, Herlev Hospital, Herlev, and [3]BRIC, University of Copenhagen, Copenhagen, Denmark, and [2]Department of Internal Medicine-Infection, Vanderbilt University Medical Center, Nashville, USA

Background and Aim: Biologics of the tumor necrosis factor-α (TNF) inhibitor class are widely used in the management of ulcerative colitis (UC), but up to one third of patients do not have a clinical response during induction therapy (i.e. primary non-responders [PNRs]). Through production of prostaglandins (PG) and thromboxanes (TX), cyclooxygenase-2 (COX-2) affects both inflammation and epithelial regeneration and may in this way be implicated in resistance to therapy with TNF inhibitors. The aim was to explore whether changes in the COX-2 and the PG/TX axis could explain why some patients with UC are PNRs to anti-TNF drugs. Methods: Monocytes were isolated from blood by negative immunomagnetic bead separation. Colonic biopsies for COX-2 immunohistochemistry (IHC) were collected at colonoscopies. Colonic organoids (epithelial cells were isolated from biopsy specimens) were treated with celecoxib (3 μM). To quantify eicosanoids, medium was analyzed by gas chromatography–mass spectrometry. RNA was purified from intestinal organoids and monocytes using NucleoSpin columns. Microarray expressions were performed on intestinal biopsies. IHC for detection of COX-2 and MUC2 was performed on paraformaldehyde-fixed tissue and intestinal organoids. Results: TNF stimulation induced COX-2 expression in monocytes isolated from responders (Rs), whereas basal COX-2 expression remained constitutively high and non-inducible in monocytes from PNRs. Moreover, PGE₂ in combination with proliferative signals transformed human intestinal epithelial cells to a pro-inflammatory state observed in flaring UC, whereas PGE₂ in combination with differentiation signals supported robust mucin induction. These results suggest that COX-2 gene expression levels in TNF inhibitor-naïve patients with UC might be used to distinguish Rs from PNRs. Conclusion: The COX-2/PGE₂ pathway might be a druggable target to modulate TNF inhibitor responsiveness.

Keywords: cyclooxygenase, epithelial regeneration, primary non-responder, TNF inhibitors, ulcerative colitis
OE-0167 (PP-0112) Using anemia as an isolated marker to predict the extent of inflammatory bowel disease at diagnosis

Authors: HANG HOI MICHAEL WONG; KAM NGAI KUNG
Affiliation: Department of Internal Medicine-GI/Hepatology, United Christian Hospital, Hong Kong, Hong Kong

Background and Aim: Anemia is the most common extraintestinal manifestation of inflammatory bowel disease (IBD). We would like to propose that the severity of anemia in the IBD groups have a positive correlation with the extent of disease at diagnosis. Methods: We conducted a retrospective study on all our patients (total numbers: 209) suffering from inflammatory bowel disease (IBD) who received, at diagnosis, hemoglobin check and colonoscopy during the same month. We performed chi-squared test to look for any statistically significance ($P < 0.05$). Results: There were 125 patients suffered from ulcerative colitis (UC) and 84 patients suffered from Crohn’s disease (CD) (Fig. 1). Among the UC groups, 62.4% (78/125) had normal Hb at diagnosis, while 16.8% (21/125) suffered from mild anemia; 17.6% (22/125) suffered from moderate anemia; and 3.2% (4/125) suffered from severe anemia. On the other hand, 28.6% (24/84) of CD patients had normal Hb at diagnosis, while 16.8% (21/125) suffered from mild anemia; 17.6% (22/125) suffered from moderate anemia; and 3.2% (4/125) suffered from severe anemia. On the other hand, 28.6% (24/84) of CD patients had normal Hb at diagnosis, while 16.8% (21/125) suffered from mild anemia; 17.6% (22/125) suffered from moderate anemia; and 3.2% (4/125) suffered from severe anemia. It was statistically significant among the UC group ($\chi^2 = 12.6619, P = 0.0487$), demonstrating a positive correlation with the extent of disease at diagnosis; however, it was insignificant among the CD group ($\chi^2 = 10.7984, P = 0.0948$). Conclusion: The severity of anemia could be considered as an isolated marker to predict the extent of UC at diagnosis; however, it could not be used in the CD groups.

Keywords: anemia, Crohn’s disease, inflammatory bowel disease, ulcerative colitis

Anemia and extent of IBD disease

OE-0201 (PP-0114) Predictors of using traditional medicine, complementary, and alternative medicine in inflammatory bowel disease in Hong Kong: The first patients’ self-report in ethnic Chinese

Authors: JESSICA Y L CHING[1]; JUSTIN C Y WU[1]; K L CHAN[2]; KITTY C Y CHEUNG[1]; DANIEL C K SO[1]; JOEY C H CHAN[1]; WHITNEY W Y TANG[1]; SIEW C NG[1]
Affiliation: Departments of [1]Institute of Digestive Disease, [2]Hong Kong Institute of Integrative Medicine, The Chinese University of Hong Kong, Hong Kong, Hong Kong

Background and Aim: Inflammatory bowel disease (IBD) is an emerging disease especially in Asia; Hong Kong is one of the top 5 incidence areas. Despite the various conventional treatments, traditional medicine (TM), complementary, and alternative medicine (CAM) have been reported to be used for IBD in western countries, yet very few published data in Asia. Methods: This is a cross-sectional self-administered survey conducted from April 2018 to May 2018 in Hong Kong. Clinic and community subjects were invited. The survey contained the questions about subjects’ demographics, IBD-related, hospitalization, bowel resection, kind of TM, and CAM treatment. Univariate analysis was used for the comparison between users and non-users; if $P$ value $< 0.05$, multiple logistic regression was used to find the predictors of using TM or CAM. Results: Three hundred fifty-three subjects (female: 44.2%; mean age: 42.9 ± 14.4) participated in the survey. Among them, 133 (37.7%) patients had received or taken TM or CAM. Female, age, education, household income, disease status, and use of steroid and immunosuppressants were significant variables ($P < 0.05$) for taking TM or CAM. After adjustment, female (OR 3.84), tertiary school or above (OR 5.92, 95% CI: 1.37–23.84), tertiary school or above (OR 5.92, 95% CI: 1.37–23.84), and steroid use (OR 2.3, 95% CI: 1.29–4.09) were the significant predictors. Among all TM and CAM treatments, traditional medicine (71.4%), probiotics (50.3%), and vitamins/minerals (39.8%) were used most frequently. Conclusion: In this first patients’ self-report on the use of TM or CAM for IBD in Asia, the prevalence of using TM or CAM in Hong Kong is comparable to western countries. Predictors are female, tertiary education or above, and steroid use. Moreover, traditional medicine, probiotics, vitamins/minerals were the top three commonest treatments. For more understanding, further studies on both patients’ and doctors’ perceptions and practice are warranted.

Keywords: complementary and alternative medicine, first self-reported survey, IBD, predictors, traditional medicine

Anemia and extent of IBD disease
OE-0269 (PP-0115) Age at onset, maintenance therapy, and erythrocyte sedimentation rate are independent risk factors for anal fistula in Crohn’s disease

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Affiliation: Department of Gastroenterology, Xiangya Hospital, Central South University, Changsha City, China

Background and Aim: Little is known about the risk factors of Crohn’s disease with anal fistula in the population. Methods: Retrospective analysis of data from resident patients diagnosed with Crohn’s disease at Xiangya Hospital from September 2015 to September 2017 was performed. The patients were divided into groups with or without anal fistula. The following factors associated with the appearance of anal fistula were investigated: age at onset, sex, smoking habit, disease location, maintenance therapy, disease behavior, disease activity, and laboratory data, such as platelet count, erythrocyte sedimentation rate, and C-reactive protein level. Results: Forty-three patients, including 38 males and 5 females, had anal fistula among 248 patients diagnosed with Crohn’s disease. Eighteen patients had anal fistula before the age of 20, 13 at the age of 21–30, 5 at the age of 31–40, and 7 over the age of 40. The factors age at onset (P = 0.000), maintenance therapy (P = 0.014), and increased erythrocyte sedimentation rate (P = 0.016) were found to be significantly correlated with anal fistula. Based on multivariate logistic regression, the independent risk factors for anal fistula in Crohn’s disease were the age at onset (odds ratio [OR]: 0.54, 95% confidence interval [CI]: 0.339–0.850, P = 0.008), maintenance therapy, and erythrocyte sedimentation rate (OR: 3.24, 95% CI: 1.283–8.182, P = 0.013). Conclusion: The age at onset, maintenance therapy, and erythrocyte sedimentation rate are independent risk factors for Crohn’s disease with anal fistula. According to the results of our statistical analyses, we recommend that patients younger than 20 years who are diagnosed with Crohn’s disease, with or without anal fistula, use anti-TNF therapy.

Keywords: anal fistula, Crohn’s disease, independent risk factors

OE-0379 (PP-0116) Disease activity and severity of ulcerative colitis are associated with increased mucosal Candida colonization and beta-D-glucan levels

Authors: JIMIL HITESHBHAI SHAH[1]; USHA DUTTA[2]; SHIVAPRAKASH RUDRAMURTHY[3]; ARUNALOKE CHAKRABARTI[3]; PANKAJ SHARMA[4]; Dimple Kalsi[5]; RadhiKA SrINIVASAN[6]; Ashim Das[7]; Rakesh Kochhar[2]

Background and Aim: Role of Candida colonization in activity and severity of ulcerative colitis (UC) is not well defined. Study was conducted to determine the relationship of presence, quantification, and invasiveness of Candida with the disease activity and severity in patients with UC. Methods: Prospective study was conducted in tertiary care center after ethical clearance. Patients with UC (n = 96) and non-UC controls (n = 20) were enrolled after consent. Clinical, endoscopic, histological, and laboratory assessments were performed for disease activity. Assessment for presence and quantification of Candida colonization included mucosal brush cytology, biopsy culture, and serum β-D-glucan. Seven UC patients with evidence of Candida colonization were treated with oral Fluconazole 200 mg twice daily for 14 days and then re-evaluated. All data are expressed as median or percentage. Results: Cases and controls were similar in age and gender. Candida colonization was more often among cases than controls: brush cytology (30% vs 5%; P = 0.019); biopsy culture (33% vs 5%; P = 0.011). Cases had higher colony counts compared to controls (≥10⁵ CFU/mL: 36% vs 5%; P = 0.007). Cases with Candida colonization had higher median UCDAI, CRP, fecal calprotectin, and histological activity compared to those without. Patients with severe disease more often had confluent growth of Candida as compared to patients with moderate or mild disease (50% vs 7.4% vs 3%; P = 0.009). Cases had higher β-D-glucan values compared to controls (103.2 pg/mL vs 66.5 pg/mL; P = 0.011). Post-therapy all patients (n = 7) showed significant reduction in clinical score, endoscopic score (UCDAI: 8.0 vs 4.0; P = 0.017) and histological score. Conclusion: Patients with UC more often have evidence of mucosal Candida colonization and higher Candida colony count as compared to controls which is associated with increased disease severity and β-D-glucan values. Anti-fungal therapy resulted in significant reduction of disease activity.

Keywords: β-D-glucan, Candida colonization, ulcerative colitis
OE-0733 (PP-0117) Incidence and outcomes of acute severe ulcerative colitis (ASUC): A retrospective cohort study in a Singapore tertiary institution

**Authors:** KAINA CHEN[1]; WEBBER CHAN[1]; CHOON JIN OOI[1]; SAI WEI CHUAH[1]; BRIAN JOHN SCHWENDER[1]; SAN CHOON KONG[1]; WAN CHEE ONG[2]; TEONG GUAN LIM[2]; HANG HOCK SHIM[1]

**Affiliation:** Departments of [1]Gastroenterology and Hepatology [2]Pharmacy, Singapore General Hospital, Singapore, Singapore

**Background and Aim:** Incidence and outcomes of acute severe ulcerative colitis (ASUC) in Asia countries are unclear. We aim to report its incidence and outcomes at a tertiary hospital in Singapore. **Methods:** A retrospective review of medical record from 2000 to 2017 was performed for patients with ulcerative colitis (UC) in Singapore General Hospital. ASUC was defined as per Truelove and Witt’s criteria. Baseline demographics, needs for salvage therapy (biologics, surgery), and outcome up to 15 years were collected and analyzed. **Results:** A total of 236 patients were included with 25 (10.6%) ASUC. Most ASUC patients (69%) had pancolonic disease, and median age was 53.2 years (Table 1). Four (20%) had superimposed cytomegalovirus (CMV) colitis while 2 (9%) had Clostridium difficile infection. Only CMV infection was significantly associated with needs for salvage therapy (OR 21.2, P = 0.004). Five patients (20%, 5/25) failed intravenous corticosteroids: three responded to infliximab, one to adalimumab, and one required emergency colectomy. Overall, 8/25 (32%) patients required colectomy (one during index admission; two within 1 year of ASUC). Only extent of disease (pancolitis) was found to be associated with higher risk of ASUC (OR 1.53, P = 0.038). Age of UC diagnosis, duration of disease, and gender were not significant. **Conclusion:** In our cohort, although incidence of ASUC is comparable to the western cohort, long-term colectomy rate is lower. Larger number of patients are needed to confirm this observation. **Keywords:** acute severe ulcerative colitis, ASUC, UC, ulcerative colitis

### Table 1. Baseline demographics

<table>
<thead>
<tr>
<th>Gender</th>
<th>ASUC (25)</th>
<th>Non-ASUC (211)</th>
<th>All UC (236)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13 (55%)</td>
<td>127 (60.2%)</td>
<td>140 (59.3%)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td>15 (60%)</td>
<td>150 (71.1%)</td>
<td>165 (69.9%)</td>
</tr>
<tr>
<td>Malay</td>
<td>4 (16%)</td>
<td>14 (6.6%)</td>
<td>18 (7.6%)</td>
</tr>
<tr>
<td>Indian</td>
<td>5 (20%)</td>
<td>31 (14.7%)</td>
<td>36 (15.3%)</td>
</tr>
<tr>
<td>Others</td>
<td>1 (4%)</td>
<td>16 (7.6%)</td>
<td>17 (7.3%)</td>
</tr>
<tr>
<td>Smoking status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-smoker</td>
<td>14 (56%)</td>
<td>109 (51.7%)</td>
<td>124 (52.5%)</td>
</tr>
<tr>
<td>Ex-smoker</td>
<td>7 (28%)</td>
<td>21 (10%)</td>
<td>25 (10.6%)</td>
</tr>
<tr>
<td>Smoker</td>
<td>1 (4%)</td>
<td>10 (4.7%)</td>
<td>10 (4.2%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>3 (12%)</td>
<td>7 (3.3%)</td>
<td>7 (3.2%)</td>
</tr>
<tr>
<td>Extent of UC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1 (proximal)</td>
<td>0 (0%)</td>
<td>35 (16.6%)</td>
<td>35 (14.8%)</td>
</tr>
<tr>
<td>E2 (left-sided colitis)</td>
<td>10 (40%)</td>
<td>68 (41.7%)</td>
<td>96 (41.5%)</td>
</tr>
<tr>
<td>E3 (pancolitis)</td>
<td>15 (60%)</td>
<td>81 (38.4%)</td>
<td>96 (40.7%)</td>
</tr>
<tr>
<td>missing</td>
<td>0 (0%)</td>
<td>7 (3.3%)</td>
<td>7 (3.0%)</td>
</tr>
<tr>
<td>age at UC diagnosis, yr (IQR)</td>
<td>38.2 (29-51.7)</td>
<td>37 (29 - 49.3)</td>
<td>37.9 (29 - 50)</td>
</tr>
<tr>
<td>Duration of disease, yr (IQR)</td>
<td>8.2 (5.9 - 14.6)</td>
<td>9.2 (2.4 - 16.9)</td>
<td>9.1 (3.2 - 15.9)</td>
</tr>
<tr>
<td>age at ASUC, yr (IQR)</td>
<td>53.2 (34.9 - 58.3)</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

OE-0810 (PP-0118) Molecular detection of pathogenic gut bacteria in inflammatory bowel disease (IBD) patients is not influenced by disease activity

**Authors:** DEBORAH CHIA HSIN CHEW[1]; ZETTI ZAINOL RASHID[2]; S A ALJEFFRY[2]; S H CHE MOHD AZMI[2]; A M S KHOO[2]; ZETTI ZAINOL RASHID[2]; M N ABDUL SAMAT[2]; H YUSOF[2]; RAJA AFFENDI RAJA ALI[1]

**Affiliation:** Departments of [1]Gastroenterology, Gastroenterology Unit, [2]Microbiology, Department of Medical Microbiology and Immunology, National University Hospital Malaysia Medical Centre (PPUKM), Malaysia

**Background and Aim:** Little is known about the isolation of pathogenic gut bacteria among IBD patients of different disease activity. We aimed to determine the influence of IBD disease activity on the presence and composition of pathogenic gut bacteria. **Methods:** A cross-sectional study was conducted from January 2017 to April 2018 at National University Malaysia Medical Centre. Patients were classified into active or inactive disease via CDAI and UCDAI. Stool samples were collected for PCR analysis. Those on antibiotics or corticosteroids were excluded. **Results:** Forty-nine IBD patients were recruited, of which 20 had CD and 29 had UC (inactive IBD = 63.3%, active IBD = 36.7%); 69.3% of IBD patients had at least one pathogenic gut bacteria detected in which 46.9% of them had in-active and 22.4% had active diseases. Inactive IBD was not associated with the absence of pathogenic gut bacteria (P = 0.834; 24.5% patients had one pathogen detected, 36.7% had two to three pathogens, and 8.1% had more than three pathogens. Disease activity was not associated with the number of pathogens found (P = 0.267). No statistical difference was found between the presence of bacteria in CD and UC patients, P = 0.699. The commonest pathogenic bacteria detected for active and inactive IBD patients was the Escherichia coli (63.5%) strain. Gut pathogens detected were enteropathogenic *E. coli* (55.1%), enterogassergative *E. coli* (18.4%), and enterotoxigenic *E. coli* (10.2%). The detection of pathogenic bacteria is independent of IBD disease activity. The commonest pathogen isolated from feces of IBD patients is *Escherichia coli*, the commonest subtype of enteropathogenic *Escherichia coli*. Further studies on how its elimination influences IBD are warranted. **Keywords:** enteropathogenic Escherichia coli, inflammatory bowel disease activity, pathogenic gut bacteria

Authors: JAE JUN PARK[1]; JOONKI LEE[3]; JAE HEE CHEON[2]; TAE IL KIM[2]; HYOJIN PARK[1]; WON HO KIM[2]; AE SUN SHIN[3]
Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Gangnam Severance Hospital, [2]Department of Internal Medicine-GI/Hepatology, Severance Hospital and [3]Department of Preventive Medicine, Seoul National University Hospital, Seoul, Korea

Background and Aim: Although the incidence of inflammatory bowel disease (IBD) has been known to increase in Asian countries, the detailed epidemiologic features are not well known. Methods: Using the National Health Insurance Database (NHID), we collected data on newly diagnosed patients with IBD (17 178 Crohn’s disease [CD] and 38 435 ulcerative colitis [UC]) from 2004 to 2015. Annual age-standardized incidence rate was calculated, and Joinpoint regression was used for statistical analysis to compute annual percent changes (APC) in incidence rates. Results: The age-specific incidence rate of CD peaked at 10–29 years old in both men (9.04/100 000) and women (3.37/100 000). The incidence rate of CD was significantly increased in men aged 10–19 (APC = 12.2%), 20–29 (5.8%), and 30–39 (2.3%) and women aged 10–19 (11.4%) and 20–29 (3.0%). Meanwhile, the age-specific incidence rate of UC peaked in 60–69 years old in both men (12.87/100 000) and women (9.86/100 000). Significant increase in incidence rates of UC was observed in men aged 10–19 (6.8%), 20–29 (5.5%), and 30–39 (2.0%), and women aged 10–19 (9.7%) and 20–29 (3.7%). The incidence rate of CD was 3.29/100 000 in metropolitan area and 2.96/100 000 in non-metropolitan area, which were both annually increasing. Meanwhile, the incidence rate of UC was 7.15/100 000 in metropolitan area and 7.02/100 000 person-years in non-metropolitan area, which were increasing in both areas. Conclusion: The incidence of both CD and UC in Korea was increased between 2004 and 2015. Metropolitan area showed higher incidence rate than non-metropolitan area. The most prominent increase of CD incidence was observed in 10–39 years old men and 10–29 years old women during the study period. Keywords: Crohn’s disease, incidence, inflammatory bowel disease, Korea, ulcerative colitis

OE-0893 (PP-0121) Study of predictive factors and clinical implication of deep mucosal healing in ulcerative colitis

Authors: DEEPAK GUPTA; SANGEET SAWRAV; NIVEDITA MANE; AAKASH SHUKLA; SHOBNA BHATIA
Affiliation: Department of Gastroenterology, Department of gastroenterology, KEM Hospital, Parel, Mumbai, Maharashtra, India

Background and Aim: Deep mucosal healing is the goal in treatment of UC that predicts sustained clinical remission and resection free survival. We did this study to evaluate the incidence, predictors, and outcome of deep mucosal healing in UC. Methods: Prospectively patients recently diagnosed with UC or with acute flare were enrolled. Patients were assessed three months for clinical remission (cessation of bleeding and normal stool frequency), endoscopic healing (Mayo score of < 1) and biopsy for mucosal healing as per Geboes index into complete, partial, or no healing. Patients were followed up for at least 12 months, and details regarding hospitalization, flares, and surgery were recorded at every follow up. Results: One hundred and five patients (mean age 36.5 [12.5] years, 52 male) were followed up for mean duration of 15.5 (3.0) months. Forty-two patients had pancolitis, 31 had left-sided colitis, and 32 had proctitis. Fifty-seven patients had severe disease at onset requiring steroids. Clinical remission was seen in all patients (46 mesalamine, 57 steroids, 1 infiximab, and 1 mycophenolate). Endoscopic healing was seen in 69 (65.7 %) within 6.2 ± 4.2 months of treatment. Complete mucosal healing was seen in 6 (5.7%) patients (2 mesalamine, 3 azathioprine, and 1 infiximab) and partial mucosal healing in 36 (34.2% patients. Severe disease at onset requiring steroids was associated with lack of mucosal healing. Endoscopic healing was seen in 41/65 (63%) patients on mesalamine and 26/38 (68.4%) on azathioprine. Flares were similar in patients with and without endoscopic healing (29/69 vs 15/36, P = 0.971). Flares were seen in 0/6, 18/36, and 36/63 in complete, partial, and no mucosal healing (P = 0.03). Conclusion: Deep mucosal healing, as compared to endoscopic healing, is a better predictor of sustained remission. Keywords: endoscopic healing, IBD, mucosal healing, remission
**OE-0983 (PP-0122) Natural history of inflammatory bowel disease from 1970 to 2017: Results from a large single center in Singapore**

**Authors:** MIAO SHAN LIM; HANG HOCK SHIM; ANDREW XIA HUANG TAN; KAIMA CHEN; AARON TAU MING GAN; BRIAN SCHWENDER; WEBBER PAK WO CHAN

**Affiliation:** Department of Gastroenterology and Hepatology, Singapore General Hospital, Singapore, Singapore

**Background and Aim:** Data on the natural history of inflammatory bowel disease (IBD) in Asia are limited. This study aimed to determine the clinical features and outcomes of IBD patients from the largest center in Singapore.

**Methods:** Data on 451 IBD patients (203 Crohn’s disease [CD], 246 ulcerative colitis [UC] and 2 IBD-unclassified) were retrospectively collected. Disease phenotype, surgery, and medication were analyzed.

**Results:** Median age at diagnosis was 29 (interquartile range [IQR], 20–46) years for CD and 40 (IQR, 30–50) years for UC. Ileocolonic location (65.3%) and an inflammatory phenotype (59.4%) were the most common at CD diagnosis. Stricture/penetrating disease was found in 56.2% and perianal disease in 25.6% of CD patients at 10 years after diagnosis. Left-sided UC (43.5%) was the most common disease extent on presentation. Proximal disease extension of UC developed in 16.5% 10 years after diagnosis. Cumulative rates of surgery for CD were 17.7%, 24.1%, 29.1%, and 32% at 1, 5, 10 and 20 years, respectively. The corresponding rates for UC were 2%, 4.5%, 4.5%, and 5.7%, respectively. Cumulative exposure to immunomodulator treatment for CD was 73.9% and 41.5% for UC. Cumulative exposure to biological therapy for CD was 47.8% and 13.0% for UC (Table 1).

**Conclusion:** The disease phenotype and natural history of IBD in our cohort follow that of the western countries. CD is a disabling disease with higher surgical rates and requires more immunomodulators and biological therapies compared with UC.

**Keywords:** biological therapy, Crohn’s disease, IBD, immunomodulator, ulcerative colitis

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**OE-0158 (PP-0123) Fluorofenidone reveals a novel function for glutathione S-transferase A3 in inhibiting hepatic stellate cell activation and hepatic fibrosis**

**Authors:** YU PENG[1]; HAIHUA CHEN[1]; HUIXUANG YANG[1]; LIJIAN TAO[2]

**Affiliation:** Departments of [1]Internal Medicine-GI/Hepatology, Xiangya Hospital, [2]Internal Medicine-Nephrology, Xiangya Hospital, Central South University, Changsha, Hunan, China

**Background and Aim:** Liver fibrosis and its endstage, cirrhosis, represent a major public health problem worldwide. Activation of hepatic stellate cells (HSCs) is a central event in hepatic fibrosis. However, the proteins that control HSC activation are incompletely understood. Glutathione S-transferase A3 (GSTA3) is known as an antioxidative protease belonging to GSTs α-class; however, the crucial role of GSTA3 in liver fibrosis remains unclear. As a recently we produced fluorofenidone (AKF-PD) can attenuate liver fibrosis, present studies were designed to explore the role of GSTA3 in liver fibrosis and its modulation by AKF-PD in vivo and in vitro.

**Methods:** Rats treated with dimethylnitrosamine (DMN) or carbon tetrachloride (CCl₄) were randomly divided into normal, model, and AKF-PD-treated groups. Immunohistochemistry and Western blot analysis were performed to determine the expression of GSTA3 and its downstream targets.

**Results:** Treatment with AKF-PD significantly decreased the expression of GSTA3 and its downstream targets. Furthermore, AKF-PD treatment resulted in a reduction in collagen deposition and a decrease in the number of activated HSCs.

**Conclusion:** Fluorofenidone reveals a novel function for glutathione S-transferase A3 in inhibiting hepatic stellate cell activation and hepatic fibrosis.

**Keywords:** fluorofenidone, GSTA3, hepatic fibrosis, hepatic stellate cell activation
PD treatment groups. The two activated HSCs lines, rat CFSC-2G and human LX2, were treated with AKF-PD, respectively. The lipid peroxidation malondialdehyde (MDA) in rat serum was determined by ELISA. The generation of reactive oxygen species (ROS) was measured by dichlorodihydrofluorescein fluorescence analysis. The expression of α-smooth muscle actin (α-SMA), fibronectin (FN), extracellular signal-regulated kinase (ERK1/2), p38 mitogen-activated protein kinase (p38 MAPK), c-Jun N-terminal kinase (JNK), GSK-3β and phosphorylation of ERK, p38 MAPK, JNK, and GSK-3β were detected by real-time RT-PCR and/or western blot. Results: GSTA3 was substantially reduced in the experimental fibrotic livers and transdifferentiated HSCs. AKF-PD alleviated DMN- or CCl4-induced hepatic fibrosis and potently inhibited HSCs activation correlated with suppressing GSTA3. Moreover, GSTA3 overexpression prevented HSCs activation and fibrogenesis, while GSTA3 knockdown enhanced HSCs activation and fibrogenesis resulted from increasing expression of ROS and MDA and subsequent amplified MAPK signaling and GSK-3β phosphorylation. Conclusion: We demonstrated firstly that GSTA3 plays an important antioxidant effect in CCl4- or DMN-induced liver fibrosis through the activation of MAPK and Wnt/GSK-3β signaling pathways. GSTA3 may represent a promising therapy target for liver fibrotic diseases.

Keywords: fluoroefenidone, glutathione S-transferase A3, hepatic fibrosis, hepatic stellate cells

**OE-0199 (PP-0124) Rapid endoscopic ultrasound screening of hepatopulmonary syndrome (RUSH): A safe, simple, and quick procedure for gastroenterologist**

Authors: RAHUL PUNDLIK TALELE;
SANTOSH KUMAR YADAV; VIKAS VIRENDRA KOHLI;
MALAY SHARMA
Affiliation: Department of Medical Gastroenterology, Jaswant Rai Speciality Hospital, Meerut, UP, India

Background and Aim: Diagnosis of hepatopulmonary syndrome (HPS) requires screening for hypoxia using pulse oximetry and arterial blood gas analysis followed by evaluation of intrapulmonary shunting using contrast echocardiography and Technetium99m labelled macroaggregated albumin (MAA) scan. We present a novel endoscopic ultrasound guided method to detect HPS, which is safe, simple, and quick. It can be used as an alternative to the contrast echocardiography, enabling gastroenterologist to evaluate for HPS. Methods: Ten patients with child C cirrhosis who presented with complaints of dyspnea and evidence of deoxia (spO2 < 97%) were enrolled for the study. After sedation, routine screening endoscopy was done followed by EUS. The left atrium was located at around 33 cm distance in the esophagus, and the right atrium was visualized in the same plane. Once both chambers were placed in the same axis in real time, 10 mL agitated saline mixture was injected via a wide bore IV cannula. Cardiac cycles were monitored in real-time EUS. The first appearance of bubbles in right atrium was taken as the index cycle. Detection of the microbubbles in left atrium after three cardiac cycles was considered as diagnostic of HPS. Results: Mean age of patients was 54 ± 3.56 years. Mean SpO2 and PaO2 values were 93.2 ± 0.61% and 70.71 ± 1.87 mmHg, respectively. Using EUS, intrapulmonary shunting could be documented in seven patients. Total average duration for EUS procedure was 2.6 ± 0.22 min. No complications were noted during all 10 procedures. Conclusion: Rapid endoscopic ultrasound screening of hepatopulmonary syndrome (RUSH) is a safe, simple, and quick procedure and should be widely adopted in the evaluation of CLD patients who present with dyspnea.

Keywords: endoscopic ultrasound, hepatopulmonary syndrome

**OE-0423 (PP-0125) Outcomes of large volume paracentesis in cirrhotic patients with spontaneous bacterial peritonitis**

Authors: RABEEA AZMAT; BASIT SIDDIQUI
Affiliation: Department of Medicine, Aga Khan University Hospital, Karachi, Pakistan

Background and Aim: Spontaneous bacterial peritonitis (SBP) occurs in 10–30% of cirrhotic patients and is associated with high mortality rate among hospitalized patients and its associated incidence of acute kidney injury (AKI) and hepatorenal syndrome (HRS). Large volume paracentesis (LVP) decreases the burden of infective fluid. Outcomes of LVP in SBP patients have not been clearly addressed in previous studies. Furthermore, in the absence of more viable therapeutic options for preventing kidney impairment in SBP, the management really looms around time and need for renal replacement therapy (RRT). This study will assess the outcome of LVP in patients with SBP, both in terms of mortality, length of stay, and effect on renal function. Methods: This cross-sectional study was conducted on 113 patients with diagnosed SBP. Among these patients, 61 underwent LVP while 51 were managed conservatively. LVP was done as per routine practice of safety and monitoring. All the patients received intravenous albumin. Baseline and 48 h clinical outcomes (including creatinine and ascitic fluid total leucocytes [TLC] count) were compared. The development of AKI and post-paracentesis induced circulatory dysfunction (PPCD) were also assessed, and model for end-stage liver disease (MELD) and Child-Turcotte-Pugh (CTP) scores were also calculated. Results: There was statistically significant improvement in post-48 h creatinine among patients undergoing LVP (P value < 0.001) whereas no significant improvement was seen in patients without LVP (P value 0.32). Similar improvements were seen for special care unit stay and total length of stay in patients with LVP, need for RRT, and incidences of AKI and HRS. Conclusion: LVP in patients with SBP translates into significantly positive outcomes in terms of length of hospital stay, special care unit stay, need for RRT, and development of AKI and HRS. Hence, LVP is recommended as a favored therapeutic option.

Keywords: acute kidney injury, cirrhosis, large volume paracentesis, outcomes, spontaneous bacterial peritonitis
OE-0467 (PP-0126) PXR activation by Gink golide A restores inflammation and tight junction integrity in cirrhosis

Authors: BALASUBRAMANIYAN VAIRAPPAN; SUNDHAR MOHANDAS
Affiliation: Department of Biochemistry, Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), Pondicherry, India

Background and Aim: Previous studies in inflammatory bowel disorders have implicated Pregnane X receptor (PXR) in maintaining tight junction integrity and countering inflammation. However, the role of PXR activation in liver cirrhosis has not been explored. Ginkgolide A (GA), a terpene trilactone present in ginko biloba extract, is a natural ligand of both rodent and human PXR. The aim of this study was to investigate the effect of GA on regulating PXR and tight junction proteins in gut-liver axis of CCl4 induced cirrhosis.

Methods: Male Swiss mice were administered with CCl4 (0.5 mL/kg body weight, i.p.) in corn oil twice a week for over the period of 12 weeks. Following the induction of ascites, mice were randomized and administered 100 mg/kg bodyweight of Ginkgolide A to control and cirrhotic mice through oral gavage daily for next 2 weeks. At termination, blood, gut, and liver tissues were collected for biochemical and molecular studies.

Results: Compared to naive, hepatic inflammatory markers (NFkB, TNF-α), ALT, and bilirubin were significantly (P < 0.01) elevated while albumin was significantly (P < 0.01) reduced in serum of CCl4 induced cirrhotic mice. Following treatment with GA to cirrhotic mice show significantly (P < 0.05) decreased NFkB, TNF-α, ALT, and bilirubin and significantly (P < 0.05) increased albumin levels. Protein expressions of hepatic and small intestinal PXR, CYP3A, ZO-1, and Occludin were found to be significantly (P < 0.01) decreased in CCl4 induced cirrhotic mice when compared to naïve mice. Treatment with GA to cirrhotic mice significantly (P < 0.05) induced the expression of both hepatic and small intestinal PXR, CYP3A, ZO-1, and Occludin.

Conclusion: Our data support the hypothesis that GA treatment to CCl4 induced cirrhosis activated hepatic and small intestinal PXR and diminished inflammation thereby improving tight junction integrity.

Keywords: cirrhosis, ginkgolide, gut-liver axis, PXR, tight junction

OE-0500 (PP-0127) Tofacitinib ameliorates inflammation effectively in immune-mediated hepatic injury

Authors: HAN WANG; XINXIA FENG; LIMIN XIA; WEI YAN; DEAN TIAN
Affiliation: Department of Gastroenterology, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

Background and Aim: Tofacitinib, a new Janus Kinases inhibitor that is under investigation for the treatment of rheumatoid arthritis, is also helpful for ulcerative colitis according to the recent reports. Here, we investigated the protective effect of tofacitinib in immune-mediated hepatic injury mice induced by concanavalinA (conA) and explored the mechanism of its anti-inflammatory effect in vivo and in vitro.

Methods: C57 female mice of 6–8 weeks old were randomly divided into three experiment groups (10 mice in each group): blank control, model, and treatment groups. Tofacitinib (15 mg/kg/day) was given to the treatment groups by gavage. The mice were injected conA by tail vein 3 days later except the blank control group; 12 h after the injection of conA, the transaminases of the serum were tested by ELISA; HE stain was used to evaluate the liver inflammation. The ratio of regulatory T cells (Treg) and Th17 cells in the mice injected conA was increased in the treatment group and down-regulated inflammatory effect of tofacitinib in immune-mediated hepatic injury mice induced by conA and the decreased liver transaminases were also prominent. The down-regulated ratio of Treg and Th17 cells in the mice injected conA was increased in the treatment group and also increased the ratio of Treg and Th17 cells in vitro.

Conclusion: Tofacitinib has a protective effect against hepatic injury in mice induced by conA.

Keywords: autoimmune hepatitis, conA, tofacitinib, Th17 cell, Treg

HE stain of the mice livers
OE-0503 (PP-0128) The demographic, clinical features, treatment, and outcome of autoimmune hepatitis (AIH) patients in multi-ethnic Malaysia since 2002
Authors: YUN CHIEN CHUNG[1]; SOEK SIAM TAN[1]; B RUVEENA[2]; M SANJIV[2]
Affiliation: [1]Department of Hepatology, Hospital Selayang, Batu Caves and [2]Department of Internal Medicine-GI/Hepatology, University Malaya Medical Center, Kuala Lumpur, Malaysia

Background and Aim: There is a paucity of AIH data in Malaysia. We aim to study the sociodemographic and clinical presentations and outcome in AIH patients under our follow up. Methods: Retrospective analysis of a prospectively maintained AIH database according to Simplified Diagnostic or Revisited International Autoimmune Hepatitis Group Criteria. Results: One hundred thirty-five patients were identified (110 female; 85 Malay, 30 Chinese, 17 Indians, one Bumiputera Sarawak and two others; median age at presentation 47 years (IQR 38–55); 135 patients qualified as type 1 AIH (n = 100, 74.8%), type 2 AIH (n = 2, 1.5%), autoimmune markers negative (n = 16, 11.9%), and overlap syndrome (n = 17, 12.6%). The mode of presentations were acute hepatitis (n = 53, 39.3%), chronic hepatitis (n = 34, 25.2%), compensated cirrhosis (n = 16, 11.9%), decompensated cirrhosis (n = 23, 17%), acute-on-chronic liver failure (n = 2, 1.5%), and acute liver failure (n = 7, 5.2%). Pretreatment liver biopsies were performed in 121 patients. A total of 34 patients (25.2%) were diagnosed with concurrent extrahaepatic disorders with thyroid disease the commonest (n = 11, 32%). Prednisolone monotherapy was the predominant immunosuppressive agent used at initiation (n = 114, 84%); 109 patients with median follow up of 47 months (IQR: 20–89 months), 66 (61%) achieved biochemical remission whereas 43 (39%) failed to achieve biochemical remission. Conclusion: AIH affects predominantly females of all ages, type 1 AIH being the most common. It has variable mode of clinical presentations; their recognition and prompt diagnosis will ensure good outcome.
Keywords: autoimmune hepatitis, extrahepatic disorders, Malaysia, overlap syndrome

Demographic

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Results</th>
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<td>Mean Age (years)</td>
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</tr>
<tr>
<td>Gender, female</td>
<td>81.5%</td>
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<td>Ethnicity</td>
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</tr>
<tr>
<td>Malay</td>
<td>85 (63%)</td>
</tr>
<tr>
<td>Chinese</td>
<td>30 (22%)</td>
</tr>
<tr>
<td>Indian</td>
<td>17 (12%)</td>
</tr>
<tr>
<td>Others</td>
<td>10 (7%)</td>
</tr>
<tr>
<td>Mode of presentation</td>
<td></td>
</tr>
<tr>
<td>Acute hepatitis</td>
<td>53 (39%)</td>
</tr>
<tr>
<td>Chronic hepatitis</td>
<td>34 (25%)</td>
</tr>
<tr>
<td>Compensated cirrhosis</td>
<td>16 (11.9%)</td>
</tr>
<tr>
<td>Decompensated cirrhosis</td>
<td>23 (17%)</td>
</tr>
<tr>
<td>Acute-on-chronic liver failure</td>
<td>2 (1.5%)</td>
</tr>
<tr>
<td>Acute liver failure</td>
<td>7 (5.2%)</td>
</tr>
<tr>
<td>Type of AIH</td>
<td></td>
</tr>
<tr>
<td>Type 1A1</td>
<td>100 (74.8%)</td>
</tr>
<tr>
<td>Type 2</td>
<td>17 (12.6%)</td>
</tr>
<tr>
<td>Autoimmune positive disease</td>
<td>16 (11.9%)</td>
</tr>
<tr>
<td>Autoimmune negative disease</td>
<td>17 (12%)</td>
</tr>
<tr>
<td>Blood pressure at presentation</td>
<td></td>
</tr>
<tr>
<td>ALT (U/L)</td>
<td>133 (40-400)</td>
</tr>
<tr>
<td>AST (U/L)</td>
<td>415 (120-131.5)</td>
</tr>
<tr>
<td>Total Bilirubin (μmol/L)</td>
<td>110 (30-300)</td>
</tr>
<tr>
<td>Albumin (g/L)</td>
<td>37 (26-43)</td>
</tr>
<tr>
<td>INR</td>
<td>1.1 (0.5-1.5)</td>
</tr>
<tr>
<td>Serum Calcium (mmol/L)</td>
<td>2.2 (1.3-2.4)</td>
</tr>
</tbody>
</table>

OE-0597 (PP-0129) The distribution of non-tumoral portal vein thrombosis in liver cirrhosis and its relationship with wall shear stress
Authors: WEI WEI[1]; SONG REN[2]; RUI ZHOU[2]; AN JIANG[2]; HUI ZHANG[1]; CAIHONG WANG[1]; SIJIA CHEN[1]; SUXIN LI[1]; FANPU JI[2]; ZONGFANG LI[1]
Affiliation: Departments of [1]National and Local Joint Engineering Research Center of Biodiagnosis and Biotechnology, [2]Shaanxi Provincial Clinical Research Center for Hepatic and Splenic Diseases, The Second Affiliated Hospital of Xi’an Jiaotong University, Xi’an, China

Background and Aim: Increasing evidence has shown that low wall shear stress (WSS) contributes to the development of thrombosis followed by the initiation of atherosclerotic plaques. Our previous research found that the WSS was significantly lower in cirrhotic patients than in normal subjects. Therefore, we sought to analyze the distribution of non-tumoral portal vein thrombosis (PVT) in cirrhotic patients and evaluate its relationship with low WSS in the patients’ vessels before the onset of PVT at specific sites. Methods: We retrospectively analyzed the distribution of PVT in 110 non-tumoral cirrhotic PVT patients according to different geometric features. Additionally, 15 minor PVT patients were selected, in whom any thrombosis present was virtually removed to restore the pre-thrombosis lumen, and then we performed the computational fluid dynamics (CFD) simulation to calculate the WSS in the pre-thrombosis models. Results: For patients without splenectomy, the incidence rate of PVT was the highest (55%) in the superior mesenteric vein (SMV) side of the portal vein (PV) trunk. For the conditional probability of the secondary thrombosis, the PVT distribution in the SMV side of the PV trunk was similar to those in patients who underwent splenectomy. Additionally, the location of PVT actually happened <50%). These results were similar to those in patients who underwent splenectomy. Additionally, the location of PVT actually happened fited well with the regions of low WSS. The sensitivity of the low WSS regions in predicting the location of PVT was 87%: however, the specificity is 59%. Conclusion: The distribution of non-tumoral PVT in cirrhotic patients is site-specific, which mostly occurs in the PV trunk, especially on the SMV side. The low WSS regions can predict the locations of PVT with a high sensibility but a low specificity.
Keywords: computational fluid dynamics, liver cirrhosis, portal vein thrombosis, wall shear stress
OE-0688 (PP-0130) A gravity-assisted liver stiffness measurement

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Affiliation: [1]Department of Gastroenterology and Hepatology, Uonuma Institute of Community Medicine, Niigata University Medical and Dental Hospital, Minami Uonuma, [2]Department of Gastroenterology and Hepatology, Niigata Tokamachi Hospital, Tokamachi and [3]Department of Gastroenterology and Hepatology, Graduate School of Medical And Dental Sciences, Niigata University, Niigata, Japan

Background and Aim: To establish a strategy clarifying architectural deformity in congestive liver by measuring liver stiffness, in which interstitial tissue pressure is a key determinant. Methods: A two-dimensional shear wave elastography value (2dSWE) was measured using Canon Aplio 500 at 12 sites (three sites in each segment) on supine (SpSWE) and left decubitus (LdSWE) positions in 306 cases. The median and robust coefficient-of-variation (CVR) were calculated. Results: In 80 cases, LdSWE increased or decreased from SpSWE over the magnitude of CVR. Among them, LdSWE was higher than SpSWE in all 36 cases with normal SpSWE (N), while 27 or 17 cases revealed higher (H) or lower (L) LdSWE, respectively, in comparison with corresponding SpSWE. The diameter of inferior vena cava (IVC) significantly shrank in N and H on left decubitus position (P = 0.012, P = 0.007), while it did not in L (P = 0.32). A cardio thorax ratio was not significantly different between H and L (P = 0.51). Only in L, SpSWE was significantly correlated with the difference between SpSWE and LdSWE (P < 0.0001, r = 0.60), which showed reciprocal variations between right and left lobes. When H and L were separately judged in each lobe, Dunn’s post-hoc test revealed significantly higher or lower values of FIB4 [judged in right (P = 0.0057) and left (P = 0.013) lobes] or platelet counts (P = 0.052 and P = 0.047) only in L against N. Conclusion: The paradoxical increment/shrinkage of LdSWE/IVC on left decubitus position indicate the pressure threshold between the hepatic veins and the IVC. It is reasonable to assume that the gravity deforms architecture of the liver during postural changes causing outflow blocks in the hepatic veins. A rigid liver should be resistant to the structural deformation. Stiff-liver softening on left decubitus position would indicate a fibrous liver.

Keywords: acoustic radiation force impulse, congestive liver, left decubitus position, liver fibrosis, shear wave elastography

OE-0989 (PP-0131) Repeated versus single treatment of esophageal variceal ligation after esophageal variceal bleeding: Multicenter retrospective study

Authors: YOUNG YOUN CHO[1]; YOUNG WHAN CHO[1]; JEONG-HOON LEE[2]; SU JONG YU[2]; YOON JUN KIM[2]; HYUNG JUN KIM[1]; JUNG-HWAN YOON[1]

Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Chung-Ang University Hospital and [2]Department of Internal Medicine-GI/Hepatology, Seoul National University Hospital, Seoul, Korea

Background and Aim: International guidelines recommend repeated esophageal variceal ligation (EVL) for the treatment of esophageal variceal bleeding. However, due to patient compliance and complications of repeated EVL procedure, many physicians perform single EVL treatment after varix bleeding. We aimed to compare the risk of variceal re-bleeding after repeated EVL versus single EVL. Methods: This retrospective study included consecutive patients who underwent initial esophageal variceal ligation (EVL) for the first esophageal variceal bleeding. Primary endpoint was the recurrence of variceal bleeding, and uni-/multi-variate analyses were conducted to find independent predictors. Results: A total of 210 patients were included: 133 in the repeated EVL group and 77 in the single EVL group. During follow-up duration (median = 46.5 months), 17 (12.8%) in the repeated EVL group and 36 (46.8%) in the single EVL group developed re-bleeding (P < 0.01 by log-rank test). However, there were no difference of overall survival between the two groups (P = 0.05). Multivariate analysis showed that the single EVL group compared to the repeated group (adjusted hazard ratio [aHR] = 3.372, 95% confidence interval [CI] = 1.250–9.612, P < 0.001) was the only independent risk factor after adjustment for alcohol etiology (HR = 3.370, 95% CI = 1.717–6.618, P < 0.001), combined gastric varix (HR = 1.333, 95% CI = 1.250–9.612, P = 0.017) and high MELD score (HR = 2.379; 95% CI = 1.192–4.748; P = 0.014). Conclusion: Repeated EVL after esophageal varix bleeding can improve re-bleeding. However, there was no difference in overall survival. Further, randomized control studies are needed.

Keywords: bleeding, esophageal variceal ligation, esophageal varix, recurrence
OE-0393 (PP-0132) Gastric vascular ectasia (GAVE) not rare cause of GI bleed in liver cirrhosis: Cross-sectional study on factors associated with GAVE with or without portal hypertensive gastropathy (PHG) in liver cirrhosis in tertiary care hospital Karachi, Pakistan

Authors: OM PARKASH; ANEEQ YOUSUF; FARZEEN FATIMA; SAEED HAMID

Affiliation: Department of Medicine, Aga Khan University, Karachi, Pakistan

Background and Aim: GAVE but significant cause of acute or chronic gastrointestinal blood loss accounting for 4% of non-variceal upper GI bleed. GAVE is usually associated with chronic liver disease (CLD) and portal hypertensive gastropathy (PHG). We aimed to see etiology, frequency, and associated factors of GAVE with and without PHG in cirrhosis.

Methods: A cross-sectional study conducted at Aga Khan University Hospital, Karachi. Medical records of patients with GAVE were retrieved and reviewed for data collection on performa.

Results: A total of 158 patients were identified from charts of patients, admitted during 2005 until 2017. All these patients were diagnosed endoscopically. GAVE was present predominantly in female (53.8%) with mean age of 58 years (+SD). GAVE was most commonly associated with CLD (77.2%). Frequency of GAVE in cirrhosis is 2.75% while frequency of PHG was 59%. A total of 6971 patients with cirrhosis were admitted during this period. Common presentation was IDA (57.6%), melena (40.5%), and abdominal pain (34.8%). On endoscopic examination, these patients have concomitant esophageal varices (72.2%) and PHG (70.3%). We found significant difference in two groups of GAVE with PHG and without PHG platelets (P value 0.001), total bilirubin (P value 0.038), portal vein diameter (P value 0.025), direct bilirubin (P value 0.048), indirect bilirubin (P value 0.040), and gamma-glutamyl transerase (GGT) (P value 0.015).

Conclusion: GAVE is relatively a common condition found in cirrhosis in this part of world. We recommend further research in this area to look for the better understanding of GAVE especially in liver cirrhosis patient.

Keywords: cirrhosis, GAVE, liver cirrhosis, PHG

OE-0391 (PP-0133) Demonstrating competence in endoscopic retrograde cholangiopancreatography (ERCP): Recently credentialed operators’ performance for deep biliary cannulation over 1 year period from tertiary care hospital in Pakistan

Authors: OM PARKASH; UMER BHATTI; HASNAIN ZAFAR

Affiliation: Department of Medicine, Aga Khan University, Karachi, Pakistan

Background and Aim: Technological advancements in the field of medicine have expanded the use of endoscopy in gastroenterology in many forms, which include endoscopic retrograde cholangiopancreatography (ERCP). We aimed to measure the success rate of biliary cannulation in ERCP of a recently credentialed endoscopist at the Aga Khan University Hospital.

Methods: A clinical audit was conducted on all patients that underwent ERCP under the care of concerned operator during the year 2016 in tertiary care hospital Aga Khan University Hospital in Karachi, Pakistan.

Results: A total of 143 ERCPs were performed by the operator, and 102 were included in the study based on the exclusion criterion. The mean age of the patients was 52 ± 17 years and 54 (52.9%) were female. Out of the 102, 74 (72.5%) were elective admissions and 28 (27.5%) were emergency admissions. Most common indication was choledocholithiasis in 70 (68.6%), followed by periampullary mass in 16 (15.7%) and biliary stricture in 14 (13.7%). Type of anesthesia implied was monitored anesthesia care (MAC) in 97 (95.1%) cases and general anesthesia (GA) in 5 (4.9%) cases. The average time to perform the procedure was 41.5 ± 5.5 min. Cannulation success rate was in 96 (94.1%), duct clearance in choledocholithiasis was in 62/70 (88.6%). Complications include post-ERCP pancreatitis in 5 (4.9%), minimal bleeding in 8 (7.8%), and one esophageal perforation.

Conclusion: Although it is a complicated procedure, competence in performing ERCP can be achieved during training by following set criteria; therefore, after properly credentialing, optimum outcomes have been observed.

Keywords: CBD stone, ERCP, pancreatitis
**EE-0382 (PP-0134) A retrospective comparison of transpancreatic septotomy and needle knife sphincterotomy in difficult biliary cannulation**

**Author:** CHERNG HARNG LIM  
**Affiliation:** Department of Gastroenterology, Chanhua City, Taiwan  

**Background and Aim:** Both precut techniques (TPS and NKS) on a comparable basis, in the past studies, have produced conflicting result. The aim of this study was to document the result of 116 consecutive patients and compare the efficacy and safety of TPS and NKS in difficult biliary cannulation cases.  

**Methods:** This retrospective, single-center study enrolled 1162 patients between January 2011 and February 2016. The outcome measures included success rates, selective biliary cannulation time consumption, and complications were analyzed.  

**Results:** Advanced ERCP precut techniques were required after failure of standard biliary cannulation was 116 out of 1162 patients, with biliary cannulation achieved rate 92.24% (107/116) in the first session. TPS technique was employed in 53 out of 116 patients; bile duct accessible rate was 94.34% (50/53) in the first session. Initial biliary succeed rate in NKS group was 90.48% of patients. The complication rate in NKS was slightly higher, 12.70% versus 7.55%. Three patients received NKS had mild pancreatitis, three had GIB, and two had micro-perforation. Complications after receiving TPS precut technique occurred in 7.14%, including mild pancreatitis (n = 1) and mild procedure related bleeding (n = 3). Three patients with GIB had immediate bleeding; the remaining half of the patients had delay bleeding.  

**Conclusion:** Precut technique can be a reimbursed therapeutic option when standard cannulation was failed to achieved. Owing to potential risks, it is reasonable to reserve to experienced endoscopist which require high technical skills. This study has well demonstrated that the efficacy and safety of TPS is not inferior to NKS method. It is reasonable to promote TPS in difficult cannulation candidate in clinical practice.  

**Keywords:** needle knife, pancreatic sphincterotomy, precut, septotomy, transpancreatic

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**Table 1. Procedure outcomes between Pan**

<table>
<thead>
<tr>
<th>Procedure Outcome</th>
<th>Transpancreatic Sphincterotomy (n=53)</th>
<th>Needle Knife Sphincterotomy (n=63)</th>
<th>Total (n=116)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful Rate</td>
<td>57 (94.69%)</td>
<td>107 (92.34%)</td>
<td></td>
<td>0.596</td>
</tr>
<tr>
<td>Failure Rate</td>
<td>3 (5.31%)</td>
<td>6 (7.75%)</td>
<td></td>
<td>0.596</td>
</tr>
<tr>
<td>Procedure Time</td>
<td>10.9 (8.24)</td>
<td>17.98 (11.64)</td>
<td>16.10 (10.36)</td>
<td>0.348</td>
</tr>
<tr>
<td>Complication Rate</td>
<td>10.22%</td>
<td>8.102%</td>
<td>12.0104%</td>
<td>0.542</td>
</tr>
<tr>
<td>(a) Pancreatitis</td>
<td>1 (1.90%)</td>
<td>3 (4.76%)</td>
<td></td>
<td>0.443</td>
</tr>
<tr>
<td>(b) Hemorrhage</td>
<td>3 (5.66%)</td>
<td>3 (4.76%)</td>
<td></td>
<td>0.443</td>
</tr>
<tr>
<td>(c) Perforation</td>
<td>0</td>
<td>3 (5.66%)</td>
<td></td>
<td>0.722</td>
</tr>
</tbody>
</table>

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**EE-0405 (PP-0135) The usefulness of newly modified non-flared fully covered metal stent of 12-mm diameter comparing with conventional stent for periampullary malignant biliary strictures**

**Authors:** JIN YONG LEE; JONG HO MOON; HYUN JONG CHOI; YUN NAH LEE; HYUN WOO LEE; TAE HOON LEE; SANG-WOO CHA; YOUNG DEOK CHO; SANG HEUM PARK  
**Affiliation:** Department of Internal Medicine, Soon Chun Hyang University Hospital, Bucheon, Korea  

**Background and Aim:** Fully covered metal stent (FCMS) can be a preferred stent for distal malignant biliary stricture (MBS). However, stent migration can be a major adverse event of FCMS, especially for far distal MBS. The aim of this study was to evaluate the usefulness of newly modified non-flared FCMS having 12 mm in diameter to minimized stent migration compared with the conventional FCMS.  

**Methods:** A total of 102 patients with periampullary MBS enrolled prospectively between January 2014 and September 2017; 50 were allocated to the newly modified non-flared FCMS group and 52 to the conventional FCMS group. The primary outcome was the stent migration, and the secondary outcomes were other adverse events and stent occlusion rate during follow-up period.  

**Results:** Baseline characteristics were not significantly different between the two groups. Endoscopic stent placement was technically successful in all patients. Stent migration was observed in 8.0% (4/50) in newly modified non-flared FCMS group in comparison to 23.1% (12/52) in conventional FCMS group (P = 0.036). The incidence of stent-related pancreatitis was 10.0% (5/50) with newly modified non-flared FCMS and 11.5% (6/52) with conventional FCMS (P = 0.802). Stent occlusion was occurred 22.0% (11/50) in newly modified non-flared FCMS and 28.8% (15/52) in conventional FCMS during follow-up period (P = 0.428).  

**Conclusion:** Newly modified non-flared FCMS with large diameter of 12 mm significantly decreased stent migration compared with conventional FCMS in patients with periampullary MBS.  

**Keywords:** covered self-expandable metal stent, malignant biliary stricture, periampullary cancer, stent migration
OE-0092 (PP-0136) Bile duct injury after laparoscopic cholecystectomy: New classification and novel approach for the management in emergency situations


Affiliation: Departments of [1] Endoscopy, [2] Internal Medicine-GI/ Hepatology, Surat Institute of Digestive Sciences, Surat, India

Background and Aim: This study reviews bile duct injuries most commonly found in our setup and a new classification of bile duct injuries with novel management strategies according to type of injury and its presentations. Methods: From October 2010 to May 2018, a total of 207 patients of mean age 51 (range 30–74) years were referred to our unit with bile duct injury following or during laparoscopic cholecystectomy. Intraoperative calls as well. Laparoscopic cholecystectomy was described as “uneventful” in 45% and “difficult” in 55% patients; 22 injuries were recognized at operation. Rest patients were transferred on 7th postoperative day on an average. Results: Exploration and diversion with feeding jejunostomy in Types II and III—16 rest cases—FJ not done. Average time for hepaticojejunostomy—Day 62 following initial surgery. Out of 86 patients of Types II and III, only 47 patient required hepaticojejunostomy (54.6 %), 1 lost to follow up, 39 (45.3 %) managed successfully with ERCP + Single/multiple stents Type 1—119—ERCP and stenting. One hundred eight had intraop drains, rest drained percutaneously. Deaths 2: one—Sepsis and ARDS, second—biliary fistula with liver failure. Conclusion: BD injury—complex problem with significant morbidity and mortality. Intraoperative recognition—Best managed inspite of severity. More complex injuries—better drained first and reconstruction later. We propose the use of endobiliary plastic stents (routinely used following ERC) for internal drainage and repair of bile duct over stent without the use of conventional T tube, and if required, later date hepaticojejunostomy can be done. ERC is used in Types I and II injury and use of multiple stents after a salvage surgery and placing intraoperative stents in 45.3 % cases. In the presence of biliary sepsis and peritonitis, surgical lavage and endobiliary stenting are advisable before subjecting patients to ERC. Keywords: bile duct, ERCP, injury, stents, surgery

OE-0129 (PP-0137) Patterns of bile duct injuries observed during endoscopic retrograde cholangiogram: 13 years of experience in a tertiary care referral center in South Asia

Authors: CHAMILA LAKMAL[1]; NUWAN CHANAKA[1]; BAWANTHA GAMAGE[2]; THEJANA WIJERATHNE[2]; ALOKA PATHIRANA[2]; MOHAN DE SILVA[2]

Affiliation: [1] Department of Surgery, Colombo South Teaching Hospital and [2] Department of Surgery, Faculty of Medical Sciences, University of Sri Jayawardenapura, Colombo, Sri Lanka

Background and Aim: Endoscopic Retrograde Cholangiogram (ERC) has diagnostic and therapeutic indications in management of bile duct injuries. Data on this aspect in the Sri Lankan setting are scarce. Methods: Retrospective analysis of the ERC findings of patients with suspected bile duct injuries from 2003 to 2016 was done. Injuries were categorized by Bismuth–Strasberg classification (A–E). E (1–5) were considered as major injuries. Iatrogenic bile duct injuries (IBDI) were grouped under laparoscopic (LC), converted to open (LCOC), and open cholecystectomy (OC). Results: Over 13 years, 3567 ERCPs were performed in biliary tree and 106 patients had suspected biliary injuries, of which 93 (2.6%) were confirmed. Seventy-two (78%) were females. Mean age was 44 years (range 10–80). The majority of injuries were IBDI (n = 87.9%), 46 following LC, 15 after LCOC, and 26 after OC. Trauma was the cause in six patients. In IBDI group, 47% had major injuries, with Bismuth types A–36%, D–10%, E1–9%, E2–29%, E3–13%, E4–3%. There was no difference with regard to the severity of injury in the three surgery groups. All minor injuries were managed with stenting. The need for reconstructive surgery was significantly more with major biliary injury (P > 0.01) and OC (P = 0.01) and was significantly less in LC (P = 0.01). Conclusion: According to this study, minor injuries, managed solely with stenting, are the commonest type of IBDI. However, major injuries still account for almost half of IBDI. Incidence of major injuries does not appear to have reduced by conversion, indicating that the injury occurred prior to conversion. The significant association of need for reconstruction with OC, probably reflects the case selection. Keywords: bile duct injury, ERCP
Authors: MASAAKI SHIMATANI; TOSHIYUKI MITSUYAMA; MASATAKA MASUDA; MITSUO TOKUHARA; RYO SUZUKI; TAKASHI ITO; HIDEAKI MIYOSHI; TSUKASA IKEURA; MAKOTO TAKAOKA; KAZUICHI OKAZAKI
Affiliation: Department of Internal Medicine, Kansai Medical University, Osaka, Japan

Background and Aim: Endoscopic retrograde cholangiopancreatography (ERCP) is an endoscopic procedure that is applied worldwide for the examination and treatment of biliary stones. However, the success rates for the use of conventional endoscopic devices for the treatment of biliary stones had been unsatisfactory in patients with surgically altered gastrointestinal (GI) anatomy. Recently, many papers proved that the development of the balloon-assisted endoscope (BAE) radically made endoscopic approaches feasible; however, those studies objected varieties in sizes of total number of object patients, and the success rate was overall wide ranging. The aim of this study was to evaluate a large case series of ERCP using short type DBE for biliary stones in postoperative patients, and the success rate was overall wide ranging. The aim of this study was to evaluate a large case series of ERCP using short type DBE for biliary stones in postoperative patients. Methods: From February 2006 to October 2017, ERCP using short type DBE (DB-ERCP) was performed in 615 patients in 1286 procedures and DB-ERCP for biliary stones was performed in 210 postoperative patients (325 procedures). We retrospectively studied the success rate of reaching the blind end, the mean time to reach the blind end, the success rate of complete ERCP related interventions, the mean procedure time, and adverse events. Results: The success rate of reaching the blind end was 98.5% (320/325). The mean time to reach the blind end was 16.5 min. The success rate of complete ERC-related interventions was 97.5% (312/320). The mean procedure time was 76.9 min. The occurrence of adverse events was 9.2% (30/325). According to examination by type of reconstruction methods, there were no significant differences. Conclusion: ERCP using a short type DBE for biliary stones is highly effective and safe in patients with altered gastrointestinal anatomy. DB-ERCP is a promising therapeutic modality in such patients and should be selected as the first-line policy.
Keywords: biliary stones, double balloon endoscope, ERCP, EST, Roux-En-Y reconstruction

OE-0324 (PP-0139) The sphincter-preserving effect of duodenal papilla occlusion by SureClip from MicroTech
Authors: YONGHUI HUANG; KUN WANG; HEJUN ZHANG; HONG CHANG; WEI YAO; KE LI; XIUE YAN; YAOPENG ZHANG; YINGCHUN WANG
Affiliation: Department of Digestive, Peking University Third Hospital, Beijing, China

Background and Aim: To reduce the recurrent cholelithiasis rate by biliary sphincter dysfunction after extensive endoscopic sphincterotomy (EST) for large stone extraction, we attempt to occlude duodenal papilla by SureClip from MicroTech and evaluate its sphincter-preserving effect. Methods: Five people with large biliary stones (1–2.5 cm diameter, common bile duct 1.2–3 cm diameter) and without ERCP history were enrolled. After stone extraction by EST (large than 1 cm), biliary and pancreatic stents were placed, followed by duodenal papilla occlusion with SureClip from MicroTech. The sphincter pressures of biliary duct and Oddi at post-EST, immediately after EST and 4 weeks after EST were measured, respectively. Healing conditions of papilla and complications were documented. Similar experiments were done on four pigs without stone extraction. Results: Both in pigs and in human, the sphincter pressure of Oddi was significantly reduced after EST, recovered by papilla occlusion 4 weeks after operation (Fig. 1a,b). All stones were completely removed for the five patients without any post-EST complications. Four weeks after papilla occlusion, stents were removed, and the papilla was healed under endoscopic observation. Four weeks after EST, compared with normal pig duodenal papilla (Fig. 1c), histology revealed completely muscularis propria disruption of post-EST papilla without any healing (Fig. 1d). In contrast, the muscle layer of post-EST papilla with occlusion by SureClip from MicroTech appeared scar healing (Fig. 1e). Conclusion: The duodenal papilla occlusion by SureClip from MicroTech post EST works as “papilla remodeling,” accelerates healing of papilla, preserves the sphincter pressure, and its anti-reflux barrier function.
Keywords: EST, papilla remodeling, recurrent choledocholithiasis, sphincter preserving, SureClip from MicroTech

Papilla occlusion preserves Oddi function
OE-0387 (PP-0140) Clinical utility of endoscopic therapy for bile leak associated with posthepatobiliary surgery

Authors: HIDEYUKI SHIOMI; TAKESHI TANAKA; KOUHEI YAMAKAWA; MASAHIRO TSUJIMAE; SEIJI FUJIGAKI; TAKASHI KOBAYASHI; ARATA SAKAI; YUUKI SHIOMI; ATSUIRO MASUDA; YUZO KODAMA

Affiliation: Department of Gastroenterology, Internal Medicine, Graduate School of Medicine, Kobe University, Kobe, Japan

Background and Aim: Endoscopic procedures have been used as initial interventions for bile leaks after hepatobiliary surgery. However, there are few reports both regarding its effectiveness and factors related to outcomes of endoscopic therapy. To access the efficacy and outcome of endoscopic therapy for bile leak in posthepatobiliary surgery.

Methods: Fifty-five patients who underwent an endoscopic therapy for bile leak after hepatobiliary surgery between January 2008 and December 2017 were included in this study. Endoscopic therapy involved placing a plastic stent across or in front of bile leak site via papilla under ERCP. We evaluated the technical success, clinical success (disappearance of bile leak at ERCP), adverse events, and long-term outcomes of endoscopic therapy for bile leak after hepatobiliary surgery.

Results: The bile leak site was central type (common bile duct to first-order branch of bile duct) in 26 patients and peripheral type (secondary branch to periphery) in 29 patients. The technical and clinical success rate were 96.4% (53/55) and 86.8% (46/53), respectively. Adverse event rate was 7% (4/53) with mild pancreatitis in all patients. Forty-six patients with clinical success had no recurrence. However, plastic stents were replaced because of biliary stricture in 15 of 46 patients after achieving clinical success. On the other hand, seven patients without clinical success were all peripheral type (P = 0.01), and an encapsulated large amount of biliary leakage on CT scan (P < 0.01).

Conclusion: Endoscopic therapy with plastic stent placement is safe and effective for bile leak after hepatobiliary surgery. The factors affecting clinical success of endoscopic therapy were bile leak of the peripheral type and an encapsulated large biliary leakage. Long-term outcomes are excellent, but it may be difficult to remove stents if patients develop biliary strictures due to bile leak.

Keywords: bile leak, endoscopic therapy, hepatobiliary surgery

OE-0433 (PP-0141) A novel technique using loop device for the repositioning of ENBD catheter in ERCP

Authors: JAE MIN LEE; HONG SIK LEE; SANGHOON KIM; JI HYEONG KIM; SEHYUN JANG; HAN JO JEON; SEONG JI CHOI; EUN SUN KIM; BORA KEUM; YOON TAE JEEN; HOON JAI CHUN; CHANG DUCK KIM

Affiliation: Department of Internal Medicine-GI/Hepatology, Korea University Anam Hospital, Seoul, Korea

Background and Aim: Endoscopic nasobiliary drainage (ENBD) is one of the important procedures for the treatment of biliary diseases. For completing the ENBD after ERCP, it have to be performed a drainage catheter repositioning from mouth to nostril. We developed a new device composed with curved wire-loop and bar-handle. In this study, we compared the outcomes between the conventional technique and new technique in ERCP.

Methods: This study was a retrospective comparative analysis of the endoscopic data in the patients who underwent ERCP between January 2015 and December 2017. ENBD catheter positioning time, success rate, and side effect were compared between conventional technique group and new technique using J-Loop group. Mallampati score, age, and gender were also included as possible factor related with the outcomes.

Results: A total of 145 patients were included in this study. Conventional techniques were used in 71 patients, and new techniques using J-Loop 74 were used for ENBD repositioning. The new technique using J-Loop showed a shorter time for ENBD repositioning than the conventional technique (44 s vs 194 s, P < 0.001). Technical success of new device technique was achieved in 97.3 % (72/74). High Mallampati score was related with difficult ENBD repositioning in conventional technique, but not in new technique. There was no complication in new technique.

Conclusion: A new technique using J-Loop device was useful and easy to reposition the ENBD catheter from mouth to nostril. The outcomes showed that the new technique is more efficient than the conventional technique for ENBD repositioning.

Keywords: ERCP, ENBD, nasobiliary catheter, repositioning

Figure 1. Loop device for ENBD
Background and Aim: This study aimed to evaluate the efficacy of endoscopic plastic stent insertion in patients with anastomotic stenosis after right-sided adult LDLT and to determine factors affecting success of the procedure. Methods: Patients who underwent endoscopic retrograde cholangiopancreatography (ERCP) for biliary stricture after LDLT at Seoul National University Hospital were included. Cholangitis was defined based on the Tokyo guideline, and hyperbilirubinemia was defined as total bilirubin is 2.0 mg/dL or more. Primary outcomes were initial technical and clinical success rate. Patient demographics, etiologies leading to liver transplantation, Charlson comorbidity index, fluoroscopic findings, and details of the initial ERCP were reviewed retrospectively. To identify factors related to success of the procedure, univariable and multivariable analyses were performed using the logistic regression model. Results: From January 2005 to December 2017, a total of 1188 patients underwent LDLT. Of the 233 patients who underwent ERCP with anastomotic stricture, 125 patients with right lobe adult LDLT with two anastomosis site of bile duct were included. The mean time interval between LDLT and development of stricture was 209.3 ± 186.7 days. Initial technical success rate and clinical success rate were 61.9% and 46.8%, respectively. The location of plastic stent insertion was significantly related with failure of the procedure (OR 0.49; 95% CI: 0.39–0.63; P < 0.001). The number of ERBD revision was significantly higher in the PS group than the SEMS group (4.14 ± 2.54 vs 1.68 ± 1.58, P < 0.001). The rate of rescue PTBD was significantly lower in the PS group (22.2% vs 50.0%, P = 0.017). The number of ERBD revision was significantly higher in the PS group than the SEMS group (4.14 ± 2.54 vs 1.68 ± 1.58, P < 0.001). The mean duration of PTBD-free period was significantly longer in the PS group (836.43 ± 93.61 days vs 586.40 ± 71.86 days, P = 0.039). Conclusion: Survival gain is not achieved according to stent type for initial biliary drainage in unresectable MHO. It seems to help improve quality of life by avoiding rescue PTBD by initial biliary drainage with plastic to delay the timing of SEMS as possible. Keywords: gallbladder neoplasm, Klatskin tumor, obstructive jaundice, self-expandable metallic stents

**Keywords:** endoscopic retrograde cholangiopancreatography, liver transplantation, living donors, stents, stricture

**Methods:** Patients who underwent endoscopic retrograde biliary drainage (ERBD) is the standard treatment for palliative biliary drainage in malignant hilar obstruction (MHO), and several debates still exist including proper modality as initial approach. As the need for ERBD revision is increasing by the extended life expectancy, it is important to determine the initial drainage modality with the consideration of ERBD revision. Methods: Patients who were diagnosed with unresectable advanced MHO by biliary tract cancer (Bismuth type III-IV) from January 2010 to December 2016 were included. Patients were separated into plastic stent (PS) group and self expandable metal stent (SEMS) group by the initially used type of stents. The primary outcome was the overall survival, and the secondary outcomes were the rate of rescue percutaneous transhepatic biliary drainage (PTBD), the number of ERBD revision, and the PTBD-free period during follow up. Results: A total of 74 patients (36 in the PS group, 38 in the SEMS group) were investigated after exclusion of inappropriate patients. There was no significant difference in survival between the two groups (410 days in the PS group vs 395 days in the SEMS group, P = 0.663). The rate of rescue PTBD was significantly lower in the PS group (22.2% vs 50.0%, P = 0.017). The number of ERBD revision was significantly higher in the PS group than the SEMS group (4.14 ± 2.54 vs 1.68 ± 1.58, P < 0.001). The mean duration of PTBD-free period was significantly longer in the PS group (836.43 ± 93.61 days vs 586.40 ± 71.86 days, P = 0.039). Conclusion: Survival gain is not achieved according to stent type for initial biliary drainage in unresectable MHO. It seems to help improve quality of life by avoiding rescue PTBD by initial biliary drainage with plastic to delay the timing of SEMS as possible. Keywords: gallbladder neoplasm, Klatskin tumor, obstructive jaundice, self-expandable metallic stents
OE-0917 (PP-0144) Risk of failure and complications of endoscopic retrograde cholangiopancreatography: Comparison of elderly and young Pakistani patients

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Background and Aim: Endoscopic retrograde cholangiopancreatography (ERCP) is an effective diagnostic and therapeutic procedure, widely performed in patients, irrespective of age. The objective of the study was to compare the risk of failure and procedural complications in young and elderly patients. Methods: This cohort study was conducted at Holy Family Hospital, where all 362 patients who underwent the therapeutic or diagnostic ERCP performed, in the year 2014 were included and categorized as 276 young (aged 20–59 years) and 86 elderly (60 years and above) patients. The procedural and postprocedural records of both study groups were followed up prospectively to compare the risk of failure of procedure and the complications during and after procedure. Chi-squared test was applied at 5% level of significance and relative risks (RR) along with 95% confidence intervals (CI) were also determined through SPSS. Results: Successful therapeutic intended procedures were observed in 95.08% of elderly and 97.32% of young patients (RR of failure 0.64, CI 0.19–2.85, P value 0.47). Similarly, successful diagnostic intended procedures were performed in 88% of elderly and 97.32% of young patients (RR of failure 0.64, CI 0.19–2.85, P value 0.47). Similarly, successful diagnostic intended procedures were performed in 88% of elderly and 91.1% of young patients (RR of failure 1.35, CI 0.37–4.84, P value 0.64). At least one or more procedural and postprocedural complications were observed in 9.3% and 8.3% of elderly and young patients, respectively (P value 0.77), where risk of complications was also observed to be the same with relative risk of 1.11 (CI 0.51–2.40). Conclusion: The success rates, risk of failure, and complications of the procedure in elderly were same as that of young, providing evidence that it is an equally safe procedure for elderly too. Keywords: cholangiopancreatography, endoscopic retrograde, risks

OE-0924 (PP-0145) ERCP-guided radiofrequency ablation as the primary therapy for inoperable ampullary carcinomas

Author: BING HU
Affiliation: Department of Gastroenterology and Endoscopy, Shanghai Eastern Hepatobiliary Hospital, Shanghai, China

Background and Aim: The study aimed to evaluate the efficacy and safety of ERCP-guided radio-frequency ablation (RFA) for inoperable ampullary cancer. Methods: Twenty-three patients with inoperable ampullary carcinoma underwent ERCP for primary RFA from January 2012 to August 2017 at our center. RF energy (7-10 W) was delivered after placing the bipolar RFA electrode within the lesion over a guidewire. All data were reviewed retrospectively. Results: Each patient underwent a median of two RFA sessions (range 1–5) at a median interval of 56 days. Among 18 patients who received endoscopy re-evaluations, nine patients showed tumor disappearance and nine exhibited significant tumor reduction. During a median follow-up of 517 days (range 60–1836), eight (34.8%) patients required endoscopic re-interventions. At the end of follow-up, 12 patients were alive, among which six required no biliary stenting. The estimated mean survival of the series was 769.5 days (95% CI 624.5–914.5). The RFA-related adverse events occurred in four (mild pancreatitis 1, self-limited bleeding 1, and late distal biliary stenosis 2). Conclusion: This pilot study shows that ERCP-guided RFA is safe to use and able to eliminate tumors and reduce re-interventions in patients with inoperable ampullary cancer. These encouraging outcomes warrant further test. Keywords: ampullary cancer, ERCP, radiofrequency ablation
EP-0038 (PP-0146) Clinical outcomes of underwater endoscopic mucosal resection for superficial non-ampullary duodenal epithelial tumors

Authors: HISASHI DOYAMA; SHIGETSUGU TSUJI; SAORI MIYAJIMA; NAOHIRO YOSHIDA
Affiliation: Department of Gastroenterology, Ishikawa Prefectural Central Hospital, Kanazawa, Japan

Background and Aim: Underwater endoscopic mucosal resection (UEMR) is a new hot snare polypectomy technique to remove gastrointestinal polyps without submucosal injection while filling the gastrointestinal lumen with water. UEMR was developed recently in a western country. Compared with any other tract, the duodenum presents the most challenging site for EMR. We examined the safety and feasibility of UEMR for superficial non-ampullary duodenal epithelial tumors (SNADETs) and its clinical outcomes. Methods: A total of 23 consecutive patients with SNADETs underwent UEMR between 2014 and 2016. After the duodenal lumen had been filled with water, UEMR was performed without submucosal injection. If en bloc resection was not feasible, the SNADET was removed in a piecemeal fashion. Endoclip closure was attempted for all mucosal defects after UEMR. We retrospectively assessed patient characteristics, endoscopic findings, pathological findings, en bloc resection rates, complications, and local recurrence. Results: Mean patient age was 69 ± 15 years, and 20/23 patients were male. The mean tumor size was 11 ± 5 mm. Three lesions were located in the first part of the duodenum (13%) and 20 in the second part (87%). The macroscopic types were 18 elevated (78%), 5 depressed (22%). Final histology was 10 high grade adenoma/carcinoma (43%) and 13 low grade adenoma (57%). The en bloc resection rate was 78%, and no adverse events (such as perforation and delayed bleeding) occurred after the UEMR. The local recurrence was examined for 16 (70%) patients who received follow up for at least 1 year after undergoing UEMR. The median observation period was 20 months, and there were no local recurrences detected during follow up. Conclusion: UEMR for SNADETs is technically feasible and may have a favorable safety profile, but further large-scale trials are warranted to confirm these results.

Keywords: EMR, duodenal, tumor, underwater

OE-0029 (PP-0147) Magnetic anchor-guided endoscopic submucosal dissection for upper and lower gastrointestinal tumors

Authors: IPPEI MATSUZAKI; MASASHI HATTORI; KEN HIROSE; CHIAKI IZUMI; MASAKATSU YOSHIKAWA; HIROKI YAMAUCHI; NAOYA GOTO; SABURO NAKAZAWA
Affiliation: Department of Internal Medicine-GI/Hepatology, Yamashita Hospital, Ichinomiya, Japan

Background and Aim: The feasibility of magnetic anchor-guided endoscopic submucosal dissection (MAG-ESD) using a neodymium magnet for gastrointestinal tumors has not been clarified. We evaluated the feasibility of MAG-ESD for gastric and colorectal tumors. Methods: This prospective trial was conducted at the Yamashita Hospital. The MAG-ESD was performed for 50 gastric and 30 colorectal tumors. The magnetic anchor consisted of an internal magnet attached to a hemoclip. The external and internal magnets were made from the neodymium magnet. After submucosal cutting, the endoscope was retrieved and then reinserted equipped with the magnetic anchor. The magnetic anchor was attached to the mucosal edge of the lesion. The external magnet was maneuvered to apply adequate traction. After dissection, both the resected tissue and the magnetic anchor were retrieved. The feasibility of traction using MAG-ESD, time required for attaching the magnetic anchor, procedure time, rate of retrieval of the magnetic anchors, and adverse events were evaluated. Results: There were 55 males and 25 females, and the mean age was 70 ± 10 years. Gastric tumor locations were upper stomach, 10 cases; middle stomach, 22 cases; and lower stomach, 18 cases. Colorectal tumor locations were cecum three cases; ascending colon five cases; transverse colon seven cases; descending colon four cases; sigmoid colon two cases; rectum nine cases. The mean tumor size was 28 ± 18 mm (range 5–100 mm). MAG-ESDs were successfully performed for 79 colorectal tumors except for a rectal case that internal magnet was sticking on the endoscope. Attaching the magnetic anchor required 7.4 ± 4.8 min (range 2–36 min). The procedure time was 76 ± 58 min (range 15–301 min), and the magnetic anchors could be retrieved in all cases without adverse events. Conclusion: MAG-ESD is feasible and safe in the stomach and colon and may facilitate all difficult lesions.

Keywords: MAG-ESD, magnetic anchor, traction
OE-0086 (PP-0148) Endoscopic submucosal dissection of metachronous SCC of esophagus in a patient with previous esophagectomy involving OJ anastomosis

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Affiliation: Department of Surgery, Pamela Youde Nethersole Eastern Hospital, Hong Kong, Hong Kong

Background and Aim: Metachronous cancer of esophagus is not uncommon. Even after esophagectomy, the esophageal remnant may develop new dysplastic lesion. While detected early, endoscopic resection is still feasible. Lesions involving previous anastomosis will be a particular challenge due to inflammation and scaring.

Methods: A 60-year-old man with early esophageal cancer of lower esophagus underwent Ivor Lewis esophagectomy 5 years ago, was in remission of disease. Surveillance ogd showed 3 cm 1/3 dysplastic lesion involving the esophageal remnant touching the previous esophago-gastric anastomosis. Biopsy showed high grade dysplasia. PET-CT showed no other disease. Endoscopic submucosal dissection was performed under general anesthesia. Dilute indigocarmine, hyaluronic acid, and adrenaline solution was injected submucosally; ESD was performed the usual way for esophagus with marking, circumferential incision, and submucosal dissection with dual knife. At the scar area at anastomosis, colonic type of dual knife with tip withdrawn and coagulation mode was used for careful fine dissection.

The operation took 4 h, no perforation, with en bloc resection. Additional margin was taken over the gastric side for histology. Results: Pathology showed squamous cell carcinoma in situ with clear margin. Patient was discharged on postoperative day 3 without complications. Follow-up endoscopy showed healing of ESD site with biopsy showed fibrosis only.

Conclusion: Surveillance of esophageal remnant after curative treatment of esophageal cancer is warranted due to risk of metachronous tumor. Early remnant esophageal lesion may be amenable for endoscopic therapy, though those involving previous surgical anastomosis will be more challenging.

Keywords: CA esophagus, ESD

OE-0220 (PP-0149) The hiatal hernia associated with both esophageal and colonic diverticulism

Authors: BAYASGALAN LUUVSANDAGVA; TAO BAI; STUTI SHARMA; XIAOHUA HOU
Affiliation: Department of Internal Medicine-GI/Hepatology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China

Background and Aim: A hiatal hernia is a part of stomach herniated through the esophageal hiatus into the mediastinum. Similarly, esophageal and colonic diverticulism rise on vascular penetration site of smooth muscle due to herniation process. However, whether these conditions coexist is still unknown. This study aimed to detect the association between hiatal hernia with esophageal diverticulism and colonic diverticulism. Additionally, to detect the correlation of hiatal hernia with location-specific colonic diverticulism.

Methods: This study retrospectively included a total number of 3059 adult patients, who underwent both upper and lower GI endoscopy for various indications from January of 2016 to September of 2017 in Endoscopy Unit of Gastroenterology Division, Union Hospital, Wuhan, Hubei, P.R. China. Results: The mean age of included patients is 48.8, out of total sample size 2055 of them were male and 1454 were female (Table 1 shows demographic features of included patients). The patients with hiatal hernia were more likely to have an esophageal or colonic diverticulism ($P < 0.001$ and $P < 0.001$, respectively). Regression analysis indicated that the esophageal diverticulism and the colonic diverticulism were independently correlated to the hiatal hernia. The further analysis showed that the distal colonic diverticulism was more frequent in patients with the hiatal hernia compared to proximal colonic diverticulism. Conclusion: Both the esophageal and the colonic diverticulism were independently associated to hiatal hernia. Distal colonic diverticulism was more frequent in patients with the hiatal hernia as compared to with the proximal colonic diverticulism.

Keywords: colonic diverticulum, esophageal diverticulum, hiatal hernia

Table 1

<table>
<thead>
<tr>
<th>Hiatal hernia</th>
<th>$\chi^2$ or T value</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>n(%) or Mean±SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>258 (76.1)</td>
<td>1797 (56.7)</td>
</tr>
<tr>
<td>Female</td>
<td>81 (23.9)</td>
<td>1373 (43.3)</td>
</tr>
<tr>
<td>Age years</td>
<td>51.28±13.75</td>
<td>49.62±12.53</td>
</tr>
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<td>Colonic diverticulism</td>
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</tr>
<tr>
<td>No</td>
<td>299 (88.2)</td>
<td>3113 (98.2)</td>
</tr>
<tr>
<td>Yes</td>
<td>40 (11.8)</td>
<td>57 (1.8)</td>
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<tr>
<td>Esophageal Diverticulism</td>
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<tr>
<td>No</td>
<td>331 (97.6)</td>
<td>3162 (99.7)</td>
</tr>
<tr>
<td>Yes</td>
<td>8 (2.4)</td>
<td>8 (0.3)</td>
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</tbody>
</table>

Dysplasia in remnant esophagus
OE-0238 (PP-0150) Comparison of endoscopic suture strength: Partial-thickness suture and full-thickness suture  
Authors: SEONG JI CHOI[1]; SEHOON PARK[2]; HYOJ SOON CHOI[1]; JUNG MIN LEE[1]; JAE MIN LEE[1]; SEUNG HAN KIM[1]; EUN SUN KIM[1]; BORA KEUM[1]; YOON TAE JEEN[1]; HONG SIK LEE[1]; HOON JAI CUN[1]; CHANG DUCK KIM[1]; KITEAK HONG[1]; YONGNAM SONG[1]  
Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Korea University Anam Hospital and [2]Department of College of Engineering, Korea University, Seoul, Korea  

Background and Aim: The aim of our study was to compare the strength between partial-thickness suture and full-thickness suture according to the suture method to provide information in choosing the adequate suture method. Methods: Samples for the sutures were prepared by cutting the pig stomach antrum, body, and fundus into 5-cm diameter circle in. Then, a loop with a nylon 3-0 suture on the gastric wall was made endoscopically on each sample. The sample was placed in the manufactured bite, and the loop was pulled by tension tester. Suture thickness was measured microscopically in the range of 0.8 to 2.0 mm. The sample, in the range of 0.8 to 2.0 mm. Results: The mean strength of the partial-thickness suture and full-thickness suture were 20.18 ± 6.12N (n = 11) and 27.79 ± 7.29N (n = 12), respectively (P = 0.0135), and the strength of the partial-thickness suture was 73% of that of the full-thickness suture. As the suture width increased and deepened, the strength of the suture increased with both suture methods. On average, the width of the partial-thickness suture should be 0.5 mm longer than the width of the full-thickness suture to reach the same strength as the full-thickness suture. Conclusion: Partial-thickness suture may be considered as an option for safety in an operative environment if feasible. It is necessary to consider widening the width when performing the partial-thickness suture to have similar strength.  
Keywords: endoscopy, partial-thickness suture, suture

<table>
<thead>
<tr>
<th>Partial-thickness</th>
<th>Full-thickness</th>
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<tr>
<td>Width (cm)</td>
<td>Strength (N)</td>
</tr>
<tr>
<td>Narrow</td>
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</tr>
<tr>
<td>0.7</td>
<td>12</td>
</tr>
<tr>
<td>0.75</td>
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</tr>
<tr>
<td>0.6</td>
<td>9.5</td>
</tr>
<tr>
<td>Medium</td>
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</tr>
<tr>
<td>1.4</td>
<td>20</td>
</tr>
<tr>
<td>1.35</td>
<td>23</td>
</tr>
<tr>
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<td>15.5</td>
</tr>
<tr>
<td>1.2</td>
<td>27</td>
</tr>
<tr>
<td>Wide</td>
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<td>2</td>
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<td>1.9</td>
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<tr>
<td>P value</td>
<td>Jonckheere - Terpstra test</td>
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</table>

OE-0247 (PP-0151) Development of new endoscopic irreversible electroporation ablation device: Effect on apoptosis induction in gastrointestinal tract  
Authors: SE HYUN JANG; YOON TAE JEEN; JI HYEONG KIM; HAN JO JEON; SEONG JI CHOI; JUNG MIN LEE; JAE MIN LEE; SEUNG HAN KIM; HYOJ SOON CHOI; EUN SUN KIM; BORA KEUM; HOON JAI CHUN; HONG SIK LEE; CHANG DUCK KIM  
Affiliation: Department of Internal Medicine-GI/Hepatology, Korea University Anam Hospital, Seoul, Korea  

Background and Aim: Irreversible electroporation (IRE) is a novel technique for the ablation of tumors. An advantage of IRE is that it can remove targeted cells by affecting cell membrane without thermally destructing blood vessels, nerves, and surrounding tissues. Several clinical trials for applying IRE to human organs such as liver, pancreas, and kidney are conducted, and studies about IRE ablation for gastrointestinal tumors also have been conducted recently. We developed new endoscopic IRE device and studied about its effectiveness and feasibility in animal model. Methods: Newly developed endoscopic IRE ablative catheter works with single channel of endoscope. A pair of dipolar electrodes consist of pre-shaped f 0.63-mm nitinol wire, and the distance between each electrode is 10 mm. The electrodes are loaded within braided tube for stent delivery system then deployed when IRE catheter put in stomach through the endoscope. We performed endoscopy, and IRE ablation was done on pig’s stomach mucosa by using endoscopy with newly developed IRE catheter. We divided pig’s stomach into two parts (antrum and body), and IRE ablation was applied on each part of the stomach. Pigs were sacrificed after 24 h, and we collected their stomachs with surgical technique. Following fixation, tissues were stained with HE. Results: Ten male Yorkshire pigs and in vitro stomachs were used in this study. The tissue with HE stain showed diffuse cell death 24 h after IRE ablation. Consistent with the mechanism of action of IRE on the cell membrane only, there was complete cell death within the IRE lesions without intervening live cells. But there was no difference in histology depending on gastric part in which ablation was applied. During the study, no complication was observed in pigs in 24 h after ablation. Conclusion: The new endoscopic IRE device, which can perform IRE ablation on gastrointestinal tract using endoscopy showed safe and feasible result.  
Keywords: irreversible electroporation ablation
OE-0384 (PP-0153) Double-tunnel per oral endoscopic myotomy (POEM): A retrospective case-control study  
Authors: LEI PENG; GUOXIN ZHANG  
Affiliation: Department of Gastroenterology, First Affiliated Hospital of Nanjing Medical University, Nanjing, China  
Background and Aim: Per oral endoscopic myotomy (POEM) has emerged as a preferred and durable treatment option for palliation of symptoms in achalasia. However, approximately 10% to 20% of patients have recurrent symptoms on long-term follow up. We present a new treatment in which POEM was successful by creation of a second submucosal tunnel.  
Methods: This is a retrospective review of 18 double-tunnel POEM and 36 traditional POEM patients undergoing primary myotomy for achalasia. In the double-tunnel group, the first long tunnel was created at the posterior wall of esophagus while the second short tunnel was created at the opposite of the long tunnel. Also, we performed the endoscopic muscle incision and tunnel creation at the same time. Retrospectively collected data were analyzed, including procedure times, hospitalization time, and clinical outcomes.  
Results: Double-tunnel POEM and traditional POEM were completed with high rates of technical and clinical success. The double-tunnel POEM resulted in a 24-min increase in procedure time (77 vs 53 min, \( P = 0.004 \)) and no decrease in hospitalization time (7.14 vs 7.93 days, \( P = 0.3967 \)). The Eckardt score was decreased in both double-tunnel (6.10–1.50, \( P < 0.0001 \)) and one-tunnel group (6.00–1.50, \( P < 0.0001 \)).  
Conclusion: A double-tunnel is useful for ensuring a complete myotomy during POEM. With increase in procedure time and no increase hospitalization time, it may be particularly useful for specific achalasia patients for a personalized treatment.  
Keywords: achalasia, double-tunnel per oral endoscopic myotomy, POEM

OE-0483 (PP-0154) Hierarchical analysis of factors associated with T staging of gastric cancer by endoscopic ultrasound: Decision tree method  
Authors: JUNG KIM; HYUNSOO CHUNG; SANG GYUN KIM; JUE LIE KIM; A YOUNG LEE; HYE JIN KANG; EUNWOO LEE; HYUN CHAE JUNG  
Affiliation: Department of Internal Medicine-GI/Hepatology, Seoul National University Hospital, Seoul, Korea  
Background and Aim: Size, ulcer, differentiation, and location are known to be factors affecting the T stage accuracy of EUS. However, whether an interaction exists among recognized variables is poorly understood. Therefore, we examined the factors that affect the T stage prediction by EUS using hierarchical analysis.  
Methods: We retrospectively analyzed gastric cancer patients who underwent EUS from September 2005 to February 2016. EUS T stage and pathologic T stage were classified as T1a, T1b, T2, or more, and the accuracy of EUS T stage and factors affected over/underestimation were examined by using decision tree analysis-CHAID method.  
Results: A total of 4818 patients were included in the study. The most significant factor affecting the accuracy of the EUS T stage was the size. The rate of overestimation was higher in lesions > 3 cm. In lesions ≤ 3 cm, the rate of overestimation was higher in lesions with an ulcer. Moreover, for lesions > 3 cm, the accuracy of the EUS T stage was more affected by differentiation and location and less by the presence of an ulcer. The rate of overestimation was higher in undifferentiated type. In the differentiated type, the location affected the accuracy of the EUS T stage.  
Conclusion: In this hierarchical analysis, the most significant factor affecting the accuracy of EUS T stage was the tumor size (3 cm). For lesions > 3 cm, the presence of ulcer was associated with overestimation. However, for lesions ≤ 3 cm, differentiation and tumor location were important.  
Keywords: decision tree, endoscopic ultrasonography, gastric cancer, tumor staging
OE-0502 (PP-0155) In vivo micro-endoscopic monitoring of stent-induced fibroblast cell proliferation in a mouse esophageal model
Authors: NADER BEKHEET[1]; HO-YOUNG SONG[1]; JUNG-HOON PARK[2]
Affiliations: [1]Department of Gastroenterology, Gastrointestinal Endoscopy and Liver Unit, Kasr Al Ainy Faculty of Medicine, Cairo University, Cairo, Egypt; and [2]Department of Radiology, Asan Medical Center, Seoul, Korea

Background and Aim: To evaluate the feasibility of self-expandable metallic stent (SEMS) placement and micro-endoscopic monitoring of fibroblast cell proliferation after stent placement in a mouse esophageal model. Methods: Twenty fibroblast-specific protein (FSP)-1 green fluorescent protein (GFP) transgenic mice were analyzed. Ten mice randomly underwent SEMS placement, and fluorescent and micro-endoscopic fluorescent images were obtained 2, 4, 6, and 8 weeks thereafter. Ten age-matched healthy mice were used for normal oesophageal values. All mice underwent esophagography just before being euthanized 8 weeks after stent placement, for histopathological analysis. Results: SEMS placement was technically successful in all mice. Two mice were excluded because of stent migration and death. The relative average number of fibroblast GFP cells and the intensities of GFP signals in stented esophagus were significantly higher than in normal esophagus at 2, 4, 6, and 8 weeks after stent placement (all $P < 0.05$). The percentage granulation tissue area, epithelial layer number, submucosal fibrosis thickness, and percentage of connective tissue area were increased in the stented esophagus. FSP-1-positive cells were more prominent in stented than in normal esophagus. Collagen-1 and $\alpha$-smooth-muscle actin were also increased after stent placement. Conclusion: SEMS placement was feasible and safe in a mouse esophageal model, and granulation tissue formation caused by fibroblasts cell proliferation after stent placement was longitudinally monitored using a non-invasive fluorescence micro-endoscopic technique.
Keywords: esophagus, in vivo imaging, mice

OE-0658 (PP-0156) Endoscopic suturing versus purse string suture closure of the mucosotomy during endoscopic full-thickness resection: A prospective randomized controlled trial
Authors: XUAN LI; GUOXIN ZHANG
Affiliation: Department of Gastroenterology, The First Affiliated Hospital of Nanjing Medical University, Nanjing, China

Background and Aim: Obtaining an adequate mucosal closure is one of the crucial steps in endoscopic full-thickness resection (EFR). Thus far, there have been no objective data comparing the various available closure techniques. This case-controlled study attempts to compare the application of purse string suture versus endoscopic suturing for mucosotomy closure during EFR cases. We aimed to compare the application of purse string suture versus endoscopic suturing for mucosotomy closure during EFR cases.
Methods: Patients underwent EFR were allocated into two groups by computerized randomization. All cases in which endoscopic suturing was used to close the mucosotomy were matched to cases in which purse string suture were used. Overall complication rate, closure time and Visual Analogue Scale between the two groups were compared. Results: A total of 10 patients were enrolled in our study. There were four men and six women with the mean age of $57.50 \pm 12.60$ years. The mean size of mucosal defects was $21.6 \pm 0.80$ mm. All patients had the perforation during the EFR. Both techniques offer good clinical results with good mucosal closure. Compared with purse string suture, closure time was significantly longer with endoscopic suturing ($P = 0.05$). The mean VAS score was no significantly difference ($P = 0.144$) between two groups. No complications were observed during the procedure and the median follow up of 4.25 months. Conclusion: Endoscopic suture closure after EFR is feasible and safe, but its suture time is longer than that of purse string suture group.
Keywords: endoscopic full-thickness resection, endoscopic suture closure, purse string suture

Figure 1. The protocol
OE-0691 (PP-0157) Gastrointestinal complications in solid organ transplant recipients detected by endoscopic biopsies
Authors: YEHYUN PARK; SOO JUNG PARK; JAE HEE CHEON; TAE IL KIM; WON HO KIM
Affiliation: Department of Internal Medicine-GI/Hepatology, Severance Hospital, Seoul, Korea

Background and Aim: The beneficial effect of solid organ transplantation in patients with end-stage disease of the organ is known and accepted. However, there are many gastrointestinal (GI) complications that may be the consequence of transplant immunosuppressant medication, infection, or exacerbation of pre-existing GI pathology. Acknowledging the prevalence and characteristics of these complications may be helpful in preventing and managing them, but the report is few except for the cases in renal transplant recipients. The aim of this study was to evaluate the prevalence and characteristics of GI complications in patients with solid organ transplantation detected by endoscopic biopsies.

Methods: All consecutive adult patients who have been followed up after liver, kidney, lung, or cardiac transplantation in Severance Hospital between September 2001 and March 2015 were included in this study. Among them, patients presenting with GI complaints and underwent GI endoscopic biopsies were evaluated. The demographic and clinical data, endoscopic finding, pathological diagnosis, along with immunosuppressive therapy used were collected.

Results: Of 2048 patients after liver, kidney, lung, or cardiac transplantation, 563 (27.5 %) patients received 1196 upper endoscopy or colonoscopy. Among them, ulcer was present in 342 endoscopy of 181 (32.1 %) patients, and malignancy was present in 12 (2.0 %) patients (eight stomach cancers and four colorectal cancers). Cytomegalovirus infection of GI tract was detected in 11 (2.0 %) patients (two esophagitis, five gastritis, two duodenitis, and two colitis). Other uncommon infection included herpes esophagitis and colonic candidiasis, which occurred in one case each. Among calcineurin inhibitor therapy used when ulcer was noted, tacrolimus was more used as compared to cyclosporine (n = 285, 83.3 %).

Conclusion: A wide spectra of pathological lesions including ulcer, malignancy, and opportunistic infection were noted in GI endoscopic biopsies in solid organ transplant patients. Therefore, detailed diagnostic endoscopy with biopsy is important in these patients.
Keywods: endoscopy, solid organ, transplantation, ulcer

Histology of collagenous gastritis

OE-0711 (PP-0158) Collagenous gastritis: Rare entity detected on gastroscopy with narrow band imaging and biopsy caused due to a new antihypertensive drug
Authors: PANKAJ DESAI; MAYANK KABRAWALA; SUBHASH NANDWANI; RAJIV MEHTA; CHINTAN PATEL; RITESH PRAJAPATI; PARIkA KALRA; NISARG PATEL
Affiliation: Department of Endoscopy and EUS, Surat Institute of Digestive Sciences, Surat, India

Background and Aim: Collagenous gastritis is a rare disease. The disease was first reported in 1989, only 60 cases have been documented in the English literature. Methods: A 54-year-old female presented with recurrent post prandial vomiting and 6 kg weight loss in the last 6 months. She had a recent onset diarrhea for 2 days. She has diabetes melitus since 2003 and hypertension since 2007. She was treated with tab. Olmesartan 40 mg once daily since 2016. Her physical examination and investigations were unremarkable. Her symptoms were not relieved with conservative treatment. Her UGI scopy revealed atrophic mucosa with nodularity in body region. NBI showed tubular micromucosal pattern. Her colonoscopy was normal. HPE report was suggestive of thick collagen deposition (> 10 micron) entrapping the subepithelial vessels, inflamed mucosa, and epithelial injury. Results: Endoscopic findings in CG have been characterized by fine nodularity surrounded by depressed, atrophic mucosa. Pathologically, dense collagen depositions are found in the intervening atrophied mucosa. Kawamura et al. reported that a tubular gastric micromucosal pattern under M-NBI is representative of infiltration of inflammatory cells, while an obscure surface structure with irregular, narrowed, and coiled subepithelial capillaries is compatible with mucosal atrophy and intestinal metaplasia. Conclusion: Our case suggests that the coexistence of these two distinctive NBI findings with history of olmesartan use may be diagnostic of CG.
Keywords: biopsy, collagenous, gastritis, NBI, olmesartan
OE-0754 (PP-0159) Clinical profile, management, outcome, and prognostic factors of upper GI bleed a mining state capital superspecialty hospital in eastern India

Authors: JAYANT KUMAR GHOSH; PRAGYA GHOSH PANT; UJJAWAL ROY; RASH KUJUR

Affiliation: Department of Gastroenterology, Orchid Medical Centre, Ranchi, India

Background and Aim: Data on acute upper gastrointestinal bleeding (UGIB) are lacking from any mining industry dominated part of India.

Methods: This hospital-based retrospective study was done in adult patients with acute UGIB presented between September 2015 and June 2018.

Results: Analysis done on 200 UGIB patients with Male: Female 140 (70%):60 (30%). Mean age was 43 years. Mean time interval from onset of bleeding and reaching hospital was 72 h and from hospitalization to endoscopy was 7 h. Twenty (10%) patients had shock, hepatic encephalopathy 26 (13%), 20 (10%) ascites 20 (10%), 14 (7%) jaundice 14 (7%), HRS 16 (8%), sepsis 20 (10%), and 4 (2%) had acute pancreatitis. Variceal bleeding was present in 100 (50%) with esophageal in 95 (95%) and gastric in 5 (5%), ulcer bleeding in 50 (25%) (duodenal 30) (60%) and (gastric 20) (40%). Other causes were Mallory–Weiss syndrome (22; 11%), GI malignancies (16; 8%), GERD (10.5%), unknown (2; 1%). EVL done in 88 patients (88%). Glue in 2/6 (40%) with IGV. In ulcer bleeding 10 (20%) patients underwent adrenaline therapy and 2 (4%) patients underwent dual therapy. Endotherapy failed to in 10 (5%) whereas rebleed occurred in 17 (8.5%). Twenty-two (11%) patients died. Old age (> 60 years), systolic pressure < 90 mm Hg on admission, comorbid disease, malignancies, variceal bleeding, and Child C cirrhosis were associated with higher mortality.

Conclusion: Our initial experience showed variceal bleeding was the most common cause of UGIB followed by ulcer bleed. Endotherapy was successful in 88.1% cases which was comparable to other areas of India.

Keywords: cirrhosis, endotherapy, upper GI bleed


Authors: EUNJU JEONG; IN KYUNG YOO; WON HEE KIM; SUNG PYO HONG; JOO YOUNG CHO

Affiliation: Department of Internal Medicine-GI/Hepatology, Bundang CHA, Seongnam, Korea

Background and Aim: Per oral endoscopic myotomy (POEM) was introduced as an effective treatment for achalasia. However, there was rare data evaluating complications after POEM. Also, gastroesophageal reflux disease (GERD) after POEM is of concern, and its risk factors have not been evaluated. The aim of this study was to evaluate the complications including GERD after POEM and management of complications in achalasia patients.

Methods: Patients who underwent POEM at Gastroenterology Center of CHA University Bundang hospital between April 2014 and September 2017 were enrolled. Baseline characteristics, underlying esophageal motility disorders before POEM, numbers of patients with complications related to POEM were analyzed.

Results: A total of 157 patients (69 male, 88 female, mean age 44.07 ± 15.62) underwent POEM as treatment for various esophageal motility disorders. There were 144 patients with achalasia, nine patients with esophagogastric junction outflow obstruction (EGJOO), three patients with jackhammer esophagus, and one patient with diffuse esophageal spasm (DES). Pneumoperitoneum (84 patients; 53% of all patients) and subcutaneous emphysema (50 patients; 31% of all patients) were most common POEM-related complications. There were 15 patients (10%) with pneumomediastinum, 17 patients (11%) with pleural effusion, eight patients (5%) with atelectasis, six patients (4%) with pneumothorax (one with tension pneumothorax), four patients (3%) with pneumonia, three patients (2%) with delayed esophageal hematoma, two patients (1%) with severe symptoms with reflux esophagitis, one patient (0.6%) with tunnel mucosal perforation. All patients had completely recovered with conservative treatment without surgical intervention. With regard to post-POEM GERD, among 52 patients, two patients suffered from severe reflux symptoms and successfully treated with anti-reflux endoscopic surgery (ARES). Conclusion: There were rare serious POEM-related complications which would have needed surgery. However, complications developed after POEM were treated and completely resolved by conservative treatment. POEM is a safe endoscopic operation and expected to become the preferred treatment for achalasia.

Keywords: achalasia, complication, management, POEM
**EE-0066 (PP-0161) A study of sedation method using a combination of dexmedetomidine and midazolam during colorectal endoscopic submucosal dissection**

**Authors:** TAKESHI ONDA; KOICHIRO SATO; HIROMICHI TSUNASHIMA; NORIYUKI KUNIYOSHI; KOTARO MATSUMOTO; KAZUOMO SEKINE; TAKAYUKI TSUJIKAWA; MASATOSHI MABUCHI; SHINPEI DOI; ICHIRO YASUDA

**Affiliation:** Department of Internal Medicine-GI/Hepatology, Teikyo University of Mizonokuchi Hospital, Futago, Takatsu-Ku, Japan

**Background and Aim:** Appropriate sedation is required during endoscopic submucosal dissection (ESD) for patients with tumors of gastrointestinal tract. Sedation using benzodiazepines which has been used conventionally does not provide sufficient sedative effect, because it sometimes cause body movement. We aimed to evaluate efficacy and safety of sedation method using a combination of dexmedetomidine (DEX) and midazolam (MDZ) as compared with MDZ alone. **Methods:** Between January 2017 and March 2018, we performed ESD on 88 consecutive colorectal tumors in 85 patients. Of 85 patients, 79 patients were sedated either with a combination of DEX and MDZ (D group [n = 40]) or MDZ alone (M group [n = 39]). MDZ was added i.v. on demand in the both groups. We set sedation goals (the Ramsay Sedation Score [RSS] 2–3) and assessed the following endpoints retrospectively: patient background; therapeutic outcome; intraoperative RSS; number of body movements; additional doses of MDZ; frequencies of hypotension, bradycardia, and hypoxemia; and the satisfaction scores of the endoscopists. **Results:** There was no significant difference in patient background and therapeutic outcome between the two groups. Numbers of intraoperative body movements (M group: 2.0, D group: 0, P < 0.01) and additional doses of MDZ (M group: 2.0 mg, D group: 0 mg, P < 0.01) tended to increase more frequently in D group, no significant intergroup difference was observed. The satisfaction scores were higher in D group. **Conclusion:** Sedation using DEX-MDZ combination during colorectal ESD successfully suppressed intraoperative body movement, enhancing the satisfaction of endoscopists. Intraoperative hemodynamic management, however, is important because DEX may cause bradycardia.

**Keywords:** colorectal tumor, dexmedetomidine, ESD, sedation

**EE-0223 (PP-0162) Complications following colonoscopy in a nationwide population: A retrospective, case-control, cohort study**

**Authors:** JUNG HYE CHOI[1]; HYUN SOO KIM[2]; SU YOUNG KIM[2]; HONG JUN PARK[2]; JI WOO KIM[3]; JUNG KUK LEE[4]; YUN TAE KIM[4]; GEUNU PARK[5]

**Affiliation:** [1]Department of Internal Medicine-GI/Hepatology, Yonsei University Wonju College of Medicine, Wonju, Departments of [2]Internal Medicine-GI/Hepatology, [3]Center of Biomedical Data Science, Wonju Severance Christian Hospital and [3]Department of Medical School, Yonse Wonju College of Medicine, Wonju, and [5]Department of Biostatistics, Yonsei University, Seoul, Korea

**Background and Aim:** Many studies around the world appraised the post-colonoscopy complications; however, there are few studies that have been conducted at the population level. Therefore, we performed a population-based study to evaluate the incidence of post-colonoscopy complications (bleeding, perforation, and ileus) compared with control group. **Methods:** Between January 2011 and December 2011, data for all cases (age over 45 who underwent colonoscopy were collected from National Health Insurance Service (NHIS) by using random sampling method. The clinical characteristics and complication incidence (within 30 days after colonoscopy) of cases were identified, and then cases were compared with age and sex matched controls who had not undergone colonoscopy. **Results:** Among 1.38 millions, 31 178 cases and 62 354 controls were identified. Of these, 14 patients (0.04%) who occurred perforation in the case group and one patient (< 0.01%) who occurred perforation in the control group (relative risk [RR] of case group: 2.8 [CI 2.45–3.21], P < 0.001). The patients of ileus were 95 (0.30 %) and 19 (0.03%), respectively (RR of case group: 2.5 [CI 2.31–2.72], P < 0.001). Among the case group, the incidence of perforation (0.04% in the 45–59 age group and 0.33% in the 75 or older age group, P < 0.001) and ileus (0.25% in the 45–59 age group and 0.90% in the 75 or older age group, P < 0.001) tended to increase with age. **Conclusion:** Colonoscopy performance is associated with increased risk of perforation and ileus and post-colonoscopy complications increased with age. These suggest necessity of risk-based careful implication of widespread colonoscopy worldwide.

**Keywords:** colonoscopy, complication, nationwide, perforation
**EE-0337 (PP-0163) Risk of delayed bleeding before and after implementation of cold snare polypectomy in a screening colonoscopy setting**

**Authors:** LI-CHUN CHANG; WENG-FENG HSU; MING-SHIANG WU; HAN-MO CHIU  
**Affiliation:** Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

**Background and Aim:** Cold snare polypectomy (CSP) is considered to be effective in reducing the risk of delayed bleeding, but randomized trials have not been able to support this because of small sample size. The study aimed to compare the risk of bleeding before and after implementation of CSP in a screening colonoscopy setting. **Methods:** This study retrospectively analyzed a prospectively maintained screening colonoscopy database in a high-volume screening center in a university hospital. CSP was implemented in March 2016, and we compared the rate of delayed bleeding before and after implementation within similar periods (18 and 15 months) and the respective number of polypectomies (1304 and 1255) performed to remove small and diminutive polyps. The main outcome measurement was delayed bleeding within each of the two periods. Multivariate analysis was performed to adjust for confounders. **Results:** A total of 1304 and 1225 subjects received HSP and CSP in two separate periods, respectively. Compared with the HSP period, the CSP period had a lower rate of bleeding (0.1% vs. 1.1%, P < 0.001), severe bleeding (0% vs. 0.7%, P < 0.01), need for second-look colonoscopy (0% vs. 0.8%, P < 0.01), and emergency service visits (0.1% vs. 1.0%, P < 0.01). Total procedure time (12.60 ± 11.45 vs. 16.48 ± 14.27 min/person, P < 0.01) and duration of hospital stay (1.18 ± 0.50 vs. 1.53 ± 5.78 h/person, P < 0.03) were also shorter after CSP implementation. Multivariate analysis showed that HSP was an independent risk factor for post-polypectomy bleeding after adjusting for age, gender, and number of polyps (adjusted odds ratio 14.4; 95% confidence interval = 1.88–110.6). **Conclusion:** Implementation of CSP significantly reduces the risk of delayed bleeding associated with removing small and diminutive polyps in screening colonoscopy. **Keywords:** bleeding, cold snare polypectomy, colorectal neoplasm

**EP-0114 (PP-0164) Comparison between classic and hybrid endoscopic submucosal dissection in patients with early colorectal cancer or precancerous lesions**

**Authors:** GAO YAN[1]; ZHAI HUI HONG[2]; ZHANG SHU TIAN[2]; LAN YU[3]  
**Affiliation:** [1] Department of Gastroenterology, Beijing Jishuitan Hospital, Beijing Friendship Hospital, and [2] Department of Internal Medicine-GI/Hepatology, Beijing Friendship Hospital and [3] Department of Internal Medicine-GI/Hepatology, Beijing Jishuitan Hospital, Beijing, China

**Background and Aim:** Hybrid endoscopic submucosal dissection (ESD) is still in its initial development, and there are few studies, especially in China. To compare the clinical benefits of classic versus hybrid ESD in treating early colorectal cancer (CRC) and precancerous lesions. **Methods:** This was a multicenter retrospective study of patients who underwent ESD between January 2015 and April 2017 at the Beijing Friendship Hospital and Beijing Jishuitan Hospital. The patients were grouped according to the surgical approach they chose: classic ESD or hybrid ESD. The primary outcome was the rate of en bloc resection, defined as resection of the lesion in a single piece. **Results:** Compared with classic ESD, the hybrid ESD group showed shorter procedure (P < 0.001), faster dissection (P < 0.001), and higher rate of perforation (P = 0.006). Ulcerative colitis (OR = 10.78, 95% CI: 2.14–54.38, P = 0.004), LST-NG-PD (OR = 5.52, 95% CI: 1.24–24.47, P = 0.025), and dentate line and ileocecal valve (OR = 8.32, 95% CI: 2.02–34.26, P = 0.003) were independently associated with en bloc resection in all patients. LST-N-M, LST-N-PD, and LST-F (OR = 2.83, 95% CI: 1.26–6.34, P = 0.012), and dentate line and ileocecal valve (OR = 6.97, 95% CI: 1.82–26.66, P = 0.005) were independently associated with en bloc resection in the hybrid ESD group. **Conclusion:** Classic and hybrid ESD had similar en bloc resection rates, but hybrid ESD had smaller operative time. The risk factors for failure of en bloc resection include ulcerative colitis and crossing tissue boundaries in all patients. For hybrid ESD, the risk factors for failure of en bloc resection include type of lesions (LST-G-M, LST-N-PD, and F) and crossing tissue boundaries. **Keywords:** colorectal tumor, en bloc resection, endoscopic submucosal dissection, hybrid endoscopic submucosal dissection
OE-0256 (PP-0165) Efficacy and safety of etomidate–midazolam for screening colonoscopy in elderly: A prospective double-blind randomized controlled study

Authors: JI HYEONG KIM; SANG HOON KIM; SE HYUN JANG; SEONG JI CHOI; JUNG MIN LEE; JAE MIN LEE; SEUNG HAN KIM; HYUK SOON CHOI; EUN SUN KIM; BORA KEUM; YOON TAE JEEN; HOON JAI CHUN; HONG SIK LEE; CHANG DUCK KIM

Affiliation: Department of Internal Medicine-GI/Hepatology, Korea University Anam Hospital, Seoul, Korea

Background and Aim: Recent studies have shown that etomidate has fewer serious adverse effects than propofol and a non-inferior sedative effect. To investigate whether etomidate–midazolam has fewer cardiopulmonary adverse events and non-inferior efficacy compared to propofol–midazolam for screening colonoscopy in elderly.

Methods: Prospective, single-center, randomized, double-blinded study was performed. Patients over 65 years with screening colonoscopy were randomized to receive either etomidate or propofol based on midazolam. The primary outcome was all cardiopulmonary adverse events. The secondary outcomes were vital signs fluctuation (VSF), adverse events disturbing the procedure, and sedation-related outcomes.

Results: Cardiopulmonary adverse events were higher in the propofol group (45/62 [72.6%] vs 33/62 [53.2%], P = 0.026). VSF was detected in 17 (27.4%) and 31 (50.0%) patients in the etomidate and propofol groups, respectively (P = 0.010). The myoclonus was significantly higher in the etomidate group (10/62 [16.1%] vs 1/62 [1.6%]) (P = 0.004). There was no statistical significance between the two groups in sedation-related outcomes. In multivariate analysis, the etomidate group was the only significant low risk factor associated with VSF (odds ratio [OR]: 0.407, confidence interval [CI]: 0.179–0.926, P = 0.032).

Conclusion: Combination of etomidate–midazolam is more hemodynamically stable and has non-inferior sedative effects compared to propofol–midazolam in elderly.

Keywords: colonoscopy, elderly, etomidate, midazolam, sedation

OE-0272 (PP-0166) Solution ingestion free colonoscopy (SIFC) using transnasal endoscopic injection of 1 L of hypertonic polyethylene glycol into the gastrointestinal tract for bowel preparation: A single arm prospective study

Authors: SATOSHI ASA; KOSUKE ITO; HITOMI JIMBO; KENJI MATSUO; YUKI KANO; KOTARO TAKESHITA; TAKUMI ICHINONA; EISUKE AKAMINE; NAOKI FUJIMOTO

Affiliation: Department of Gastroenterology, Tane General Hospital, Osaka, Japan

Background and Aim: The large amount and unique taste of the routine bowel preparation solution for colonoscopy are burdensome for patients. Therefore, we developed a novel technique in which examinees need not ingest solution for colonoscopy; rather, a solution is injected through a transnasal ultrathin endoscope during esophagogastroduodenoscopy (EGD). Here, we investigated the safety and effectiveness of solution ingestion free colonoscopy (SIFC).

Methods: This single-center single-arm prospective study was conducted in Tane General Hospital, Osaka, Japan, between July 2015 and September 2016. Patients undergoing both transnasal EGD and colonoscopy who agreed to undergo SIFC were eligible for enrollment. During EGD, 1000 mL of solution was divided into two 500-mL doses and injected into the second portion of the duodenum and the stomach, respectively. The main outcomes were adverse events and bowel preparation quality.

Results: A total of 30 patients (mean age, 56 years; 67% male) were enrolled. All procedures were successfully performed. There were no adverse events, and the rate of sufficient bowel preparation was 100%. A total of 6.7% of participants required the additional oral ingestion of a mean 500 mL. Median time to first bowel movement and complete bowel preparation after EGD were 15 and 120 min, respectively. Patient questionnaires revealed that no patients felt strong discomfort during the injection, and 97% stated that undergoing a next SIFC within 3 years would be tolerable.

Conclusion: SIFC was performed safely and effectively. Our results suggest that SIFC could be a patient-friendly bowel preparation method for colonoscopy (clinical study registration: UMIN000018262).

Keywords: bowel preparation, colonoscopy, moviprep, solution ingestion free, transnasal endoscopy
OE-0445 (PP-0167) Clinical importance of cold polypectomy during insertion phase in left side colon and rectum: A pilot study
Authors: AKIRA TERAMOTO; MINEO IWATATE; DAIZEN HIRATA; TAKAHIRO UTSUMI; SANTA HATTORI; MIKIO FUJITA; WATARU SANO; YASUSHI SANO
Affiliation: Department of Gastrointestinal Center and Institute of Minimally-Invasive Endoscopic Care (iMEC), Sano Hospital, Kobe, Japan

Background and Aim: Small colorectal polyps are often found unintentionally during insertion phase (IP) of colonoscopy, but they are not commonly removed until withdrawal phase (WP). These polyps, especially in left side colon, are easily lost during WP, and re-searching for the polyps is time consuming. This pilot study was aimed to clarify the clinical benefit of cold polypectomy during IP in left side colon and rectum. Methods: All patients aged over 20, with at least one target polyp (adenomas < 10 mm, serrated polyps ≥ 6 mm in size) detected unintentionally during IP in left side colon (rectum to splenic flexure) were included from August 2017 to March 2018. Patients were divided into two groups: study group received cold snare or forceps polypectomy during IP and WP and control group received polypectomy in WP only. The two groups were not randomized in this pilot study. Primary outcome was total procedure time, and secondary outcome was the number of missed (completely lost after at least 2-min re-searching) and “hiding” polyps (once lost during WP, then found after re-searching). This research has been approved by an ethical committee (No. 201708-06). Results: Forty-six patients with 58 observable target polyps during IP were eligible for evaluation (Table 1). Mean procedure time was significantly shorter (17 min vs 21 min, P = 0.047) in the study group. There were 3 (10.0%) missed and 11 (38.0%) hiding polyps in control group. Conclusion: Polypectomy during IP in left side colon and rectum shortened the total procedure time and potentially reduced missed polyp by 10%. Keywords: adenoma detection rate, cold polypectomy, colonoscopy, insertion phase, withdrawal phase

Table 1. Results of pilot study

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IP: Insertion phase, WP: Withdrawal phase, SD: Standard deviation N.S: Not significant, NA: Not available

OE-0452 (PP-0168) Low residue diet plus polyethylene glycol and bisacodyl versus general clear liquid diet plus sodium phosphate as bowel preparation for colonoscopy: A pilot study
Authors: RYGE ALBERT DELGADO MOLINA; ELVIE VICTONETTE RAZON GONZALEZ
Affiliation: Department of Internal Medicine, West Visayas State University Medical Center, Iloilo City, Philippines

Background and Aim: In March 2017, the Philippine Society of Gastroenterology (PSG) declared colorectal cancer as the number one gastrointestinal cancer in the Philippines. The rationale for colorectal cancer (CRC) screening is that the removal of adenomatous polyps will prevent CRC. Bowel preparation is a major constraint to colonoscopy, thus improving tolerability may promote compliance with screening. Methods: This is a pilot, single-blinded, randomized controlled trial comparing the efficacy of low residue diet plus polyethylene glycol and bisacodyl (treatment A) versus general clear liquid diet plus sodium phosphate (treatment B) as bowel preparation regimen. This study included 30 patients. After randomization, patients received detailed instructions regarding the bowel preparation regimen. Prior to colonoscopy, patients completed a questionnaire regarding their experience. Bowel preparation quality was measured using the Boston Bowel Preparation Scale (BBPS). Results: Adequacy of visualization was better in treatment B (BBPS: 7.93) as compared to treatment A which was slightly lower at 7.47 shown in Table 2. Completion time and time-to-cecal intubation was faster in treatment A (P value < 0.05). No significant difference between the two arms in terms of patient satisfaction and adverse effects was noted. Patients were all equally likely willing to repeat the procedure using the same preparation regimen for both treatment arms. Conclusion: Eating a low residue diet didn’t impair quality of bowel preparation as compared to clear liquid diet given to patients a day prior to colonoscopy. Sodium phosphate solution is more likely to provide adequate bowel preparation than polyethylene glycol, but the difference was statistically insignificant. Keywords: bowel preparation regimen, cathartics, clear liquid diet, colorectal cancer, low residue diet

Endoscopist satisfaction indicator

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IP: Insertion phase, WP: Withdrawal phase, SD: Standard deviation N.S: Not significant, NA: Not available

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OE-0475 (PP-0169) Feasibility of underwater clip closure for large mucosal defects after colorectal endoscopic submucosal dissection  
Authors: YASUSHI YAMASAKI; KEITA HARADA; ERIKO YASUTOMI; SHOHEI OKA; TOSHIHIRO INOKUCHI; YUUSAKU SUGIHARA; HIDEAKI KINUGASA; MASAHIRO TAKAHARA; SAKIKO HIRAOKA; HIROYUKI OKADA  
Affiliation: Department of Gastroenterology, Okayama University Hospital, Okayama, Japan

Background/Aims: Clip closure of mucosal defects after colorectal endoscopic submucosal dissection (C-ESD) may decrease the incidence of delayed adverse events. The size of the defect to be closed by conventional clip is limited, however, and we sometimes encounter incomplete closure when the defect is located at the flexure. As, theoretically, underwater clip closure (UCC) could achieve complete closure despite these difficult cases, we investigated its feasibility. Methods: We retrospectively analyzed 21 patients who underwent UCC after C-ESD. UCC was performed as follows: First, the colorectal lumen around the mucosal defect after C-ESD was completely deflated, and physiological saline was infused by water jet until the defect was visualized. (The amount of physiological saline should be kept to a minimum to keep the size of mucosal defect small.) Then, a clip was placed at the edge of the mucosal defect. Additional clips were placed edge to edge to achieve complete closure. All procedure was performed in underwater condition. The main outcome was the UCC success rate, defined as complete closure of the defect. Other outcomes were procedure time (from the start to fill the lumen with physiological saline until complete closure was achieved), number of clips, and the delayed adverse event rate. Results: The median resected specimen size was 31 mm (range 18–47 mm). Four lesions (19%) were located at the flexure, and the resected specimen measured 3–40 mm in 8 cases (38%). The UCC success rate was 100%. The median procedure time was only 11 min (range 6–21 min). The median number of clips was 9 (range 5–16). No delayed adverse event occurred. Conclusion: It is feasible to use UCC to close large mucosal defects, although further studies are warranted to assess its efficacy. Keywords: Clip Closure, Colorectal Endoscopic Submucosal Dissection, Delayed Adverse Event, Underwater

OE-0723 (PP-0170) Association of Boston Bowel Preparation Scale and Adenoma Detection Rate Among Average Risk Patients Undergoing Colonoscopy  
Authors: ROXANNE MAE CASALS BUTAL; EDGARDO MALLARI BONDOD  
Affiliation: Department of Institute of Digestive and Liver Diseases, St. Luke’s Medical Center, Quezon City, Philippines

Background/Aims: Colorectal cancer is the third most common cause of cancer-related deaths worldwide. Among the various methods to prevent CRC, colonoscopy was found to be most effective. Its effectiveness, depends on adequate visualization of the colon. However, recent studies show that “fair” preparations may have similar, if not better ADRs compared to “excellent” preparations. This study will determine whether there is a significant association between ADR and Boston Bowel Preparation Scale in average risk patients for colonoscopy. Methods: This is a prospective, single-center study on average risk patients for screening colonoscopy from June 6 to September 30, 2017 with BBPS scores 6 to 9. Age, gender, colonoscopy and histopathology results, BBPS score and withdrawal time were gathered. Descriptive statistics and Chi square test were used in data analysis using IBMSPSS ver 21 software. Results: Among the 181 colonoscopies, the overall ADR was 29.8%. The ADR associated with BBPS SCORE 6/7 was highest (35.6%) compared to those with scores of 8 (31.4%) and 9 (26.4%). Factors found to be significantly associated with ADR are age, gender, duration of colonoscopy and withdrawal time. Conclusion: ADR decreased at the highest level of bowel cleanliness suggesting that aggressive preparations do not necessarily reflect clinically significant outcomes. This result translates the importance of adequate inspection. Endoscopists must avoid over-confidence for polyp detection and always perform careful evaluation even in excellently prepared bowels. Future studies are needed to clarify the reasons why studies with similar data are emerging especially if these factors are modifiable. Keywords: Adenoma Detection Rate, Boston Bowel Preparation Scale, Colorectal Cancer Screening, Colonoscopy
OE-0973 (PP-0172) A pilot study comparing commercially available artificial intelligence (AI) with trained endoscopists on classification of colonic polyps

Ka Luen Thomas Lui; Sze Hang Liu; Lung Yi Mak; Wai Man Tsui; Wai Keung Leung

Affiliation: Department of Medicine, Queen Mary Hospital, Hksar, Hong Kong

Background/Aims: Application of artificial intelligence could help to classify colonic polyps and facilitate a cost-effective “remove and discard” approach during colonoscopy. However, many of these platforms are not widely available. We tested a commercially available AI platform for classifying colonic adenoma.

Methods: A commercially available AI software (Microsoft custom vision AI) was used in training by 900 endoscopic pictures of tubular adenoma and 510 pictures of non-adenoma (hyperplastic/inflammation). The gold standard was the final histology of the lesion. All the endoscopic pictures were taken using narrow band imaging endoscopy (Olympus CF-HQ290 or CF-H260). The performance of classification by the trained AI was compared against 3 trained endoscopists by using additional pictures of 69 tubular adenoma and 57 non-adenoma. The area under the ROC curve, sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), positive likelihood ratio (PLR), negative likelihood ratio (NLR) and accuracy with corresponding 95% confidence interval (95%CI) were calculated in both trained AI and the pooled result of the three trained endoscopists. Confident levels of the prediction of histology for each endoscopic picture were also reported by AI and human endoscopist. All statistical tests were two tailed and a P value of 0.05 or less was considered significant.

Results: The results were shown in the following table

<table>
<thead>
<tr>
<th></th>
<th>AI</th>
<th>Human endoscopists</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>The area under the ROC curve</td>
<td>0.851 (95%CI: 0.787 to 0.925)</td>
<td>0.693 (95%CI: 0.599 to 0.778)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>79.0% (95%CI: 66.1% to 88.6%)</td>
<td>71.9% (95%CI: 58.5% to 83.0%)</td>
<td>0.55</td>
</tr>
<tr>
<td>Specificity</td>
<td>91.3% (95%CI: 82.0% to 96.7%)</td>
<td>66.7% (95%CI: 54.3% to 77.5%)</td>
<td>0.01</td>
</tr>
<tr>
<td>PPV</td>
<td>88.2% (95%CI: 77.5% to 94.2%)</td>
<td>64.0% (95%CI: 55.2% to 72.1%)</td>
<td>0.004</td>
</tr>
<tr>
<td>NPV</td>
<td>84.0% (95%CI: 76.0% to 90.0%)</td>
<td>74.2% (95%CI: 64.6% to 81.8%)</td>
<td>0.22</td>
</tr>
<tr>
<td>PLR</td>
<td>9.08 (95%CI: 4.18 to 19.73)</td>
<td>2.16 (95%CI: 1.49 to 3.13)</td>
<td>0.04</td>
</tr>
<tr>
<td>NLR</td>
<td>0.23 (95%CI: 0.14 to 0.38)</td>
<td>0.42 (95%CI: 0.27 to 0.66)</td>
<td>0.24</td>
</tr>
<tr>
<td>Accuracy</td>
<td>86.0% (95%CI: 78.3% to 91.3%)</td>
<td>69.1% (95%CI: 60.2% to 77.0%)</td>
<td>0.03</td>
</tr>
<tr>
<td>Confident level +/- SD</td>
<td>82.0% +/- 17%</td>
<td>69% +/- 12%</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Conclusion: The performance of a simple commercially available AI system is superior to human endoscopists in classification of colonic polyp with a higher accuracy, specificity and confident levels.

Keywords: Colonoscopy, Artificial Intelligence, Polyp, NBI, Classification

EP-0026 (PP-0173) Patient tolerability of Interferon and Interferon free regimen for hepatitis C infection

Dexton Johns

Affiliation: Department of Internal Medicine-GI/Hepatology, Zain Clinical Research Institute, Malapuram, India

Background/Aims: The treatment goal of Chronic hepatitis C virus (HCV) infection is sustained virological response (SVR) which indicates HCV eradication. Traditionally pegylated-interferon-alpha (PEG-IFN) in combination with ribavirin was used but lately direct-acting antivirals (DAAs) which are specifically designed to target various stages of HCV life cycle. To assess the physical and mental health related quality of life (HRQoL) before during and after treatment using EQ-5D-5L instrument

Methods: 60 patients were included in our study. 15 patients received direct acting antiviral agent (DAAs) plus pegylated alpha interferon (Peg-α-IFN) and the remaining 45 IFN free regimen. The EQ-5D-5L questionnaire and visual analog scale (VAS) were given to calculate coefficient’s utility. Utility EQ index was calculated and statistical analysis were performed.

Results: The VAS score was negative in the IFN group indicating a poorer quality of life. The baseline EQ index were comparable however the post treatment EQ index was statistically better in group that received IFN –free therapy. Interferon and ribavirin treatment showed more adverse effect compared to DAAs. HRQOL had a statistically significant correlation with age, sex, educational level, living type, employment status, monthly income level, and comorbidity status. Sofosbuvir and velpatasvir showed better tolerability among the DAAs.

Conclusion: DAAs are better tolerated by the patients and has a significant improvement in the quality of life. Education, compassion and health care needs to be tailored to improve the overall well being of patients with HCV.

Keywords: Hepatitis C Virus, Direct-Acting Antivirals

Dae Won Jun[1]; Hyunyoo Oh[1]; Hyun Jung Ahn[2]; Bo Ok Kim[2]; Mindie H Nguyen[3]

Affiliations: [1]Department of Department of Gastroenterology, Hanyang University Medical Center, and [2]Department of Kantar Health, Kantar Health, Seoul, Republic of Korea; and [3]Department of Internal Medicine-GI/Hepatology, Stanford University Medical Center, Palo Alto, United States

Background/Aims: CHB-prevalence in Korea ranges from 2-7% and contributes to ~64-70% of hepatocellular carcinoma cases. This study characterizes the distribution and trend in demographics and comorbidity among Korean CHB and matched non-CHB patients (by age and sex) between 2007 and 2016.

Methods: We used the Health Insurance Review and Assessment Service (HIRA) Database to identify patients ≥18 years old with CHB via ICD-10 codes (B18.1). Demographic and comorbidity data confirmed via ICD-10 and prescription codes was reported cross-sectionally for 2007, 2011, and 2016. Patients were required to have ≥1 inpatient or ≥2 outpatient claims for CHB for each eligible year.

Results: The study analysis included 253,002 CHB patients met in 2007, 320,245 in 2011 and 418,099 in 2016. Mean age was 47 years (SD 13.3) in 2007 and increased to 52 years (SD 12.5) in 2016 (p < 0.0001). The CHB population over 65 years increased from 10.4% in 2007 to 15.7% in 2016 (p < 0.0001). By 2016, 36% of CHB patients in Korea had hyperlipidemia, 28.8% with hypertension, 14.6% with osteoarthritis, 13.1% with diabetes, 11.9% with osteoporosis/bone fracture, 4.8% with cerebrovascular disease, and 2.3% with chronic kidney disease; all significantly increased from 2007 (p<0.001). CHB patients had higher proportion of comorbidities compared to non-CHB patients. Conclusion: Between 2007 to 2016, the Korean CHB population has significantly aged with more comorbidities, including renal and metabolic bone disease that may affect CHB management, necessitating careful selection of treatment.

Keywords: Hepatitis B, Comorbidity, Health Insurance Review And Assessment Service, Kidney, Bone

OE-0146 (PP-0175) Intrafamilial seroprevalence of hepatitis B surface antigen of chronic hepatitis B patients in Bangladesh

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Affiliation: Department of Internal Medicine-GI/Hepatology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh

Background/Aims: Hepatitis-B virus infection is a global health problem throughout the world. It is rapidly spreading in the developing countries like Bangladesh. This infection may transmit through the family members. After infection, individuals may develop acute or chronic liver disease and hepatocellular carcinoma. This study was conducted to determine the seroprevalence of HBsAg among the family members of chronic hepatitis B patients in Bangladesh.

Methods: This cross-sectional study study was carried out with inclusion of 251 family members at Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. They were screened for HBsAg positivity using standard enzyme immunoassay from April 2016 to June 2017. Results: In total, 251 family members with mean age of 32.8±14 years from 51 chronic HBsAg carriers were included in the study.

Figure 1 Proportions of Comorbidities
The prevalence of HBsAg positivity was found 18.7% (n=47) among the family members. The highest prevalence of HBsAg (22.2%) positivity was found in the age group of 31-40 years old. In terms of relationship, spouses of the index cases had the highest prevalence of HBsAg positivity compared to the children who had the lowest proportion (29% vs. 13.1%, P < 0.05). Notably, male had the higher HBsAg positivity compared to female (25.6% vs. 12.7%, P < 0.01). Conclusion: In family members, HBsAg positivity was greater than the general population. Considering the importance of close contacts for transmission, more attention should be taken to screening and risk lowering activities about HBV infected people and their families of Bangladeshi population.

Keywords: Hepatitis B, Intrafamilial, Bangladesh, Hbsag

OE-0175 (PP-0176) An open-label, randomized, active-control trial of 8-week versus 12-week elbasvir/grazoprevir in naive HCV genotype-1b patients with mild fibrosis (EGALITE)

Ming-Lung Yu[1]; Chao-Hung Hung[2]; Pin-Nan Cheng[3]; Ming-Jong Bair[4]; Jia-Horning Kao[5]; Yi-Hsiang Huang[6]; Pei-Lun Lee[7]; Rong-Nan Chien[8]; Cheng-Yuan Peng[9]; Tsai-Yuan Hsieh[10]; Chun-Yen Lin[8]; Chia-Yen Dai[1]; Jee-Fu Huang[1]; Chung-Feng Huang[1]

Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, [2]Department of Internal Medicine-GI/Hepatology, Chiayi Chang Gung Memorial Hospital, Chiayi, [3]Department of Internal Medicine-GI/Hepatology, National Cheng Kung University Hospital and [7]Department of Internal Medicine-GI/Hepatology, Chi Mei Hospital, Liouying, Tainan, [4]Department of Internal Medicine-GI/Hepatology, Taitung Mackay Memorial Hospital, Taitung, [5]Department of Internal Medicine-GI/Hepatology, National Taiwan University Hospital And National Taiwan University College Of Medicine, [6]Department of Internal Medicine-GI/Hepatology, Taipei Veterans General Hospital and [10]Department of Internal Medicine-GI/Hepatology, Tri-Service General Hospital, Taipei, [8]Department of Internal Medicine-GI/ Hepatology, Linkou Medical Center, Chang Gung Memorial Hospital, New Taipei City, and [9]Department of Internal Medicine-GI/ Hepatology, China Medical University Hospital, Taichung, Taiwan

Background/Aims: Grazoprevir/elbasvir, 100/50 mg fixed-dose combination for 12 weeks achieved a high sustained virological response (SVR) rate (>95%) for HCV-G1 patients. We aim to evaluate the efficacy of a truncated 8-week grazoprevir/elbasvir for naive, HCV-G1b patients with mild fibrosis. Eighty-two naive HCV-G1b patients with fibrosis <9.5kPa enrolled from 11 medical centers in Taiwan are randomized to receive 8 or 12 weeks of elbasvir/grazoprevir. Methods: The primary endpoint is proportion of SVR12 (HCV-RNA < 12 IU/ml at posttreatment week [PTW]12) in the full-analysis-set population (subjects receiving ≥1 dose of study medication). Results: The baseline characteristics were equally distributed in both treatment arms: 56.1% had HCV RNA >800,000 IU/ml and 20.7% fibrosis stage 2. By 2018/05/18, the rate of undetectable HCV RNA at TW1, TW2, TW4, end-of-treatment and PTW4 was 26.8% (22/82), 74.4% (61/82), 90.2% (74/82), 100% (69/69) and 100% (55/55), respectively, in FAS population. The SVR12 rate was 100% (19/19) and 100% (10/10) in 8-week and 12-week treatment arms, respectively. No patients who completed the treatment experienced relapse during post-treatment follow-up. Two patients had serious adverse events due to degenerative hip replacement and left foot traumatic fracture, respectively. Both were considered unrelated to the investigating drugs.

Conclusion: 8-week regimen with grazoprevir/elbasvir was highly effective and safe in HCV-G1b naive patients with mild fibrosis in the interim analysis. The study will be completed by the end of October 2018. Keywords: Hcv

Table 1

OE-0182 (PP-0177) Cirrhosis related to Chronic Hepatitis C Virus Infection and Factors Associated in Treatment-naive Hepatitis C Patients

Nikko Darnindo; Edi Mulyana; Arnold Harahap; Annela Manurung

Affiliation: Department of Internal Medicine, Fatmawati General Hospital, Jakarta, Indonesia

Background/Aims: Chronic Hepatitis C is associated with necroinflammation predisposes to fibrosis. Co-infection with HIV could accelerate fibrosis. Knowledge of hepatitis C virus (HCV)/(HIV) co-infection is currently incomplete or conflicting. Methods: we studied proportion of cirrhosis in consecutive Hepatitis C patients referred to Fatmawati General Hospital from August 2017-March 2018, and factors associated with cirrhosis. Results: Out of 83 patients who were admitted to clinic, mean age was 48.05±13.4 years-old. 72.2% patients were male. Median value of HCV-RNA was 1.1 x106 IU/ml(26-2.108IU/ml). 47%(39/83) patients were diagnosed as cirrhosis. Median value of Fibroscan and APRI were 9.7(3.3-66.4 kpa) and 0.64(1.0-10.45). HIV-HCV coinfection was detected in 48.2% patients(40/83). Mean duration of HIV-infection was 6.87±3.9 years with early CD4 count 79/ml(2-579). Risk of cirrhosis was higher in HCV monoinfection(p=0.011) and increased as the age increased(p=0.000). HCV-RNA was lower in Cirrhosis patients (p>0.05). Mean age in Monoinfection was higher than Coinfection (p=0.000). HCV RNA was also higher in Monoinfection (p=0.210). In the HIV-HCV Coinfection, duration of HIV infection was longer in cirrhosis than in non-cirrhotic patients (p=0.539), risk of cirrhosis does not depend on initial CD4-cell count but is inversely dependent on an increase in CD4 cell count(p>0.05). Multivariate analyses demonstrated that age was the only significant factor. (OR 6.84 95%CI 2.451-19.088 for age ≥50 yo). Conclusion: Proportion of Cirrhosis in Hepatitis C Treatment-Naive patients was high. Age is the only factor significantly associated with the risk of Cirrhosis. Early diagnosis and treatment of Hepatitis C is needed to prevent cirrhosis.

Keywords: Hepatitis C, Cirrhosis, Factor Associated
OE-0344 (PP-0178) APRI and FIB-4 have good predictive value for significant fibrosis in subjects with concomitant chronic hepatitis B and hepatic steatosis.

Kenneth Weicong Lin[1]; George Boon Bee Goh[1]; Wei Qiang Leow[2]; Tony Kiat Hon Lim[2]; Wan Cheng Chow[1]; Rajneesh Kumar[1]

Affiliation: Departments of [1]Internal Medicine-GI/Hepatology, [2]Pathology, Singapore General Hospital, Singapore, Singapore

Background/Aims: Chronic Hepatitis-B (CHB) is endemic to Asia and is a leading cause of liver-related morbidity. The prevalence of hepatic steatosis (HS) in Asian populations is increasing, with an increasing prevalence of patients with concomitant CHB and HS. Scoring systems such as AST-to-Platelet-Ratio-Index (APRI) and Fibrosis-4 (FIB-4) were developed for predicting significant fibrosis in populations with CHB and chronic-hepatitis-C. This scoring is not well studied in subjects with concomitant CHB and HS. We aim to explore the utility of APRI and FIB-4 in predicting significant hepatic-fibrosis in patients with concomitant CHB and HS.

Methods: 292 recruited CHB subjects underwent liver biopsy, which was assessed by hepatopathologist for Ishak-modified histological-activity-index (steatosis was defined as “more than 5% hepatocytes containing fat”) and Ishak-staging-system. Subjects were divided into 2 groups: CHB with and without concomitant HS. Significant fibrosis was defined by Ishak stage-score of 4 and above. APRI and FIB-4 scores were calculated in both groups and analysed using the ROC curve.

Results: Of the 292 subjects, mean age was 45.3±12 years. 73% were male and 95% Chinese. 105 subjects had CHB only and 187 subjects had CHB and HS. For subjects with concomitant CHB and HS, an APRI-score of more than 1.5 has a sensitivity of 21% and specificity 90% for predicting significant fibrosis (AUROC=0.624), while FIB-4 score of more than 3.25 has a sensitivity of 25% and specificity of 90% for predicting significant fibrosis (AUROC=0.714). For subjects with CHB alone, an APRI-score of more than 1.5 has a sensitivity of 33% and specificity 87% for predicting significant fibrosis (AUROC=0.667), while FIB-4 score of more than 3.25 has a sensitivity of 30% and specificity of 91% for predicting significant fibrosis (AUROC=0.713).

Conclusion: APRI and FIB-4 have good predictive value for significant fibrosis for CHB patients independent of concomitant steatosis.

Keywords: Chronic Hepatitis B, Hepatic Steatosis, Fibrosis
OE-0743 (PP-0180) The utility of HCV Ag as a marker to assess active HCV infection in individuals with genotype 4 HCV in Egypt
Karim Elnoemany; Mohamed Elnadry
Affiliation: Department of hepatology, karim elnoemany, Egypt

Background/Aims: Screening for anti-HCV antibody (anti-HCV Ab) status often facilitates HCV surveillance in the community Although simple, such an assay cannot differentiate between past and present infection and requires supplemental HCV RNA testing to confirm active HCV infection and monitor antiviral treatment. Testing for HCV core antigen (HCV Ag) presents a more attractive alternative owing to the lower cost and short turnaround time. Aiming to evaluate the diagnostic utility of HCV Ag as an alternative to HCV RNA to identify active HCV infection in Egypt.

Methods: Individuals with reactive HCV antibodies (N= 367) came to our specialized hepatology center seeking for treatment with new DAAs in the period from November 2014 to November 2017. They were tested for liver function tests, kidney function tests, HBsAg, HIV IgM, AFP, Fibroscan, HCV RNA level and HCV Ag level. All patients were of genotype 4.

Results: The lower limit of detection line for HCV RNA was 16 IU/mL. The cutoff line of HCV core Ag was 3 fmol/L. HCV RNA were less than 16 IU/mL in 33 patients and were excluded from the study. Of There were 235 (70.4%) males and 99 (29.6%) females (mean age 55.3 ± 9.2 and 45.4 ± 10.4 years, respectively). Many of the anti-HCV reactive individuals had elevated levels (≥ 32 U/mL) of AST (63.5%), ALT (54.7%) and advanced liver fibrosis (49.1%, Metavir score: F3-F4). Among the anti-HCV reactive individuals, only 8 were found reactive to HBsAg. Of 334 individuals with HCV RNA level more ≥ 16, 290 (86.8%) had HCV core Ag ≥ 3.

Conclusion: High validity of HCV core Ag as a reliable marker for diagnosis of active HCV infection.

Keywords: Hcv, Hcv Core Ag, Pcr, Genotype 4, Egypt

OE-0536 (PP-0181) Risk of hepatocellular carcinoma among chronic hepatitis B patients presumed in immune tolerant phase
Dong Hyun Sinn; Gyeol Seong; Wonseok Kang; Geum-Youl Gwak; Moon Seok Choi; Joon Hyeok Lee; Kwang Cheol Koh; Seung Woon Paik; Yong-Han Paik
Affiliation: Department of Internal Medicine-GI/Hepatology, Samsung Medical Center, Seoul, Republic of Korea

Background/Aims: Recent studies suggested minor but significant proportion of patients presumed in immune-tolerant phase, defined by hepatitis e antigen (HBeAg) positive, high serum hepatitis B virus (HBV) DNA, and normal alanine aminotransferase (ALT) levels, develop complication. International HBV guidelines recommended age and non-invasive biomarkers (e.g., FIB-4) to stratify future complication risk, but evidence to support this approach is limited.

Methods: A retrospective cohort of 651 HBeAg positive, adult patients with high serum HBV DNA levels (> 7 log IU/mL) but normal or mildly elevated ALT levels (< 80 U/L) were analyzed. We tested whether age and FIB-4 are independent risk factors for hepatocellular carcinoma (HCC) development. Results: During a median 5.2 years of follow-up (range: 1.0-17.8 years), 25 patients (3.8%) developed HCC. Age and FIB-4 levels were independent factors associated with HCC development. When stratified, 5 and 10-years HCC incidence rate was 0% and 2.0% for patients aged <40 years plus FIB-4 <1.45, while 5 and 10-years HCC incidence rate was 5.9% and 32.7% for patients aged ≥40 years plus FIB-4 ≥1.45, respectively, (p <0.001). When analysis was limited to patients with normal ALT levels (n=301), 5 and 10-years HCC incidence rate was 0% and 0% for patients aged <40 years plus FIB-4 <1.45, while 5 and 10-years HCC incidence rate was 5.9% and 32.7% for patients aged ≥40 years plus FIB-4 ≥1.45, respectively, (p<0.001). When analysis was limited to patients with normal ALT levels (n=501), 5 and 10-years HCC incidence rate was 0% and 0% for patients aged <40 years plus FIB-4 <1.45, while 5 and 10-years HCC incidence rate was 4.5% and 27.1% for patients aged ≥40 years plus FIB-4 ≥1.45, respectively, (p<0.001).

Conclusion: Among patients presumed in immune tolerant phase, HCC risk was considerably high for aged patients with elevated FIB-4 index, while the risk was minimum for young patients with low FIB-4 index. These two factors could effectively stratify HCC risk, thus may guide management plan, among patients presumed in immune tolerant phase.

Keywords: Hepatitis B, Antiviral Therapy, Immune Tolerant, Hepatocellular Carcinoma
OE-0561 (PP-0182) Sofosbuvir and Velpatasvir for Chronic HCV Genotype 3 Infection compared to Sofosbuvir and Daclatasvir
Neehar M Shanavas; Krishnadas Devadas; Biji Benny; Jijo Varghese
Affiliation: Department of Department of Medical Gastroenterology, Government Medical college Trivandrum, Trivandrum, India

Background/Aims: Within the 6 major clinical HCV genotypes, genotype 3 represents 22–30% of all infection, and is described as a unique entity with higher rates of steatosis, faster progression to cirrhosis, and higher rates of hepatocellular carcinoma. This study was done to compare the 2 treatment modalities currently available for chronic HCV genotype 3 infections.

Methods: This was a single-center, prospective, observational study performed at a tertiary care centre in south India from April 2015-Feb 2018. Patients included were those having chronic HCV infection of genotype 3 who have received either Sofosbuvir with daclatasvir or velpatasvir. All selected patients were followed from the beginning of treatment to 12 weeks after the end of treatment. Follow-up included history and examination for any adverse drug effects, blood analyses.

Results: Of the 124 patients who were treated for chronic HCV infection, 66 patients were treated with Sofosbuvir/Daclatasvir 60 patients (90.9) attained SVR. While in the 58 patients treated with Sofosbuvir/Velpatasvir 56 patients (96.5) attained SVR. The significance of SVR on advanced fibrosis and cirrhosis (F3 and F4), previous treatment experienced were analysed by chi-square test and were found not significant. Conclusion: The sustained virologic response with treatment was high in patients treated with Sofosbuvir/Velpatasvir compared to Sofosbuvir/Daclatasvir. Patients in the Sofosbuvir/Velpatasvir group had lower adverse effects occurrence. Except one patient who developed severe sarcopenia other AE were few and mild and none result in discontinuation of treatment.

Keywords: Chronic HCV, Genotype 3, Velpatasvir, Daclatasvir, SVR

Table comparing Daclatasvir/Velpatasvir

<table>
<thead>
<tr>
<th></th>
<th>Sofosbuvir/Daclatasvir (n=66)</th>
<th>Sofosbuvir/ Velpatasvir (n=58)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean in yrs)</td>
<td>51</td>
<td>50.6</td>
</tr>
<tr>
<td>Sex (M/F)</td>
<td>34/32</td>
<td>28/30</td>
</tr>
<tr>
<td>HCV RNA (log 10 IU/ml)</td>
<td>3.1</td>
<td>2.8</td>
</tr>
<tr>
<td>Treatment experienced</td>
<td>2(3.03%)</td>
<td>6(10.3%)</td>
</tr>
<tr>
<td>Cirrhotics</td>
<td>23(34.84%)</td>
<td>28(48.28%)</td>
</tr>
<tr>
<td>CHILD A</td>
<td>18</td>
<td>22</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>SVR12 attained</td>
<td>60(90.9%)</td>
<td>56(96.5%)</td>
</tr>
<tr>
<td>Not attained</td>
<td>6(9.1%)</td>
<td>2(3.5%)</td>
</tr>
<tr>
<td>Adverse event</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatigue</td>
<td>30(45.45%)</td>
<td>18(31.03%)</td>
</tr>
<tr>
<td>Headache</td>
<td>3(4.54%)</td>
<td>1(1.72%)</td>
</tr>
<tr>
<td>Anemia(&gt;2 gm)</td>
<td>4(6.06%)</td>
<td>2(3.45%)</td>
</tr>
<tr>
<td>fall in Hb)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anorexia</td>
<td>8(12.12%)</td>
<td>5(8.62%)</td>
</tr>
</tbody>
</table>
OE-0623 (PP-0183) TREATMENT OF PATIENTS WITH CHRONIC HEPATITIS C GENOTYPE 3 INFECTION WITH OR WITHOUT CIRRHOSIS WITH SOFOSBUVIR AND VELPATASVIR WITH OR WITHOUT RIBAVIRIN
Sonny Bherwani; A S Saumya; Kaushal Vyas; Sushil Narang; Nilesh Pandav
Affiliation: Department of Gastromedicine, NHL Municipal Medical College, VS Hospital, Ahmedabad, India

Background/Aims: Sofosbuvir/velpatasvir (SOF/VEL) is highly effective and well tolerated treatment for Genotype 3 (G3) HCV infected patients. We studied Sustained viral response (SVR) and End treatment response (ETR) on treatment naïve Western Indian chronic hepatitis C (CHC) genotype 3 patients treated with SOF/VEL±RBV for 12 weeks. Methods: A prospective observational study was done to analyze treatment response by HCV RNA levels in 46 CHC G3 patients. Patients were divided into Group A CHC G3, Group B (CHC compensated cirrhosis) and treated with SOF+VEL for 12 weeks and Group C (CHC G3 decompensated cirrhosis) with SOF+VEL+ weight based Ribavirin (RBV) for 12 weeks. Cirrhosis and portal hypertension were diagnosed by clinical, biochemical, endoscopic, radiological and elastography criteria. ETR was studied in Group A/B/C at 12 week and SVR in Group A/B/C after 12 weeks of therapy. The baseline level of HCV RNA were obtained in all groups at the time of admission. Results: Baseline characteristics and ETR/SVR rates in the three groups are shown in the table. The SVR/ETR rates in group A,B and C were 100%,95% and 100%. In group C in 1 patient Hb fall <8.5g/l we stopped RBV therapy. No major adverse events were reported during study period. Conclusion: SOF+VEL dual therapy is safe and effective to obtain nearly 100% SVR/ETR in CHC G3 patients. In patients with decompensated cirrhosis addition of Ribavirin led to achieve SVR numerically equal to patients without cirrhosis.

Keywords: Hepatitis C, Genotype 3, Cirrhosis, Sofosbuvir, Velpatasvir

Comparisons of Groups

<table>
<thead>
<tr>
<th>GROUP A</th>
<th>GROUP B</th>
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<tr>
<td>NUMBER</td>
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<tr>
<td>THERAPY</td>
<td>SOF+VEL</td>
<td>SOF+VEL</td>
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<tr>
<td></td>
<td>(12 WEEK)</td>
<td>(12 WEEK)</td>
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<tr>
<td>MEAN AGE (years)</td>
<td>46.7 (25-62)</td>
<td>46.9 (28-68)</td>
</tr>
<tr>
<td>SEX</td>
<td>M=12 F=8</td>
<td>M=7 F=5</td>
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<tr>
<td>MEAN VIRAL LOAD (IU/ml)</td>
<td>68736.05</td>
<td>260766.66</td>
</tr>
<tr>
<td>(12500-751000)</td>
<td></td>
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<td>ETR</td>
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<td>95%</td>
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</table>

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OE-0806 (PP-0184) The Prevalence of Non-Alcoholic Fatty Liver Disease in Patients with Chronic Hepatitis B and Its Associated Characteristics
Khairul Najmi Muhammad Nawawi; Deborah Chia Hsin Chew; Zhiqin Wong; Chai Soon Ngiu; Raja Affendi Raja Ali
Affiliation: Department of Gastroenterology Unit, Department of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Bandar Tun Razak, Malaysia

Background/Aims: Non-alcoholic fatty liver disease (NAFLD) is increasingly common nowadays. We aim to determine the prevalence of NAFLD in CHB patients, and to compare the virological, biochemical and metabolic profiles between CHB patients with and without NAFLD. The incidence of new NAFLD and cirrhosis progression will also be analysed.

Methods: Retrospective study on a cohort of CHB patients was conducted. Baseline parameters at the time of CHB diagnosis were compared between the two groups. NAFLD and cirrhosis were diagnosed by liver ultrasonography.

Results: Total of 201 adult CHB patients with a mean of 9-year follow-up were analysed. Of these, 15.9% (n=32) had concomitant NAFLD. Less CHB/NAFLD patients had HBeAg +ve than in CHB patients (6.3% vs. 27.8%, p=0.007). Biochemically, CHB/NAFLD patients had significantly higher levels of alanine transaminase, triglyceride and fasting blood glucose as compared to CHB patients; [48 vs. 33IU/L (p=0.004), 1.7 vs. 1.3mmol/L (p=0.009) and 6.0 vs. 5.4mmol/L (p=0.04) respectively]. Dyslipidaemia and type 2 diabetes mellitus were more prevalent in CHB/NAFLD patients (31.3% vs. 10.7%, p=0.005 and 18.8% vs. 5%, p=0.01 respectively). Furthermore, the liver stiffness and controlled attenuated parameter values for CHB/NAFLD patients were higher (9.8 vs. 7.3kPa, p=0.051 and 304 vs. 226 dB/m respectively). During the follow-up, 21.3% (36/169) of CHB patients developed NAFLD. Among them, 41% and 3% developed newly diagnosed diabetes mellitus and dyslipidemia respectively and 11% (4/36) progressed to cirrhosis.

Conclusion: Overall, one third (33.8%) of CHB patients had concomitant NAFLD (32 pre-existing, 36 newly diagnosed). NAFLD should be screened among CHB patients and hence appropriate preventive measures can be undertaken to control the associated metabolic risks.
Keywords: Nafld, Chronic Hepatitis B, Prevalence, Metabolic Diseases

OE-0865 (PP-0185) Changes in phospho-proteome of splenic macrophages from patients with hypersplenism due to portal hypertension
Jun Li[2]; Na Huang[2]; Ren Li[1]; Zhengan Yang[1]; Zongfang Li[1]; Shu Zhang[1]
Affiliation: [1]Department of Geriatric Digestive Surgery, the Second Affiliated Hospital of Xi’an Jiaotong University, and [2]Department of Central Laboratory for scientific research, The Second Affiliated Hospital Of Xi’an Jiaotong University, X‘ian, China

Background/Aims: Hypersplenism is a common clinical syndrome in portal hypertension (PH) with cirrhosis. It is generally accepted that cytopenias result predominantly from the increased phagocytosis and destruction of hemocytes in splenic macrophage (Mφ). In prior studies, we identified the dysfunction of splenic Mφs from patients with PH, but the underlying mechanism is still not clear. The aim of this study was to investigate the phospho-proteome of splenic Mφs from patients with PH.

Methods: The changes in protein phosphorylation of splenic Mφs from patients with PH were evaluated with high-throughput ELISA based Antibody Microarray PEX100, macrophages from traumatic spleen used as the normal control.

Results: Among the total 584 protein detected on the antibody microarray, there were 104 phosphorylation sites from 84 proteins changed in the splenic Mφs from patients with PH. In consistent with our previous study, PI3-kinase p85-subunit alpha/gamma (Phospho-Tyr467/Tyr199), NFkB-p65 (Phospho-Thr435) were increased, IKK-beta (Phospho-Tyr188) decreased. The changes in phosphorylation of Caspase 6, Calmodulin, BCL-2, AKT1 might be related to the abnormality in cell apoptosis, intracellular calcium concentration and cell function of splenic Mφs from patients with PH. In consistent with our previous study, PI3-kinase p85-subunit alpha/gamma (Phospho-Tyr467/Tyr199), NFkB-p65 (Phospho-Thr435) were increased, IKK-beta (Phospho-Thr188) decreased. The changes in phosphorylation of Caspase 6, Calmodulin, BCL-2, AKT1 might be related to the abnormality in cell apoptosis, intracellular calcium concentration and cell function of splenic Mφs from patients with PH.

Conclusion: Changes in phospho-proteome of splenic macrophages provide good explanation for the dysfunction of splenic Mφs from patients with PH, but the detail mechanism still need to be clarified.
Keywords: Portal Hypertension, Hypersplenism, Macrophage, Protein Phosphorylation, Antibody Microarray
OE-0966 (PP-0186) Sofosbuvir In Combination With Ribavirin In Genotype 3 Hepatitis C Patients With Cirrhosis. An Experience from Tertiary Care hospital
Ali Akbar Langhah; Nazish Butt; Masood Khoso; Ali Khan

Affiliation: Department of Gastroenterology section, Medical Unit IV, Jinnah Postgraduate Medical Centre, Karachi, Pakistan

Background/Aims: To evaluate the safety and efficacy of Sofosbuvir plus Ribavirin in patients with compensated and decompensated cirrhosis

Methods: This is a quasi experimental study of HCV patients with compensated and decompensated cirrhosis. Efficacy was assessed by End Treatment Response (ETR) and Sustained Viral Response (SVR). Adverse events were recorded on designed proforma on serial follow up visits.

Results: The cohort consisted of 117 consecutive patients out of which 7 lost to follow. Out of 110 remaining patients 51 patients had compensated cirrhosis and 59 had a decompensated cirrhosis. The mean age was 53.8 ± 11 years. Males were n=56 (50.9%) and females were n=54(49.1%). Mean CTP and MELD score were 6.62 and 8.9. In compensated cirrhosis, treatment naïve and experienced patients ETR was achieved in 36 (87.8%) and 8 (88.9%) patients respectively. In decompensated cirrhosis treatment naïve and experienced ETR was achieved in 28 (82.4%) and 18 (85.7%) patients respectively. Similarly, in compensated cirrhosis, treatment naïve and experienced patients SVR was achieved in 25 (83.3%) and 5 (71.4%) respectively. In decompensated cirrhosis treatment naïve and experienced SVR was achieved in 21 (77.8%) and 12 (75%) patients respectively. Most common adverse events experienced by the patients were fatigue 85(77.2%) and drop of Hb by 1g/dl 35(31.8%). New onset of upper gastrointestinal bleeding was seen in 6 (5.45%), encephalopathy in 4(3.65%), 9 (8.2%) percent of patients developed ascites and 3 (2.72%) patients developed hepatoma and one patient developed Acute on chronic liver failure. 2(1.8%) patients died during treatment.

Conclusion: Sofosbuvir in combination with ribavirin in GT-3 patients achieved good ETR and SVR in compensated cirrhosis than decompensated cirrhosis and is quite safe to use.

Keywords: Cirrhosis, Gt3, Sofosbuvir, Ribavirin

Yun Nah Lee[1]; Jong Ho Moon[1]; Hyun Jong Choi[1]; Hyun Woo Lee[1]; Hee Kyung Kim[2]; Tae Hoon Lee[1]; Moon Han Choi[1]; Sang-Woo Cha[1]; Young Deok Cho[1]; Sang-Heum Park[1]

Affiliation: Departments of [1]Internal Medicine-GI/Hepatology, [2]Pathology, Soon Chun Hyang University Bucheon Hospital, Bucheon, Republic of Korea

Background/Aims: In a recent, EUS-guided fine needle biopsy (EUS-FNB) has been used in the pathological diagnosis of liver mass since EUS-FNB can provide core biopsy samples in a significant portion of patients. In this study, we evaluated the clinical usefulness of EUS-FNB for a histological diagnosis of suspicious liver metastasis with solid pancreatic mass.

Methods: A total of 35 patients of solid pancreatic mass were enrolled prospectively. EUS-FNB was performed with a 22 gauge (G) or 25 G FNB device (Echotip ProCore; Wilson-Cook Medical, Winston-Salem, North Carolina, USA) using a linear array echoendoscope (GF-UCT 260; Olympus Medical Systems, Co., Ltd., Tokyo, Japan). FNB was achieved in both pancreas and liver masses. The specimen was analyzed by onsite cytology, Papanicolaou- stain cytology, and histology.

Results: Among 35 patients, FNB for pancreas and liver masses was carried out in 34 patients (97.1%) and 33 patients (94.3%). The sensitivity of EUS-FNB for pancreas and liver masses was 97.1% and 97.0%, respectively (P=0.746). In addition to malignancy, core tissue for histology with immunochemistry was acquired in all patients by the combination of pancreas and liver FNBs. Compared with the pancreatic mass, the median number of needle passes required to establish the diagnosis was significantly lower in the liver mass (1.0 [IQR 1.0–2.0] vs. 2.0 [IQR 1.0–3.0]; P=0.007). Adverse event with intramural hematoma in stomach was observed in one patient during liver puncture.

Conclusion: EUS-FNB is considered a useful diagnostic modality to confirm liver metastases and primary pancreatic mass in single-session procedure.

Keywords: Eus-Fna, Pancreas, Liver
OE-0251 (PP-0189) A novel device for Irreversible electroporation on pancreas using EUS-guided endoscopy: An experimental animal study

Jo Han Jeon; Chang Duck Kim; Sang Hoon Kim; Ji Hyeong Kim; Seong Ji Choi; Jung Min Lee; Seung Han Kim; Jae Min Lee; Hyuk Soon Choi; Eun Sun Kim; Bo Ra Keum; Yoon Tae Jeen; Seung Han Kim; Jae Min Lee; Hyuk Soon Choi; Hong Sik Lee; Hoon Jai Chun

Affiliation: Department of Internal Medicine-GI/Hepatology, Korea University Anam Hospital, Seoul, Republic of Korea

Background/Aims: Endoscopic irreversible electroporation (IRE) can be performed using a flexible, thin, needle-shaped electrode for an endoscopic ultrasound (EUS)-guided procedure. Aim of this study is to evaluate the feasibility, efficacy, and safety of minimal invasive IRE using an endoscopic needle-electrode which was newly designed on porcine pancreas.

Methods: Experimental IRE ablations on the pancreas of porcine were performed by two method. One is surgical approach, and the other is EUS-guided endoscopic approach. We use newly developed electrode which can be inserted through the working channel of the endoscope. After we finished the experiment, animals were sacrificed after 24-hours later and we collected ablated pancreases of porcine

Results: IRE ablation on the pancreas using our endoscopic needle-electrode was technically successful by both method; Surgical and EUS-guided approaches. After ablation using irreversible electroporation, the ablated pancreatic tissue showed no gross change except focal hemorrhage. H&E staining presented a well-de-marcated ablation site measuring 1.0-1.5 cm in diameter in the pancreas. After 24 hours later, TUNEL immunohistochemistry showed diffuse cell death along the needle - puncture site. No complications were observed in pigs after endoscopic IRE ablation.

Conclusion: Minimally invasive irreversible electroporation (IRE) using a newly developed electrode has feasibility and effectivity on the pancreas of porcine under EUS-guided endoscopy

Keywords: Eus, Endoscopy, Irreversible Electroporation, Pancreas, Animal

OE-0396 (PP-0190) Comparison of newly designed 21-gauge and standard 22-gauge aspiration needles for the diagnosis of solid pancreatic masses: A prospective randomized trial

Tomoe Yoshikawa[1]; Kosuke Minaga[1]; Hiroko Akamatsu[2]; Yuki Hayashi[1]; Maiko Ikenouchi[1]; Soichiro Umemura[1]; Tomoki Nakai[1]; Hisakazu Matsumoto[1]; Yasuki Nakatani[1]; Takuji Akamatsu[1]; Yoshito Uenoyma[1]; Kazuo Ono[2]; Yukitaka Yamashita[1]

Affiliation: Departments of [1]Gastroenterology And Hepatology, and [2]Pathology, Japanese Red Cross Wakayama Medical Center, Wakayama, Japan

Background/Aims: Although endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) has been widely used for diagnosing pancreatic tumors, the ability to obtain adequate pancreatic tumor tissue remains challenging. This study was performed to compare the performance characteristics and safety of a newly designed 21-gauge needle versus a standard 22-gauge aspiration needle for diagnosing solid pancreatic masses.

Methods: This single-center prospective study was carried out from June 2014 to December 2016. Consecutive patients with solid pancreatic masses were randomized to undergo EUS-FNA with either a novel 21-gauge needle or a standard 22-gauge needle. The primary outcome measure was comparison of the diagnostic yield of the FNA samples. Secondary outcome measures were comparison of technical success, diagnostic performance number of needle passes, needle angle, and complications.

Results: A total of 93 patients underwent EUS-FNA with the novel 21-gauge needle (n = 47) or the standard 22-gauge needle (n = 46). Patients’ baseline characteristics did not differ between the groups. The technical success rate was 100% in both groups, and the overall diagnostic accuracy for malignancy was similar between the groups (100% in the 21-gauge group vs. 95.7% in the 22-gauge group, P = 0.242). Nevertheless, the 21-gauge needle resulted in significantly higher scores for cellularity (P = 0.010) and lower scores for blood contamination (P < 0.001). Median number of needle passes was lower using the 21-gauge than 22-gauge needle (2 and 3, respectively; P = 0.003). Needle angle during puncture was more restricted when using the 21-gauge needle (P < 0.001). Procedure-related complication rate was not different between the groups (P = 0.148).

Conclusion: EUS-FNA of solid pancreatic masses using the novel 21-gauge aspiration needle is comparable with that using the standard 22-gauge aspiration needle in terms of diagnostic performance. However, the 21-gauge needle provided higher-quality specimens for histological evaluation in terms of both sample cellularity and blood contamination.

Keywords: Endoscopic Ultrasound, Eus-Fna, Fine Needle Aspiration, Pancreatic Mass
OE-0438 (PP-0191) Feasibility and safety of endoscopic ultrasonography-guided selective portal vein embolization with a coil and cyanoacrylate in a live porcine model
Tae Young Park[1]; Dong-Wan Seo[2]; Hyeon-Ji Kang[3]; Tae Jun Song[2]; Do Hyun Park[2]; Sang Soo Lee[2]; Sung Koo Lee[2]; Myung-Hwan Kim[2]

Background/Aims: Preoperative portal vein (PV) embolization using the percutaneous transelective approach has been performed in patients with hepatobiliary malignancy prior to extensive liver resection. The aim of this study is to evaluate the technical feasibility and initial safety of endoscopic ultrasonography (EUS)-guided selective PV embolization using a coil and cyanoacrylate in a live porcine model. Methods: EUS-guided selective intrahepatic PV embolization with a coil and cyanoacrylate was performed in 9 pigs. The selected PV was punctured with a 19-gauge fine needle aspiration (FNA) needle, and the coil was inserted under EUS guidance. The cyanoacrylate was then immediately injected through the same FNA needle. The blood flow change in the embolized PV was evaluated using color Doppler EUS. A necropsy was performed following the 1-week observation period. Results: The success rates for the coil and cyanoacrylate delivery were 88.9% (8/9) and 87.5% (7/8), respectively. In 1 case, the coil migrated into the hepatic parenchyma. In another case, the cyanoacrylate injection failed due to early clogging in the FNA needle. The blood flow change in the embolized PV was evaluated using color Doppler EUS. A necropsy was performed following the 1-week observation period. Results: The success rates for the coil and cyanoacrylate delivery were 88.9% (8/9) and 87.5% (7/8), respectively. In 1 case, the coil migrated into the hepatic parenchyma. In another case, the cyanoacrylate injection failed due to early clogging in the FNA needle. The complete blockage of blood flow confirmed by color Doppler EUS in the embolized PV after coil and cyanoacrylate treatment. There was coil migration into the hepatic parenchyma in 1 case. There was no animal distress observed during the 1-week observation period prior to necropsy. The necropsy showed no evidence of damage to the intra-abdominal organs, and the selected PV was totally occluded with embolus. Conclusion: Our findings indicate EUS-guided selective PV embolization is both technically feasible and initially safe in an animal model. Keywords: Endoscopic Ultrasonography, Portal Vein, Embolization, Feasibility, Safety

Dongwook Oh; Dong-Wan Seo; Tae Jun Song; Do Hyun Park; Sang Soo Lee; Sung Koo Lee; Myung-Hwan Kim
Affiliation: Department of Internal Medicine-GI/Hepatology, Asan Medical Center, Seoul, Republic of Korea

Background/Aims: Small hepatic masses frequently do not have distinct margins on B-mode endoscopic ultrasound (EUS) image. Contrast-enhanced harmonic EUS (CEH-EUS) is widely used for evaluating ambiguous pancreatic lesions. However, its role in detecting hepatic lesions and the use of EUS-guided fine needle aspiration (FNA) are not well evaluated. We tried to investigate the usefulness of CEH-EUS guided FNA for evaluating hepatic lesions. Methods: Thirty consecutive patients with hepatic masses underwent CEH-EUS and CEH-EUS guided FNA between September 2010 and November 2016. Results: Twenty-eight patients (93.3%) had malignant tumors and 2 patients (6.7%) had benign hepatic masses. Prior to contrast enhancement, 73.3% of the hepatic lesions (22/30) in the patient cohort were visible on B-mode. After contrast enhancement, 93.3% of these hepatic lesions (28/30) were distinguishable from the surrounding liver parenchyma. The technical success rate was 100%. The median tumor size on EUS and the number of needle passes were 24.5 mm (Interquartile range (IQR) 14.5 – 40.8) and 2 (IQR 2 – 3), respectively. The diagnostic accuracy of CEH-EUS guided FNA was 86.7% (26/30 cases). There were no procedure-related adverse events. Conclusion: CEH-EUS guided FNA can be a safe and efficient method for the diagnosis of hepatic masses. It can result in a high diagnostic accuracy in cases where the hepatic lesions are poorly visible in conventional EUS. Keywords: Eus, Contrast Enhanced Eus, Eus-Fna, Liver
OE-0506 (PP-0193) Clinical outcomes of EUS-guided ethanol ablation therapy for solid pancreatic tumors
Jin Ho Choi; Min Su You; Bang Sup Shin; Young Hoon Choi; Woo Hyun Paik; Sang Hyub Lee; Ji Kon Ryu; Yong-Tae Kim
Affiliation: Department of Internal Medicine-GI/Hepatology, Seoul National University Hospital, Seoul, Republic of Korea

Background/Aims: Endoscopic ultrasound-guided ethanol ablation (EUS-EA) is recently introduced for the treatment of pancreatic solid tumors. However, the effect and safeness of this treatment have not been well investigated yet. The aim of this study was to determine the feasibility, effect and complications of EUS-EA for pancreatic solid lesions.

Methods: Between October 2015 and April 2018, 22 patients who underwent EUS-EA for solid pancreatic mass and followed up for more than 3 months were included. Complete remission was defined as no residual tumor in follow-up imaging test. Their medical records were retrospectively reviewed.

Results: A total of 26 patients were performed EUS-EA for solid pancreatic tumors and 4 patients were excluded due to missing the follow-up image. Thirteen patients had pancreatic neuroendocrine tumor and 9 patients had solid papillary tumor. The median follow-up duration after ablation was 192 (126-776) days and the median ablated tumor size was 16 (8-33) mm. The median volume of ethanol injection was 1.05 (0.3-3) ml. After EUS-EA, 3 (13.6%) cases showed complete remission, 8 (36.4%) cases showed significant size reduction, 8 (37.5%) cases showed no change in size, and 3 (18.8%) cases showed size increment. Two patients who had functional pancreatic neuroendocrine tumor improved symptoms after the procedure. Two patients were experienced severe adverse event among 3 (13.6%) patients with post-procedural acute pancreatitis, and 10 (45.5%) patients were experienced mild abdominal pain. Conclusion: The effect of EUS-EA for pancreatic solid lesions is limited compared to previous studies. Subsequent studies on the indications for this procedure and adequate amount of alcohol needed for tumor ablation will be needed.

Keywords: Endosonography, Pancreatic Neuroendocrine Tumor, Solid Pseudopapillary Tumor

OE-0730 (PP-0194) A prospective randomized controlled trial of contrast-enhanced harmonic versus conventional endoscopic ultrasound-guided fine needle aspiration affecting diagnostic yield for pancreatic solid lesions: An interim analysis
Seok-Hoo Jeong[1]; Jae Hee Cho[2]; In Rae Cho[1]; Eui Joo Kim[2]; Yeon Suk Kim[2]
Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Catholic Kwandong University International St. Mary’s Hospital, and [2] Department of Internal Medicine-GI/Hepatology, Gachon University Gil Medical Center, Incheon, Republic of Korea

Background/Aims: The differential diagnosis of pancreatic solid lesions is a common clinical challenge. Contrast-enhanced harmonic endoscopic ultrasound (CEH-EUS), which indicates vascularization in pancreatic lesions, has been found to be useful in the differential diagnosis of pancreatic tumors. The aim of this study was to investigate the usefulness of CEH-EUS guided fine needle aspiration (FNA) compared to conventional EUS-FNA affecting diagnostic yield for pancreatic solid lesions.

Methods: Two hundred patients with pancreatic solid lesions were prospectively enrolled in two university hospitals from January 2015. One hundred patients underwent CEH-EUS-FNA, and 100 patients underwent conventional EUS-FNA without onsite cytopathologist. The sensitivity, specificity and optimal number of needle passes were evaluated between two groups. Results: Pancreatic malignancies were found in 178 patients (89% of study population). Sensitivity and accuracy of CEH-EUS-FNA and EUS-FNA group were 91%, 85%, respectively. Specificity of two groups were same as 100%. In both groups, sensitivity did not increase with increasing number of 3 passes. (Table 1,2). Conclusion: The diagnostic yield for pancreatic solid lesions were higher in CEH-EUS-FNA group than conventional EUS-FNA group and optimal number of needle passes for pancreatic solid lesions of both groups were same as three. (Clinical trial registration at https://cris.nih.go.kr/cris number: KCT0001840)

Keywords: Number Of Needle Passes, Contrast-Enhanced Harmonic Endoscopic Ultrasonography, Contrast-Enhanced Harmonic Endoscopic Ultrasonography-Guided Fine-Needle Aspiration, Pancreatic Cancer
Table 1: Diagnostic sensitivities

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<th>CEH- EUS- FNA (n=100)</th>
<th>Conventional EUS-FNA (n=100)</th>
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<tr>
<td>Age, mean±SD (range), years</td>
<td>66.7 ± 12.4</td>
<td>64.5 ± 12.6</td>
</tr>
<tr>
<td>Gender (M : F), no</td>
<td>53 : 47</td>
<td>56 : 44</td>
</tr>
<tr>
<td>Size of lesion, mean±SD (range), mm</td>
<td>32.6 ± 13.1</td>
<td>34.6 ± 19.5</td>
</tr>
<tr>
<td>Coexistence of tissue biopsy, no</td>
<td>84</td>
<td>76</td>
</tr>
<tr>
<td>Adverse event, no(%)</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Final diagnosis, malignancy: benign</td>
<td>90 : 10</td>
<td>88 : 12</td>
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<tr>
<td>Diagnostic yield, %n)</td>
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<tr>
<td>Accuracy</td>
<td>91 (91/100)</td>
<td>85 (85/100)</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>91 (91/100)</td>
<td>85 (85/100)</td>
</tr>
<tr>
<td>Specificity</td>
<td>100 (10/10)</td>
<td>100 (12/12)</td>
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Table 2: Diagnostic sensitivities between

<table>
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<th>Groups</th>
<th>1 pass (n=100)</th>
<th>2 pass (n=100)</th>
<th>3 pass (n=100)</th>
<th>4 pass (n=100)</th>
<th>5 pass (n=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEH-EUS-FNA</td>
<td>74/100 (74%)</td>
<td>86/100 (86%)</td>
<td>91/100 (91%)</td>
<td>91/100 (91%)</td>
<td>91/100 (91%)</td>
</tr>
<tr>
<td>EUS-FNA</td>
<td>61/100 (61%)</td>
<td>77/100 (77%)</td>
<td>83/100 (83%)</td>
<td>85/100 (85%)</td>
<td>85/100 (85%)</td>
</tr>
</tbody>
</table>

Jiewei Wang[1]; Weisha Wang[2]; Haijun Hou[3]; Dajian Jiang[4]; Shuyue Yang[1]; Yao Xu[1]; Chunxia Gao[5]; Changjuan Li[6]; Yi Feng[7]; Peng Li[1]


Background/Aims: The increasing number of explorations in endoscopic ultrasound (EUS)-guided vascular catheterization has drawn more attentions, but the application is still limited. The principle aim of this study is to establish a stable portal hypertension model with EUS-guided vascular embolism coil imbedding and medical adhesive injection.

Methods: Six pigs were randomly divided into two groups, group A (one embolization coil +1ml ConPect medical adhesive) and group B (one embolization coil +2ml ConPect medical adhesive), to establish the model (Pic. a). The portal vein pressure (PVP) was measured by EUS-guided catheterization with a 19-gauge puncture needle connecting to a homemade pressure measuring device (Pic. b). The diameter and pressure of portal vein were recorded at certain times (before, immediately, 6 and 12 weeks after). After that, the pigs were executed for autopsy. Morphological variation of gastric mucosa and condition of the esophagogastric veins were examined to confirm the development of portal hypertension. Results: Portal-systemic collaterals and Portal hypertensive gastropathy can be seen in the pigs (Pic c, d, e), and the total successful rate of modeling was 83.3%. Baseline PVP measurements via EUS ranged from 5 to 7mmHg, and gradually increases with time in both groups (Pic. f). The diameter and pressure of portal vein were no significant differences between two groups. No severe complications such as bleeding or infection were witness during the procedure. Conclusion: EUS-guided vascular catheterization can establish a portal hypertension model successfully. It is also likely to be useful in the study of pathophysiology and treatments of portal hypertension.

Keywords: EUS, Portal Hypertension, Pressure Measurement, Animal Study

Figure 1 PVP model construction
OE-0938 (PP-0196) Clinical usefulness of EUS for optimized management in patients with visceral artery dissection
Woo Hyun Paik[1]; Dong Wan Seo[2]; Yong-Pil Cho[3]
Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Seoul National University Hospital, [2]Department of Internal Medicine-GI/Hepatology, Asan Medical Center, and [3]Department of Surgery, Asan Medical Center, Seoul, Republic of Korea

Background/Aims: The visceral arteries can be easily accessed with EUS because of their proximity to the gastrointestinal tract. We evaluated the clinical usefulness of EUS in diagnosis and management of visceral vascular dissection.

Methods: EUS was performed in 62 patients with clinically suspected visceral artery dissection as confirmed by computed tomography (CT) scan from Feb 2012 through Dec 2016. Conventional B-mode, color Doppler and contrast enhanced harmonic EUS (CEH-EUS) was performed to evaluate vascular status of celiac artery (CA), superior mesenteric artery (SMA). Results: EUS and CEH-EUS identified all the visceral vascular dissections. Five patients (8%) underwent surgical or radiological intervention, whereas the others were managed conservatively with or without anticoagulants. More severe vascular stenosis was observed in patients who underwent surgical or radiological intervention (92% ± 8% vs. 67% ± 20%, p = 0.007). The severity of vascular stenosis was associated with surgical or radiological intervention rather than conservative management (HR 1.34, 95% CI 1.07-1.68, p = 0.01). The presence of false lumen thrombi (HR 0.24, 95% CI 0.025-2.301, p = 0.22) and collateral circulation (HR 0.30, 95% CI 0.04-2.06, p = 0.22) tended to predict conservative management of visceral vascular dissection without statistical significance. In multivariate analysis, degree of vascular stenosis was the only significant factor predicting surgical or radiological intervention in visceral vascular dissection.

Conclusion: EUS may be a promising diagnostic modality to assess the visceral artery dissection without exposure to radiation. Moreover, EUS is a useful tool to determine the appropriate treatment options for patients with visceral artery dissection based on the degree of vascular stenosis.

Keywords: EUS, Diagnosis, Contrast, Vascular Stenosis, Anticoagulants, EUS

EP-0023 (PP-0197) Feasibility and safety of endoscopic submucosal dissection for superficial esophageal neoplasms in elderly patients: A single center, large scale, retrospective study
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Background/Aims: Although the number of elderly patients with superficial esophageal neoplasms (SENs) has been steadily increasing, there is still an evident lack of studies focused on the clinical outcome of esophageal endoscopic submucosal dissection (ESD) in the elderly. We investigated the feasibility and safety of ESD for SENs in elderly patients.

Methods: Patients who underwent ESD for SENs between December 2005 to December 2017 were eligible. Clinical features and treatment outcomes according to the three age groups (not-old, < 65 years; young-old, 65-74 years; middle & oldest-old, > 74 years) were retrospectively reviewed using medical records. Results: ESD was performed in 426 patients with 475 lesions, including 97 of dysplasia, 364 of squamous cell carcinoma and 14 of adenocarcinoma. The age was divided into three groups, the not-old (n=200), young-old (n=179) and middle & oldest-old (n=47). Gender, Smoking and characteristics of tumor did not differ. Underlying disease such as hypertension, chronic kidney disease, cardiovascular disease significantly differed between the three groups. En bloc (not-old vs. young-old vs. middle & oldest-old; 96.8% vs. 95.5% vs. 100.0%, p=0.260), complete (88.2% vs. 87.5% vs. 83.3%, p=0.622) and curative resection rates (77.2% vs. 77.0% vs. 81.5%, p=0.768) were no significant differences. Complications of procedure such as bleeding, perforation and stricture occurred similar in three groups. During the follow-up period (median, 27.4 months; interquartile range, 7 to 40) among the patients with curative resection, cumulative recurrence rate did not significantly differ (local recurrence, 0.7% vs. 0.0% vs. 0.0%; synchronous recurrence, 4.0% vs. 3.7% vs. 2.6%; metachronous recurrence, 5.4% vs. 6.0% vs. 10.3%). Conclusion: ESD is a feasible and effective procedure for the treatment of SENs in elderly patients as in non-elderly patients which showed favorable outcomes.

Keywords: Esophageal Neoplasm, Elderly, Endoscopic Submucosal Dissection
A multicenter retrospective study of endoscopic submucosal tunnel dissection for large lesser gastric curvature superficial neoplasms

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Background/Aims: To evaluate the efficacy, safety and long-term prognosis of endoscopic submucosal tunnel dissection for large lesser gastric curvature superficial neoplasms. Methods: Between July 2014 and July 2017, 87 patients with early cancer in the lesser gastric curvature treated at six Chinese institutions were enrolled. Of these, 32 underwent ESTD and 55 underwent endoscopic submucosal dissection. Results: Of the 87 patients, macroscopic types were classified as 0-b+ in 18 cases, 0-a+b+ in 47 cases, 0-a+c in 4 cases, and 0-b+a in 18 cases. According to the Vienna classification, 24 showed mucosal carcinoma, 42 showed high-grade intraepithelial neoplasia, and 21 showed low-grade intraepithelial neoplasia. The ESTD group had a higher dissection speed (18.0±7.1 mm²/min vs. 7.8±4.8 mm²/min, p<0.01) and was associated with higher en bloc resection rate (100% vs. 87.3%, p=0.035) and curative resection rate (100% vs. 85.5%, p=0.024) compared with the ESD group. No perforation or muscular injury occurred in the ESTD group and its intraprocedural bleeding rate was lower (59.4% vs. 100%, p<0.01) than that of the ESD group. In this study, 83 patients were included in the follow-up. The mean follow-up period was 12.4±6.8 months. Recurrence was found in 1 patient in the ESD group and no recurrence occurred in the ESTD group. Conclusion: Outcomes of ESTD were excellent with a higher dissection speed and radical curative rate compared with ESD. Keywords: Endoscopic Submucosal Tunnel Dissection, ESD, Large Lesser Gastric Curvature Superficial Neoplasms, Dissection Speed

A submucosal tunnel was created
EP-0106 (PP-0199) Endoscopic Pedicle Flap Grafting in the Treatment of Fistula after Spontaneous Rupture of Esophageal Diverticulum
Yuhang Zhang; Liansong Ye; Chuncheng Wu; Wei Liu; Jiang Du; Chuanhui Li; Honglin Chen; Shan Jiang; Bing Hu
Affiliation: Department of gastroenterology, West China Hospital, Chengdu, China

Background/Aims: There has been report of successful endoscopic treatment, using free gastric mucosal flap to prevent esophageal stricture. Hereby we report the first case to introduce a new technique using an esophageal pedicle flap to cure fistulas, which were secondary to spontaneous rupture of esophageal diverticulum. Methods: An area of esophageal mucosa proximal to the fistula was selected as the flap. Endoscopic submucosal dissection (ESD) was performed to prepare the flap. The distal edge of the flap was reserved as the pedicle. Argon plasma coagulation (APC)-processed surrounding mucosa of the fistula was matched with the flap and fixed by titanium clips. The procedure was finished with percutaneous endoscopic gastrostomy. Results: Symptoms of cough, backache and fever alleviated within a week. Upon the 45th day after the procedure, however, the two fistulas did not fully heal, but became smaller in size. The fistulas were 0.5cm and 0.3cm in diameter before the procedure, and were observed to be 0.3cm and 0.2cm respectively on the last visit. Conclusion: Transplantation of pedicle flap obtained from esophageal mucosa endoscopically exhibits potential to cure fistula in a more minimally invasive way. Keywords: Fistula, Pedicle Graft, Esophagus, Endoscopy

OE-0094 (PP-0200) Purse-string sutures using novel endoloops and repositionable clips for the closure of large iatrogenic duodenal perforations with single-channel endoscope
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Affiliation: [1]Department of Internal Medicine-GI/Hepatology, The Peoples Hospital Of Lianshi, Huaian, and [2]Department of Internal Medicine-GI/Hepatology, The Second Affiliated Hospital, Nanjing Medical University, Nanjing, China

Background/Aims: Serious complications due to perforation restrict the development of duodenal endoscopic treatment. The key stage for remediation is the successful endoscopic closure to prevent peritonitis and the need for surgical intervention. This report presents a new simple method for the closure of large iatrogenic duodenal perforations with purse-string sutures using the novel endoloops and repositionable clips through a single-channel endoscope. Methods: A total of 23 patients with iatrogenic duodenal perforations ≥1cm were retrospectively studied who were respectively treated by purse-string sutures using the novel LeCamp™ endoloops and the SureClip™ repositionable hemostasis clips with the single-channel endoscope at four institutes. Results: The median maximum diameter of iatrogenic duodenal perforations was 1.65 cm (range 1.0-3.0 cm). Complete endoscopic closure of all 23 perforations was achieved. No patient had severe complications such as peritonitis. The wounds were healed and no obvious duodenal stricture was observed in all cases after 3 months. Conclusion: Purse-string sutures using the novel endoloops and repositionable endoclips through single-channel endoscope were feasible, effective and easy methods for the closure of large duodenal iatrogenic perforations. Keywords: Endoscopic Purse-String Sutures, Duodenal Perforations, Single-Channel Endoscope

The LeCamp endoloop.
OE-0325 (PP-0201) N-Butyl-2-Cyanoacrylate injection using a modified injection technique with synchronization or sequential band ligation for esophageal and gastric variceal: a prospective follow-up study
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Affiliation: Department of Department of Gastroenterology, Tangdu Hospital, Fourth Military Medical University, Xi’an, China

Background/Aims: To evaluate and compare the efficacy of N-Butyl-2-Cyanoacrylate injection using a modified injection technique with synchronization or sequential band ligation for esophageal and gastric variceal.

Methods: 30 cases of patients with esophageal and gastric variceal were randomly divided into synchronous treatment group (16 cases) and sequential treatment group (14 cases). Both group received modified injection method for gastric varices (N-Butyl-2-Cyanoacrylate and lauromacrogel). Synchronous treatment group meanwhile received band ligation for esophageal varices, but sequential treatment group received band ligation after one week. Then the hemostasis rate, effective rate of varices, rebleeding, number of ligation, hospitalization expenses, duration of in hospital and complications rate were analyzed. Results: There were no significant difference in hemostasis rate, effective rate and rebleeding rate between these two groups. No patients had ectopic embolism. The number of ligation in synchronous treatment group was more than sequential treatment group (5.8 ± 0.4 vs 5.07 ± 0.73, P< 0.05). The hospitalization expenses and duration of in hospital in synchronous were less and shorter than that in sequential treatment (21016 ±2810 vs 29857 ±2032; 11.5 ±3.6 vs 15.6 ±2.3, both P<0.05).

Conclusion: N-Butyl-2-Cyanoacrylate injection using a modified injection technique with synchronization band ligation is safe and effective for esophageal and gastric variceal with low complication rates. This method could reduce gastroscopy times, hospitalization expenses, and duration of in hospital, which was worthy of further investigating.

Keywords: Esophageal And Gastric Variceal, N-Butyl-2-Cyanoacrylate Injection, Band Ligation
OE-0359 (PP-0202) Esomeprazole Dose-Related Healing of Artificial Ulcers after Endoscopic Submucosal Dissection: A prospective Randomized ControlledTrial
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Affiliation: Department of Internal Medicine-GI/Hepatology, Pusan National University Yangsan Hospital, Yangsan, Republic of Korea

Background/Aims: Endoscopic submucosal dissection (ESD) is a standard procedure for managing gastric neoplasms. Meanwhile, ESD induces larger artificial ulcers to a greater extent than other mucosal resection methods. Recently, several studies have reported that vonoprazan, a novel potassium-competitive acid blocker, is superior compared to proton pump inhibitors (PPIs) for healing artificial ulcers, due to higher acid-inhibitory effects. The aim of this study is to evaluate the effect of stronger acids suppression via doubled dose of PPI on ESD ulcer. Therefore, we compared the effect of 20 mg (standard-dose) and 40 mg (doubled-dose) esomeprazole in terms of ulcer healing. Methods: A total of 200 patients who underwent gastric ESD were enrolled. All patients were randomly assigned to either the standard-dose or doubled dose group. Ulcer size change from the day of ESD to 4 weeks after ESD and scar change rate were compared between two groups. The correlation between ulcer contraction rate and the drug dose divided by body weight was assessed. Results: There was no significant difference in the scar change and ulcer contraction rate between standard-dose group and double dose group (86.45% vs 86.27%, p = .907). There was no significant correlation between ulcer contraction rate and drug dose divided by body weight. Multivariate analysis demonstrated that initial ulcer size and adenocarcinoma on pathology, were associated with delayed scar change after 4 weeks of PPI administration. Conclusion: A doubled dose of PPI after ESD does not promote the artificial ulcer healing. initial ulcer size and adenocarcinoma on pathology decrease the scar change rate after 4 weeks of PPI treatment. Keywords: Endoscopic Submucosal Dissection, Ulcer Healing, Proton Pump Inhibitor

OE-0425 (PP-0203) PREDICTION MODEL of POST-ENDECSOCOPIC SUBMUCOSAL DISSECTION BLEEDING of STOMACH USING REGRESSION TREE MODEL: the SEVERANCE COHORT STUDY
Yeong Hwa Choe[1]; Jun Chul Park[1]; Eun Ju Lee[2]; Ha Yan Kim[2]; Eun Hye Kim[1]; Sung Woon Shin[1]; Sang Kil Lee[1]; Yong Chan Lee[1]
Affiliation: Departments of [1]Internal Medicine-GI/Hepatology, [2]Biomedical Systems Informatics, Biostatistics Collaboration Unit, Severance Hospital, Seoul, Republic of Korea

Background/Aims: One of the common complications of endoscopic submucosal dissection (ESD) is a post-procedural hemorrhage. Recently, many patients who underwent ESD, have been prescribed anti-platelets or anticoagulants, because of various underlying diseases such as cerebrovascular accidents or cardiovascular diseases. The aim of this study is to develop the predictive risk model of post-ESD bleeding. Methods: A total of 5080 patients, who were taken ESD from January 2007 to November 2016, in a Korean tertiary hospital, were included in this retrospective study. Patients’ baseline characteristics were collected and bleeding risk was estimated by univariable, multivariable and classification and regression tree model (CART). Results: Post-ESD bleeding occurred in 262 patients (5.1%) of total 5080 patients. Multivariable logistic regression revealed ongoing anti-thrombotic agents during procedure (OR, 4.35; 95% CI, 1.78-11.11; P = .001), cancer pathology (OR, 1.35; 95% CI, 1.04-1.75; P = .026), and piecemeal resection (OR, 1.98; 95% CI, 1.24-3.17; P = .004) as significant risk factors of bleeding. In CART model, the decisive variables of models were ‘ongoing anti-thrombotic drugs,’ ‘size ≥49 mm,’ and ‘age <62 years’. In gastric neoplasm model, the model-accuracy was 94.94% and the cross-validation accuracy was 94.80%. In gastric cancer model, the model-accuracy was 96.05% and the cross-validation accuracy was 95.90%. Conclusion: Endoscopists can use a simple predictive tree model based upon up to three risk factors at admission to identify patients of the high bleeding risk. And they can adjust hospital days or prescription of antithrombotic agents via the model. Keywords: ESD, Cart, Post-ESD bleeding algorithm
Ongoing anti-thrombotic drugs?

No

Low risk of bleeding

Terminal nodes 1-1

Yes

Size ≥ 49 mm?

No

Low risk of bleeding

Terminal nodes 1-2

Yes

High risk of bleeding

Terminal nodes 1-3

Age < 62 years?

No

High risk of bleeding

Terminal nodes 1-4

Yes

Post-ESD bleeding algorithm generated by CART (gastric neoplasm model)

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Ongoing anti-thrombotic drugs?

No

Low risk of bleeding

Terminal nodes 2-1

Yes

Size ≥ 49 mm?

No

Low risk of bleeding

Terminal nodes 2-2

Yes

High risk of bleeding

Terminal nodes 2-3

Post-ESD bleeding algorithm generated by CART (gastric cancer model)
**OE-0429 (PP-0204) Clinicopathological features of duodenal bulb biopsy tissues and their relationship with gastric and esophageal lesions**

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**Affiliation:** Department of Gastroenterology, Peking University Third Hospital, Beijing, China

**Background/Aims:** The pathological features of duodenal mucosal lesions, as well as its relationship with other lesions of upper digestive tract and the possible pathogenesis were analyzed.

**Methods:** Clinical, endoscopic and pathological data of the cases with duodenal bulb and gastric mucosal biopsy from January 2005 to May 2017 were analyzed retrospectively.

**Results:** 3378 cases met the inclusion criteria and were enrolled. There were 770 cases (22.8%) of H.pylori positive, and it was significantly lower than those with H.pylori negative (P=0.000). According to clinical symptoms, endoscopy, pathology and reflux correlation examination, 838 (24.8%) cases of GERD were diagnosed. The total detection rate of Gastric heterotopia in duodenal bulb was 30.4% and gastric foveolar metaplasia in duodenal bulb was 18.9%. The relationship among GERD, gastric pathology and duodenal lesions as followed (Table 1): patients with gastric heterotopia in duodenal bulb had a significantly lower prevalence of H.pylori infection, chronic atrophic gastritis, and peptic ulcer, and a much higher prevalence of GERD and gastric fundic polyps. Patients with gastric metaplasia in duodenal bulb had been positively associated with H.pylori infection, GERD and peptic ulcer and negatively associated with gastric fundic polyps.

**Conclusion:** Gastric heterotopia in duodenal bulb was strongly associated with concurrent gastric fundic gland polyps and GERD. Gastric metaplasia was a certain positively associated with concurrent peptic ulcer and GERD. H.pylori infection is not only related to gastric mucosal lesions, but also related to the occurrence of duodenal mucosal lesions in bulb.

**Keywords:** Gastric Heterotopia, Gastric Metaplasia, Helicobacter Pylori, Gastroesophageal Reflux Diseases, Atrophic Gastritis

**Table 1**

<table>
<thead>
<tr>
<th>Bulb lesions</th>
<th>H.pylori</th>
<th>GERD</th>
<th>Atrophic gastritis</th>
<th>Gastric fundic polyps</th>
<th>Peptic ulcer</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR (95% CI)</td>
<td>0.06 (0.04-0.08)</td>
<td>2.65 (2.11-3.17)</td>
<td>0.57 (0.48-0.68)</td>
<td>3.27 (2.60-4.11)</td>
<td>0.24 (0.19-0.31)</td>
</tr>
<tr>
<td>OR (95% CI)</td>
<td>1.2 (1.19-2.04)</td>
<td>5.40 (4.22-6.91)</td>
<td>0.95 (0.79-1.15)</td>
<td>0.67 (0.49-0.92)</td>
<td>1.74 (1.42-2.12)</td>
</tr>
</tbody>
</table>

**OE-0442 (PP-0205) ESOPHAGEAL FIBROSIS FORMATION IN CIRRHOSIS PATIENTS AFTER ERADICATION OF ESOPHAGEAL VARICES BY ENDOSCOPIC BAND LIGATION**

**Hoang Duc Dong**

**Affiliation:** Department of Internal Medicine-GI/Hepatology, Thai Nguyen University of Medicine and Pharmacy, Thai Nguyen, Vietnam

**Background/Aims:** Bleeding from the esophageal varices (EV) in cirrhosis patients is a very common complication. Endoscopic band ligation (EBL) is a safe and popular method of treatment today. However, this treatment can lead to fibrous formation that narrow the esophagus and lead to difficulty in treating rebleeding. Aim Describe endoscopic esophageal fibrosis and related factors in cirrhosis patients after treatment by EBL.

**Methods:** A prospective randomized study of 103 cirrhotic patients treated with EBL, followed up for at least 12 months, described endoscopic fibrosis in the esophagus. Mean age is 51.7 ± 9.6. Male is 96.1%, female is 3.9%. Child-Pugh severity rate: Child A 9.7%, Child B 36.9%, Child C 53.4%. Varices level F3 is 26.2%. The appearance of red color sign 68.9%. The average number of used rubber band is 3.95 ± 1.3. Number of EBL session is 1.5 ± 0.8. Fibrous dot formation accounted for 68.9%, 25.2% in ring fibrosis, 5.9% in spider fibrosis. Patients who had EBL that were close to each other had a higher incidence of ring fibrosis with 61.5%, and 66.7% with spider fibrosis. Fibrous dot formation occurs after an average 7.15 ± 1.4 days, fibrous ring formation occurs after 70.1 ± 66.4 days, fibrous spider formation occurs after 335.8 ± 277.4 days, p = 0.001. Fibrous ring formation occurs after an average 2.3 ± 0.5 EBL sessions, fibrous spider formation occurs after 3.7 ± 0.8 EBL sessions, p = 0.001.

**Conclusion:** Endoscopic Band Ligation, Esophageal Fibrous Formation
OE-0469 (PP-0206) Multimodal Preoperative Evaluation System Indicated Endoscopic Resection versus Surgical Resection for GISTs: How we choose?
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Background/Aims: For gastrointestinal stromal tumors (GISTs) in stomach, surgical dissection is the first-line treatment. Endoscopic submucosal dissection (ESD) is becoming a potential alternative treatment in recent years. However, there were rare studies on the effect of ESD versus surgical resection for GISTs. This retrospective study was to compare the feasibility, outcomes of ESD indicated by multimodal preoperative evaluation system (MPES) and surgical resection for gastric GISTs. Methods: From May 2009 to October 2016, a total of 169 patients with intraluminal growth gastric GISTs with size <5cm were divided into ESD group (n=81) and surgery group (n=88). The recruitment criteria for ESD was defined by MPES (Fig. 1). The complete resection rate, postoperative complications and outcomes were compared between two groups. Results: No significant difference was found in the baseline characteristics between two groups. The complete resection rates were 91.3% and 98.8% in ESD group and surgery group, respectively (P=0.29). No significant differences were found in the incidence of postoperative complications (8.6% vs. 11.3%, P=0.55) and distant metastasis (1.2% vs. 1.1%, P=1.00) between two groups during 46 months of follow up. However, ESD group had a shorter operative time (52.4±17.3 vs. 72.1±19.5 mins, p<0.05) and shorter hospital stay (4.1±1.5 vs. 7.2±1.8 days, P<0.05). Conclusion: Our study revealed that as a minimally invasive procedure, MPES indicated endoscopic resection for gastric GISTs was feasible and safe as the traditional surgery, when MPES was used as the indication.
Keywords: Gastrointestinal Stromal Tumors, Endoscopic Submucosal Dissection, Surgery

OE-0884 (PP-0207) Comparison of the Effects of Antithrombotic Therapy on Delayed Bleeding after Gastric Endoscopic Resection: A Propensity Score-Matched Case-Control Study
Seol So; Ji Yong Ahn; Nayoung Kim; Hee Kyong Na; Kee Wook Jung; Jeong Hoon Lee; Do Hoon Kim; Kee Don Choi; Ho June Song; Gin Hyug Lee; Hwoon-Yong Jung
Affiliation: Department of Internal Medicine-GI/Hepatology, Asan Medical Center, Seoul, Republic of Korea

Background/Aims: Antithrombotic therapy has been known to increase post-endoscopic resection (ER) bleeding risk; however, there are few studies quantifying the effect of antithrombotic agents. This study aimed to analyze the incidence of delayed bleeding (DB) based on antithrombotic agents administered and to identify the proper timing of drug cessation. Methods: Between January 2011 and March 2017, 7752 patients with 8242 lesions underwent ER for single gastric neoplasm. After a 2:1 propensity score matching using age, sex, specimen size, tumor location, diagnosis, chronic kidney disease and liver cirrhosis, 798 and 399 lesions were classified as belonging to the matched control (MC) group and antithrombics (AT) group, respectively. The clinical outcomes were compared between the two groups. Results: The DB rate of the MC and AT groups was 6.3% and 10.0%, respectively. (OR 1.67 [95% CI 1.06-2.63]; p=0.028) The continuation group of the AT group had a higher incidence of DB than their matched controls (15.9% vs. 5.1%, OR 3.55 [95% CI 1.24-10.14]; p=0.018). In patients taking anticoagulants, heparin bridging therapy (HBT) increased the incidence of DB compared with non-HBT (35.7% vs. 10.0%, OR 5.00 [95% CI 1.11-22.50]; p=0.036). A thromboembolic event was not observed in all patients taking antithrombotic agents. Conclusion: Patients receiving antithrombotic therapy had a higher incidence of DB than those not receiving antithrombotic therapy, especially with the continued administration of antithrombotic agents and HBT.

Figure 1 Indication for ESD
Keywords: Stomach Neoplasms, Antithrombotic Therapy, Endoscopic Mucosal Resection, Endoscopic Submucosal Dissection
Comparison of the DB rate

A

Delayed bleeding rate, %

\[ P = 0.028 \]

\[ 6.3 \]

MC group

\[ 10.0 \]

AT group

B

Delayed bleeding rate, %

\[ P = 0.018 \]

\[ 5.1 \]

Continuation group-MCs

\[ 15.9 \]

Continuation group

C

Delayed bleeding rate, %

\[ 6.8 \]

\[ P = 0.892 \]

Regular cessation group-MCs

\[ 6.5 \]

Regular cessation group

D

Delayed bleeding rate, %

\[ P = 0.097 \]

\[ 6.3 \]

Prolonged cessation group-MCs

\[ 10.5 \]

Prolonged cessation group
OE-0886 (PP-0208) Gastroenterologist-level detection of gastric precursor lesions and neoplasia with a deep convolutional neural network

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Affiliation: Department of Digestive Disease, Beijing Friendship Hospital, Capital Medical University, Beijing, China

Background/Aims: Gastric precursor lesions and neoplasia with very delicate changes in the gastric mucosa could be easily missed or misdiagnosed in endoscopy. Therefore, here we developed an automatic real-time pattern recognition tool based on convolutional neural networks (CNNs) algorithm to help endoscopists in detection of chronic atrophic gastritis (CAG) and gastric cancer (GC) lesions. Methods: A five-convolution-layer ZF model and a thirteen-convolution-layer VGG16 model were applied in model building. A total of 10,014 CAG and 3,724 GC annotated images were used in model training. Another independent set consisted of 50 CAG, 50 GC and 100 negative controls images were used in evaluating the model performance (Fig. 1A and B). Results: In CAG detection, the performance of our model was much better than the average performance of the 77 endoscopists in sensitivity, specificity and accuracy (95% versus 74%, 86% versus 82%, 90% versus 78%, respectively). In GC detection, the performance of our model achieved a slightly higher sensitivity (90% versus 87%), but a lower specificity (50% versus 74%) and accuracy (70% versus 80%) than the average performance of the 89 endoscopists. Conclusion: In conclusion, we provided a CNN based computational tool to improve the detection of CAG and GC under endoscopy and simplify diagnostic procedures.

Keywords: Gastric Precursor Lesion, Gastric Cancer, Deep Learning, Convolutional Neural Network, Computer-Aided Endoscopic Detection Support System

OE-0991 (PP-0209) Per oral endoscopic myotomy in esophageal motility disorders: Outcomes in over 700 patients

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Affiliation: Department of Gastroenterology, Asian Institute of Gastroenterology, Hyderabad, India

Background/Aims: Per-oral endoscopic myotomy (POEM) is a novel treatment for esophageal motility disorders of esophagus. In this study, we aim to analyze the safety and efficacy of POEM in a large cohort of patients with esophageal motility disorders. Methods: Consecutive patients with achalasia and non-achalasia esophageal motility disorders who underwent POEM at a single tertiary care center from January 2013 to March 2018 were analyzed. Technical and clinical success, adverse events, and operative time were analyzed. Results: Overall, 775 patients (40.37±4.39 years, males 428) underwent POEM during study period. The types of achalasia were: type I (219), type II (481), type III (30). 15 patients were classified as Jackhammer esophagus (5) and diffuse esophageal spasm in (10). 356 patients had received prior treatment. POEM was successfully performed in 98.45% patients. Technical failure occurred due to submucosal fibrosis (1.16%) and extension of mucosal incision (0.4%). Mean operating time was 64.8±31.26 minutes (16-240). Major adverse events were noticed in 9 patients (1.1%). Eckardt score (6.89± 1.52 vs 0.86 ± 0.77) and lower esophageal sphincter pressures (37.45±15.14 vs 13.16 ± 5.61 mmHg) were significantly lower after the procedure. Clinical success was evident in 92% and 90% at 1 and 2 years, respectively. Long-term clinical success (≥3years) was achieved in 87.6% of patients. Gastroesophageal reflux was noticed in 58 patients (40.5%) on 24-hour pH impedance analysis. Clinical symptoms of reflux and erosive esophagitis were found in 22.4% and 18.9% of patients, respectively. Conclusion: POEM is safe, effective and durable for the treatment of esophageal motility disorders. However, gastroesophageal reflux should be considered while considering POEM for the management of achalasia.

Keywords: Achalasia, Endoscopy, Myotomy, Gastroesophageal Reflux
OE-0763 (PP-0210) Steroids for abdominal tuberculosis: systematic review and meta-analysis.
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Affiliation: Department of Gastroenterology, Postgraduate Institute of Medical Education and Research, Chandigarh, India

Background/Aims: Use of steroids is recommended for tubercular peritonitis, the poor quality of studies limits the generalisation of the findings. Keywords: Tuberculosis, Steroids, Peritonitis, Intestinal Tb, Stricture

OE-0244 (PP-0211) Usefulness of cap-assisted colonoscopy in patients with prior abdominal surgery: a randomized controlled multicenter trial
Dae Won Ma[1]; Jeong-Seon Ji[1]; Seung-Woo Lee[2]; Hyun Ho Choi[3]; Myong Ki Baeg[4]; Hwang Choi[1]

Background/Aims: The potential benefit of using the cap is that it helps in luminal orientation at bends by keeping the colonic mucosa away from the lens at the colonoscope tip. Colonoscopy in patients with a history of abdominal surgery is considered to be difficult due to adhesion related bowel angulations. There were few study evaluating usefulness of cap-assisted colonoscopy in patients with prior abdominal surgery. The investigators designed a multicenter, randomized, parallel-group trial to verify the usefulness of cap-assisted colonoscopy in patients with prior abdominal surgery. Methods: This study was conducted at four university hospitals in Korea from January 2017 to May 2018. Patients with a history of abdominal surgery including open surgery and laparoscopic surgery were enrolled in the study. They were assigned to a cap-assisted group and control group. The primary outcomes measure was insertion time. Secondary outcomes included difficulty of procedure (10-point visual analog scale) and abdominal pain score (10-point visual analog scale). Results: A total of 187 patients were randomized into the cap-assisted group (94 patients) or the control group (93 patients). Cecal intubation time was not different in the two groups (100% vs. 98.9%, P=0.313). Cap-assisted colonoscopy achieved a faster cecal intubation time (5.2 vs. 6.2 min, P=0.032). Cap-assisted group showed easier procedure difficulty than the control group (3.0 vs. 3.7, P= 0.024). Abdominal pain score was not different between the two groups (2.9 vs. 3.3, P= 0.200). Adenoma detection rate was comparable in the both groups (36.2% vs. 33.3%, P=0.759). Conclusion: Cap-assisted colonoscopy reduced the insertion time and made easy to perform colonoscopy in patients with prior abdominal surgery. Keywords: Colonoscopy, Cap, Abdominal Surgery
Background/Aims: The guidelines of US Multi-Society Task Force (MSTF) and European Society of Gastrointestinal Endoscopy (ESGE) recommended post-polypectomy colonoscopy surveillance intervals concerning baseline findings of colorectal neoplasms. However, there is no consensus of surveillance in Japan. Therefore, a nationwide survey about post-polypectomy surveillance had been conducted for board certified institutions of the Japan Gastroenterological Endoscopy Society (JGES). Methods: The survey was conducted during December 2017 to January 2018. A total of 1379 institutions were called to response questionnaire about colonoscopic practice including post-polypectomy surveillance via e-mail. Responses could be created via internet using PC, tablet or smartphone. Selected intervals were compared to US-MSTF and ESGE recommendations. Results: A total of 792 institutions (57.4%) which included 128 university hospitals and cancer centers, and 664 community hospitals and clinics, replied to the survey. Results were summarized in a table. Shorter intervals than US-MSTF and ESGE guidelines were presented as bold characters. More than 90% institutions selected shorter intervals in categories of low risk adenoma (LRA) in baseline colonoscopy (BC), LRA in surveillance colonoscopy (SC), intramucosal cancer (Tis) in BC and Tis in SC. More than 70% institutions selected shorter intervals in categories of high risk adenoma (HRA) in BC, advanced colorectal neoplasm (ACN) in BC, ACN in SC. Conclusion: The nationwide survey revealed almost Japanese institutions preferred shorter intervals than recommendations by US-MSTF and ESGE. In the near future, an original Japanese guideline of post-polypectomy surveillance should be created with due regard to the present state. Keywords: Colonoscopy, Polypectomy, Surveillance, Survey, Neoplasia Table.Surveillance interval

<table>
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<th>Category</th>
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<th>LRA in SC</th>
<th>HRA in BC</th>
<th>HRA in SC</th>
<th>ACN in BC</th>
<th>ACN in SC</th>
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Editorial material and organization © 2018 Journal of Gastroenterology and Hepatology Foundation and John Wiley & Sons Australia, Ltd.
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Background/Aims: The management of antithrombotic agents at the endoscopic treatment has a dilemma of risks about bleeding and thromboembolism. Heparin bridging has been recommended when anticoagulant recipients underwent endoscopic treatment with high bleeding risk such as endoscopic mucosal resection (EMR). Recently, however, it is controversial whether heparin bridging should be done during peri-endoscopic treatment period because of its high bleeding risk despite not reducing thromboembolism risk so much. The aim of this study is to validate the safety of colorectal EMR under continuing oral anticoagulant therapy without heparin bridging. Methods: This study was conducted as prospective multicenter study at twelve facilities (UMIN000021416). Patients were included from February 2015 to December 2017. Warfarin was continued as usual if PT-INR is less than 2.6, and direct oral anticoagulants (DOAC) was stopped only once in the morning on the day of EMR. The primary endpoint was post-EMR bleeding which required any interventions or blood transfusion (major bleeding). And the secondary endpoint was thromboembolism. The observation period was for a maximum of thirty days after EMR. Results: The study included 106 patients with 341 EMR lesions. The median age was 73 y-o. (51-88) and the average of polyp size was 6.7mm in diameter. Among patients, 55 took warfarin and remaining 51 took DOAC. Additionally, among them, 13 took antiplatelet in combination. Major bleeding was observed in 5 cases (4.7%) of the total. Cerebral infarction was observed in a patient who underwent combination therapy but stopped only antiplatelet for EMR. Conclusion: Colorectal EMR under continuing oral anticoagulant therapy without heparin bridging was relatively safe regarding post-EMR bleeding. Although follow up study is needed to confirm the feasibility, we believe this result marks the beginning of the change in the guidelines and it will become mainstream in the future because it also leads to shortened hospitalization.

Keywords: Colorectal Emr, Anticoagulant, Heparin Bridging, Postoperative Bleeding

OE-0446 (PP-0215) Improvement in quality indicators for screening colonoscopy in The Philippines: effectiveness of an expert-lead one-year training program

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Background/Aims: Endoscopy training was undertaken by Filipino endoscopists from an experienced Japanese endoscopist for one year in 2016. The previous October, a memorandum of understanding was entered into by Kobe University in Japan and St. Luke’s Medical Center in the Philippines. Training centered on improving highly technical endoscopic skills for advanced endoscopic procedures, such as endoscopic submucosal dissection. Meanwhile, image analysis conferences and regular didactic sessions were held on screening methods, and hands-on training was given to improve the overall quality of endoscopy. Adenoma detection rate (ADR) is considered as the most important quality indicator in colonoscopy, which is the percentage of patients who are found to have at least one adenoma or adenocarcinoma. We report on the overall effect on the improvement of ADR among the Filipino endoscopists before and during training provided by an in-house Japanese endoscopist. Methods: Twenty-one Filipino endoscopists underwent training in 2016. Variance in ADR before and during the training period was retrospectively analyzed. However, the 290 series high resolution colonoscopy was only introduced in 2016, so it was analyzed separately. Results: The total number of colonoscopies performed were 3208 in 2015, and 3527 in 2016. The total therapeutic colonoscopies performed were 63 in 2015, and 87 in 2016 (13 cases were endoscopic submucosal dissection). The overall ADR was 31.4% (1018/3145) in 2015, and 53.0% (1824/3440) in 2016 (P < 0.01). The ADR in 2016 were 48.5% (1394/2874) using 180/190 series, and 76.0% (430/566) using 290 series (P < 0.01). High resolution colonoscopy allowed improved ADR compared with conventional colonoscopy. Improvement in ADR from before and during training was seen, regardless of the instrument being used being new or conventional. The total number of colonoscopies performed were 3208 in 2015, and 3527 in 2016. The total therapeutic colonoscopies performed were 63 in 2015, and 87 in 2016 (13 cases were endoscopic submucosal dissection). The overall ADR was 31.4% (1018/3145) in 2015, and 53.0% (1824/3440) in 2016 (P < 0.01). The ADR in 2016 were 48.5% (1394/2874) using 180/190 series, and 76.0% (430/566) using 290 series (P < 0.01). High resolution colonoscopy allowed improved ADR compared with conventional colonoscopy. Improvement in ADR from before and during training was seen, regardless of the instrument being used being new or conventional. Conclusion: The ADR of Filipino endoscopists were improved by a one-year endoscopy training program provided by a residing Japanese endoscopist. The initial intended purpose of the training was to advance therapeutic endoscopy skills, but these findings suggest that there were also significant additional improvements in screening and surveillance colonoscopy.

Keywords: Education, Residing Training, Colonoscopy, ADR, Screening
OE-0652 (PP-0216) Factors associated with perceived barriers to colorectal cancer screening: a population-based study
Junjie Huang; Jingxuan Wang; Jason Huang; Veeleah Lok; Tiffany Pang; Peter Choi; Colette Leung; Martin C S Wong
Affiliation: Department of The JC School of Public Health and Primary Care, The Chinese University of Hong Kong, Hong Kong, Hong Kong

Background/Aims: Colorectal Cancer (CRC) screening has been proven effective to reduce its mortality and morbidity, yet its participation rate was low due to various perceived barriers in the general population. Since frailty and inaccessibility to healthcare services increase with more advanced age, we hypothesized that elderly subjects might perceive higher levels of screening barriers. Methods: We conducted a population-based telephone survey on a total of 2,400 Chinese individuals aged 60-76 years old in 2017 using simple random sampling. We collected information on their socio-economic factors and perceived barriers to CRC screening. We determined the perceived barriers using validated scores. We calculated the odds ratios (ORs) and 95% confidence intervals (CIs) using a binary logistic regression model. Results: From univariate analysis (Table 1), individuals with older age (66-70 years old: crude OR [COR]=3.09, 95% CI=1.32-7.23; 71-76 years old: COR=4.18, 95% CI=1.73-10.07) and lower household income level (COR=1.41, 95% CI=1.02-1.96) were associated with perceived health/psychological barriers to CRC screening. After adjustment for potential confounders, the association between older age and perceived screening barriers remained statistically significant (66-70: AOR=3.04, 95% CI=1.30-7.11; 71-76: AOR=4.09, 95% CI=1.70-9.88). Conclusion: We found a 3-4 fold increased odds of perceived health/psychological barriers to CRC screening among elderly individuals aged >66 years. The underlying reasons for this findings and possible intervention strategies to enhance their screening uptake will need to be examined in future studies.

Keywords: Barriers, Colorectal Cancer, Screening, Chinese

OE-0699 (PP-0217) Parenteral Nutrition for Infectious Colitis in Geriatric Patients
Jung Hwan Lee[1]; Hea Yoon Kwon[2]; Byoung Wook Bang[1]; Kye Sook Kwon[1]; Hyungkil Kim[1]; Yong Woon Shin[1]
Affiliation: Departments of [1]Internal Medicine-GI/Hepatology, [2] Internal Medicine-Infection, Inha University Hospital, Incheon, Republic of Korea

Background/Aims: The parental nutrition was demonstrated to reduce mortality rate and hospital duration among the critically-ill patients. The geriatrics with infectious colitis (IC) are required to be hospitalized due to dehydration and poor oral intake, and usually provided with parenteral nutrition (PN). The purpose of this study is to evaluate the effect of PN for the geriatric patients with IC, who were hospitalized within one week. Methods: A retrospective review was performed for 1898 patients who admitted to our institute via emergency room from January 2008 to April 2018. Of these patients, 399 patients with other diagnosis were excluded, such as ischemic colitis, Clostridium difficile colitis, cytomegalovirus colitis, radiation colitis, viral enteritis and tuberculous colitis. Among remained patients, 1061 patients under 65 years-old were excluded. Among 438 geriatric patients, 279 patients who were hospitalized within 7 days were finally analyzed. The clinical factors and daily calorie of prescribed PN

Table 1 Barriers associated factors

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Health/psychological</th>
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<tr>
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<td>66-70</td>
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<td>71-76</td>
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</table>

Notes: COR, crude odds ratio; CI, confidence intervals; AOR, adjusted odds ratios; * statistical significant at 0.05, HKD, Hong Kong dollars
were evaluated for association with hospital duration. **Results:** A total of 249 patients (86%) were nutritionally supplemented according to PN. Among them, 92 patients (33%) supplemented more calories (>1000 kcal/day) showed shorter hospital duration than 187 patients supplemented less calories (≤1000 kcal/day) of PN (4.23 vs 3.77 days, P=0.025). In multivariate analysis, erythrocyte sedimentation rate greater than 22 mm/hr (odd ratio [OR]: 1.83, 95% confidence interval [CI], 1.10-3.05, P=0.01) and less calorie of PN (OR: 2.14, 95% CI, 1.24-3.70, P=0.01) were significantly associated with more than 4 days’ hospital duration. **Conclusion:** In-sufficient calorie supplement for the geriatric patients with infectious colitis can cause the longer hospital stay, which may lead to other complications and poor outcome. Strict assessment for PN prescription and monitoring are essential for rapid recovery and early discharge.

**Keywords:** Colitis, Parenteral Nutrition, Hospitalization, Length Of Stay

**OE-0790 (PP-0218) Endoscopic Features Associate with Depth of Invasion in Colorectal Laterally Spreading Tumors**

**Hai Yun Shi; Fei Cao; Hui Hong Zhai; Li Yu; Ying Lin Niu; Yong Jun Wang; Peng Li; Shu Tian Zhang**

**Affiliation:** Department of Department of Gastroenterology, Beijing Friendship Hospital, Beijing, China

**Background/Aims:** The depth of invasion influences the treatment of colorectal laterally spreading tumors (LSTs). We aimed to evaluate the risk of high-grade intraepithelial neoplasia (HGIN) or submucosal invasion (SMI) in LSTs with different endoscopic features. **Methods:** Consecutive patients undergoing endoscopic treatment for colorectal LSTs in Beijing Friendship Hospital between January 2015 and June 2017 were retrospectively included to investigate the association between endoscopic features and the depth of invasion. **Results:** Endoscopic treatment was performed in 173 patients with 185 LSTs. The average diameter of the lesions was 26.9±14.7mm (range 10-85mm). The proportions of granular nodular mixed (LST-G-NM), granular homogenous (LST-G-H), non-granular flat elevated (LST-NG-FE) and non-granular pseudodepressed (LST-NG-PD) LSTs were 53.5%, 15.1%, 27.6% and 3.8%, respectively. Five out of 7 (71.4%) patients with LST-NG-PD subtype had HGIN/SMI. LST-NG-PD exhibited the highest risk for SMI (Figure 1). LST-G-NM showed a higher rate of HGIN, compared with LST-G-H LSTs (44.4% vs. 21.4%, p=0.028). Rectal lesions had a higher risk of HGIN/SMI among patients with LST-G-H subtype (55.6% vs. 10.5% of colonic lesions, p=0.020). Large LSTs were prone to develop HGIN/SMI (70.0% of LSTs >30mm vs. 35.6% of LSTs <30mm in diameter, p<0.001). The complete resection rate of LSTs under endoscopy was 74.3%. **Conclusion:** Pretreatment assessment of endoscopic features, specifying LST-NG-PD subtype, rectal involvement of LST-G-H subtype and large size determines higher risk of colorectal cancer, where en bloc resection is preferred.

**Keywords:** Laterally Spreading Tumor, High-Grade Intraepithelial Neoplasia, Submucosal Invasion, Endoscopic Treatment

**OE-0837 (PP-0219) NBI findings in microscopic colitis and utility of NBI guidance on yield of colonic biopsies for its diagnosis**

**Siddharth Shukla; Rakesh Kochhar; Satyavati Rana; Kaushal Kishor Prasad; Narender Dhaka; Neha Berry; Sarthak Malik; Balaji Laxminarayanshetty Bellam; Megha Sharma; Saroj Kant Sinha**

**Affiliation:** Department of Gastroenterology, Post Graduate Institute of Medical Education and Research, Chandigarh, India

**Background/Aims:** Microscopic colitis (MC) is over looked as cause of chronic diarrhoea. Histopathology is gold standard for diagnosis but colonic biopsy has a variable yield in view of normal endoscopy. This study evaluated ileo-colonic mucosa in suspected MC cases with narrow band imaging (NBI), described its findings and outcome of targeted biopsy. **Methods:** 53 adults with suspected MC were recruited after excluding malignancy, celiac disease, small intestinal bacterial overgrowth and inflammatory bowel disease. Routine blood tests, necessary imaging, stool analysis were done. All underwent colonoscopy with ileal intubation if possible. HDWLE (high definition white light examination) and NBI analysis were done. All underwent colonoscopy with ileal intubation if possible. HDWLE (high definition white light examination) and NBI finding were recorded. Routine biopsies on white light and targeted biopsies on NBI were taken and analysed by an expert gastrointestinal histopathologist.

**Figure 1**
as per statements of the European Microscopic Colitis Group 2012. Results: 43 patients were confirmed to have MC [mean age - 45.83±15.92, males – 27]. The WLE revealed normal mucosa in all patients. NBI showed type 1 pit pattern and regular vascular pattern in all patients with MC. Mucosal pattern was honey comb type in all. Focal areas of abnormal vascularity with focally obscure pit pattern was noted more frequently in cases than controls [81% vs 12.5% (p = 0.052)]. Histologically 25(58.1%) had collagenous colitis (CC), 14 (32.5%) had lymphocytic colitis (LC) and 4(9.4%) had mixed picture. The yield of WLE and NBI targeted biopsies were not different (p>0.05) Conclusion: Colonoscopic NBI findings in MC revealed a hitherto unreported and distinct focal areas of abnormal vascularity with focally obscure pit pattern. Also, there was no significant difference in yield of NBI vs WLE biopsies.

Keywords: Microscopic Colitis, Narrow Band Imaging, Chronic Diarrhoea

OE-0843 (PP-0220) Oro-cecal transit time (OCTT) and lactose intolerance in patients with microscopic colitis
Siddharth Shukla; Rakesh Kochhar; Satyavati Rana; Kaushal Kishor Prasad; Narendra Dhaka; Neha Berry; Sarthak Malik; Megha Sharma; Saroj Kant Sinha
Affiliation: Department of Gastroenterology, Post Graduate Institute of Medical Education and Research India, Chandigarh, India

Background/Aims: Microscopic colitis (MC) remains an underreported cause of chronic diarrhoea. Histopathology is the established gold standard with variable yield. It is imperative to look for OCTT and concomitant lactose intolerance in these cases to understand the complex symptoms. Hydrogen (H2) breath tests (H2:BT) is frequently used for determining prevalence of small intestinal bacterial overgrowth (SIBO), lactose tolerance, and oro-cecal transit time (OCTT). Methods: 43 patients of MC [mean age - 45.83±15.92] and 10 controls were studied. Among these, 37(86%) patients with microscopic colitis&9(90%)controls underwent breath tests. SIBO was diagnosed with glucose H2:BT. For confirmation, rise ≥12 ppm over fasting value in H2 concentration within 2hours of glucose ingestion was accepted. LactuloseH2:BT was done to calculate OCTT. Time taken for rise in breath hydrogen by ≥12ppm over baseline value in two consecutive readings was considered as OCTT. For lactose breath test, 15 minutes samples were taken up to 4 hours. ≥20 ppm rise over fasting value in H2 concentration in two consecutive readings was considered as intolerance. Results: Four(9.5%) patients of SIBO in Glucose H2:BT were enrolled in controls. Mean (+ SD) OCTT in cases of MC vs controls was 130.38±47.95 mins and 97.14±48.55mins (p= 0.109) respectively. Thus OCTT was prolonged in 73% cases of MC vs 43% controls. Also, in the MC group, 9(28.1%) patients were lactose intolerant while 3(42.9%) controls were intolerant (p= 0.654). Although controls were more frequently lactose intolerant nevertheless a significant 28% MC patients were also intolerant possibly aggravating symptoms. Conclusion: Lactose intolerance has lesser prevalence in cases of microscopic colitis. These patients were also detected to have paradoxically prolonged OCTT excluding role of small bowel in its diarrheal symptoms.

Keywords: Microscopic Colitis, Oro Cecal Transit Time, Hydrogen Breath Test, Lactose Intolerance

OE-0857 (PP-0221) The impact of additional oral preparation on the quality of bowel preparation for colonoscopy

Background/Aims: The data on the salvage option for patients whose bowel preparation is predicted to be inadequate are limited. We evaluated the impact of additional oral preparation at the day of colonoscopy on the quality of bowel preparation in patients showing opaque yellow with particles or brown effluent. Methods: Between September 2015 and June 2018, a multicenter, prospective endoscopist-blinded randomized controlled trial was conducted. Patients reporting their last effluent as opaque yellow with particles or brown at the time of arrival to the endoscopy unit were randomized to Additional oral preparation (further preparation with 1L of PEG+Asc) group and Control (strongly recommend walking without taking additional purgative) group. All colonoscopies were performed in the afternoon. Bowel preparation was considered to be adequate if total Boston Bowel Preparation Scale ≥ 5 points in per-protocol analysis. Results: A total of 157 patients were enrolled (male, 53.5%, 61.4±13.9 years old). Adequate bowel preparation was significantly higher in patients assigned to additional oral preparation group compared with control (83.3% vs.61.0%, p=0.002). More patients allocated to Additional oral preparation group showed nausea during the preparation compared with those in control. There was no difference in the willingness to repeat bowel preparation between two groups. Conclusion: Additional oral preparation could be considered in patients who is predicted to be inadequate bowel preparation before colonoscopy. ClinicalTrial.gov (NCT02540031).

Keywords: Bowel Preparation, Colonoscopy, Salvage

EP-0118 (PP-0222) Discrepancy between Gross Features and Chemical compositions in Gallbladder stone: A Descriptive Single Center Study
Byung Hyo Cha
Affiliation: Department of Gastroenterology, Byung Hyo Cha, Ras Al Khaimah, United Arab Emirates

Background/Aims: Gallbladder stone (GBS) is common biliary disease and has a potential for developing symptomatic or cholecystitis in twenty percent. This study was conducted to disclose the region-specific characteristics of GBS. Methods: Cases were enrolled from the patients diagnosed as GBS and underwent cholecystectomy in Sheikh Khalifa Specialty Hospital in UAE. The demographic/radiologic/laboratory/pathologic results were reviewed. After cholecystectomy, all stone specimens were classified into 4 groups according to their gross findings then performed quantitative analysis to define chemical constituents. Results: Total 718 gallstone
diseases were detected in 3092 for 2 years then 256 cases underwent cholecystectomy. 237 stones were divided four groups based on their gross findings: black pigmented (60, 25.3%), brown pigmented (23, 9.7%), mixed cholesterol (36, 15.3%), and cholesterol stones (18, 49.8%). After chemical composition analysis, they were resorted into two groups: Pigmented (27.6%) and cholesterol (72.4%) according to cholesterol proportions. Majority of pigmented stone and mixed cholesterol stone by gross classification was re-arranged into cholesterol stone: black pigmented, 6 (23.0%); brown pigmented, 7 (87.5%); mixed cholesterol, 21 (93.6%). There was significant statistical mean age differences between pigmented and cholesterol stone groups (58.5±19.8 vs. 34.4±11.0, p < 0.01).

Conclusions: This descriptive study showed the hospital based clinical incidence of GBS and suggested there might be a gap in stone classification according to gross findings and chemical compositions. And the pigmented stone can be developed in older patient more than cholesterol tones.

Keywords: Gallbladder Stone, Cholecystectomy, Gallstone Analysis, Pigmented Stone, Age

EP-0160 (PP-0223) Expression levels of different circRNAs in patients with liver cirrhosis
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Affiliation: Department of Department of Gastroenterology, The Third Affiliated Hospital of Sun Yat-Sen University, Guangzhou, China

Background/Aims: Circular RNA (circRNA) is a special class of noncoding RNA (nc RNA), it may play a key role in the occurrence and development of disease. Liver cirrhosis is the result of the healing response of liver to repeated injury. The mechanism of circRNAs involved in the repair of liver injury is not very clear. The expression of different circRNAs in the whole blood of patients with cirrhosis was analyzed in this study.

Methods: We selected whole blood samples from 3 normal controls, 3 patients with hepatitis-B cirrhosis and 3 patients with non-hepatitis B cirrhosis randomly. Total RNA from each blood was extracted and purified using PAXgene™ Blood RNA Kit following the manufacturer’s instructions and checked for a RIN number to inspect RNA integration by an Agilent Bioanalyzer 2100, each slide was hybridized with 1.65μg Cy3-labeled cRNA using Gene Expression Hybridization Kit. Slides were scanned by Agilent Microarray Scanner with default settings. Data were extracted with Feature Extraction software 10.7. Raw data were normalized by Quantile algorithm, limma package in R.

Results: By detailed analysis of circRNAs expression in 3 groups of blood samples, we found that compared with normal control, 1779 circRNAs were up-regulated in hepatitis B cirrhosis and 588 circRNAs were up-regulated in non-hepatitis B cirrhosis, 69 circRNAs were up-regulated in the hepatitis B cirrhosis group compared with the non-hepatitis B cirrhosis. In addition, there were 82 up-regulated circRNAs in both groups of cirrhosis compared with the normal control. The six highest expression of circRNAs in cirrhosis group were has_circ_0070159, has_circ_0020118, has_circ_0060945, has_circ_0034187, has_circ_0009852 and has_circ_0080935 (p value is less than 0.05; foldchange is more than 5).

Conclusions: In this study, six circRNAs with significantly up-regulated expression were found by the gene microarray and computational analysis. We can further verify the possibility of them becoming potential biomarkers through RT-PCR and other examinations.

Keywords: Circ RNA, Cirrhosis, Hepatitis B, Microarray

OE-0283 (PP-0224) Nicotine induces aberrant hypermethylation of tumor suppressor genes in pancreatic epithelial ductal cells
Tong Jin[1]; Jianyu Hao[1]; Daiming Fan[2]
Affiliation: [1] Department of Gastroenterology, Beijing Chaoyang Hospital, Beijing, and [2] Department of State Key Laboratory of Cancer Biology and Xijing Hospital of Digestive Diseases, Xijing Hospital, Fourth Military Medical University, Xi’an, China

Background/Aims: Tobacco smoking is an independent risk factor for the initiation of pancreatic cancer (PC). Hypermethylation of tumor suppressor genes has been demonstrated to be associated with smoking. This study
aimed to find the relationship between nicotine exposure and hypermethylation of tumor suppressor genes in normal pancreatic epithelial cells.

Methods: Human pancreatic epithelial cells were cultured exposing to nicotine and the methylation status of tumor suppressor genes were detected. Proenkephalin (PENK) was chosen as the target gene and methylation level of PENK promoter region was measured. Expression of DNA methyltransferase (DNMT), nicotine acetylcholine receptor (a7nAChR) and signaling pathway downstream were analyzed.

Results: Nicotine induces overexpression of DNMT3A and 3B, and methylated-inactivation of PENK gene in normal pancreatic epithelial cells. An activation of a7nAChR and MAPK signaling pathway has been detected in the nicotine-treated group. Demethylated drug, antagonist of a7nAChR and inhibitor of p38 MAPK is verified to attenuate the overexpression of DNMTs stimulated by nicotine as well as inhibit aberrant hypermethylation-related silence of PENK gene.

Conclusion: Nicotine stimulation can induce aberrant hypermethylation of tumor suppressor genes by a7nAChR and MAPK signaling pathway-mediated up-regulation of DNMTs in pancreatic epithelial cells, thus we can provide epigenetic evidence of the mechanisms by which smoking causes pancreatic cancer and find new therapeutic target.

Keywords: Pancreatic Cancer, Cigarette Smoking, Tumor Suppressor Genes, Dna Methylation, Proenkephalin

OE-0286 (PP-0225) The use of retrieval balloon for bile duct stone removal doesn't increase the rate of post ERCP pancreatitis: single center retrospective study

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Background/Aims: Although several risk factors of post ERCP pancreatitis (PEP) have been reported, the relation between accessories used for stone extraction and PEP hasn’t been referred. Because stone extraction with balloon catheter (BAL) could bring more pressure on ampulla than that with basket catheter (BAS), we assumed that BAL could increase the rate of PEP. Therefore, we compared the PEP rate between the procedure using BAL and BAS.

Methods: This was single center retrospective study. All cases of bile duct stone removal by ERCP since April 2013 to April 2018 were included. The cases which used Laser lithotripsy, mechanical lithotripsy, large balloon dilation, or had stones over 10mm were excluded. The main outcome was PEP rate after the only use of either BAL or BAS.

Results: The total was 451 cases and 207 cases were excluded. Among them, 107 cases used BAL and 137 cases used BAS at first attempt. BAS was used following to BAL in 3 cases, and BAL was used following to BAS in 49 cases (2.8% vs. 35.8%; p<0.001). Finally, 104 cases in BAL group and 88 cases in BAS group were compared. The maximum stone diameter was significantly larger in BAS group (4.6mm vs 6.3mm; p<0.001) although the other patients’ backgrounds such as age, gender, numbers of stones, cannulation time, pancreatic stent use, etc. were similar. The rate of successful complete stone extraction in single session and procedure time between 2 groups were similar. The rate of PEP was similar in both groups (4.8% vs 3.4%; p=0.73), and the rate of other complications was
also similar. **Conclusion:** The use of BAL didn’t increase the rate of PEP. On the contrary, the use of BAL at first attempt could reduce the cost of the stone extraction procedure.

**Keywords:** Bile Duct Stone Removal, Post Ecru Pancreatitis, Retrieval Balloon

**OE-0334 (PP-0226) Gene set enrichment analysis-based prediction and verification of genes and microRNAs associated with pancreatic cancer**

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**Background/Aims:** The pathogenesis of pancreatic cancer remains to be elucidated currently. Microarray data have discovered key genes and microRNAs involved in the development and metastasis of cancers. Nonetheless, this technology has such limitations as putative neglect of key regulators with non-differential expression levels and indelible impacts from the noise of chip experiments. **Methods:** The gene signature (a set of the most differentially expressed genes or microRNAs between two groups) of pancreatic cancer, consisting of 100 up-regulated and 100 down-regulated genes, was obtained from the public NCBI GEO database. Then 131 gene signatures of other GEO microarray experiments (107 gene datasets and 24 microRNA ones generated by knock-in/down of specific genes or microRNAs, namely, disturbance factors) were also collected. Gene set enrichment analysis (GSEA), a rank and correlation-based algorithm to measure the (dis) similarities between different gene sets, was performed on the gene signature of pancreatic cancer against the other 131 ones. Disturbance factors having the most similar or dissimilar gene signatures were potentially associated with pancreatic cancer. **Results:** Ten genes having the highest positive/negative rank scores were screened (five with positive scores: FAS, TP73L, MCAM, AOF1, MMP14; five with negative scores: POU5F1, WASF3, HIF1A, SRF, PTHLH). Ten microRNAs were predicted (five with positive scores: miR-182, miR-200c, miR-30d, miR-146a, miR-130b; five with negative scores: miR-155, miR-221, miR-16, miR-335, miR-210). Literature researches revealed most of the genes/microRNAs participated in invasion and metastasis of tumor consistingent with the characteristics of pancreatic cancer. Six genes and three microRNAs were selected to be validated by real time-PCR. TP73L, SRF, WASF3, hsa-miR-335, hsa-miR-210 had higher while MCAM, HIF1A, hsa-miR-130b had lower expression levels in pancreatic cancer tissues relative to para-cancer tissues. **Conclusion:** This study discovered putatively genes/microRNAs involved in the pathogenesis of pancreatic cancer by mining public database, which might be of important practical value.

**Keywords:** Pancreatic Cancer, Gene Signature, Gene, MicroRNA, GSEA

**OE-0342 (PP-0227) Vitamin D treatment attenuated bacterial translocation and decreased intestinal permeability in cirrhotic rats**

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**Background/Aims:** Bacterial translocation (BT) is common in cirrhotic patients and results in lethal complications including infections and liver de-compensation. Vitamin D has been found to have intestinal barrier protecting effect in experimental colitis. The aim of the study is to evaluate the effects of vitamin D on BT in a liver cirrhotic rat model. **Methods:** Adult male Sprague-Dawley rats were injected intraperitoneally with thioacetamide (TAA, 200 mg/kg three times per week) for 16 weeks to induce cirrhosis with BT. The injured rats were then assigned to oral gavage of calcitriol, the active form of vitamin D3 (0.1 μg/kg/day) or vehicle for the next 2 weeks. Rats receiving an injection of normal saline and subsequent oral gavage of calcitriol or vehicle served as controls. **Results:** In cirrhotic rats, calcitrol significantly reduced cultured bacterial colonies of mesenteric lymph nodes (Figure 1). The increased stool bacterial DNA amount in cirrhotic rats was reversed by calcitrol treatment. The intestinal cultures showed that calcitrol decreased bacterial overgrowth of proximal small intestine. In addition, calcitrol decreased intestinal permeability with increased expression of intercellular tight junction proteins in small intestine and colon. The expression of proinflammatory cytokines in small intestine was also decreased in calcitrol treated rats. However, the severity of liver fibrosis and inflammation did not change by calcitrol treatment. **Conclusion:** Active vitamin D treatment attenuated BT and decreased intestinal permeability in rats with TAA induced cirrhosis. The therapeutic effects might mediate through the attenuation of bacterial overgrowth and the improvement of disrupted intestinal tight junctions.

**Keywords:** Cirrhosis, Bacterial Translocation, Vitamin D, Intestinal Permeability
OE-0355 (PP-0228) ASGE guidelines for predicting choledocholithiasis has high positive predictive value, but poor negative predictive value
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Background/Aims: The treatment of choledocholithiasis (CL) is ERCP, which has the potential for complications. The ASGE have proposed risk-stratifying patients that uses only clinical assessment, liver biochemistry and ultrasound (US). We retrospectively examined the performance of the ASGE CL predictors in our local patient population

Methods: All subjects with suspected CL and underwent ERCP from August 2016 to April 2017 were identified from medical records. Medical history, laboratory data, imaging results and ERCP results were extracted. High probability CL was defined if any “very strong” predictors was present (CBD stone on US, clinical cholangitis, BR > 68 μmol/L) or if both “strong” predictors were present (BR 31-68 μmol/L and dilated CBD on US > 6 mm with gallbladder in-situ). Intermediate probability had only 1 strong predictor or any moderate predictor (abnormal liver tests, age > 55 yrs or gallstone pancreatitis) while low probability CL had no predictors. Statistical analysis was performed using SPSS 21.0

Results: The final analysis included 98 subjects (91/98 had sludge or CL in the CBD at ERCP). There were 47/98 subjects who had a ASGE high probability of CL, 51/98 intermediate probability, while no cases were identified as low probability. High probability and intermediate probability had a sensitivity, specificity, positive and negative predictive value of: 47.3%, 42.9%, 91.5%, 5.9% and 52.7%, 57.1%, 94.1% and 8.5% respectively

Conclusion: In our local cohort, the ASGE criteria had a high positive predictive value, but poor sensitivity and negative predictive value. Additionally, it was unable to identify any of the subjects who had no CL as low probability. Reliance on ASGE criteria alone is insufficient and clinicians should use other imaging modalities such as MRCP to accurately determine the presence of CL.

Keywords: Choledocholithiasis, Ercp, Asge, Ultrasound, Diagnosis

OE-0485 (PP-0229) Pre-operative prophylactic biliary stenting in patients with choledochocystolithiasis who achieved complete stone clearance following ERCP: A single-centre randomized controlled trial
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Background/Aims: Interval cholangitis can occur in patients who achieve complete stone clearance following endoscopic retrograde cholangiopancreatography (ERCP) for choledochocystolithiasis especially in those awaiting laparoscopic cholecystectomy. Review of literatures remained scarce and controversial when reporting on interval cholangitis. This study aims to ascertain the benefit of prophylactic biliary stenting in reducing interval cholangitis in this group of patients.

Methods: A randomized controlled trial was conducted for 2 years in University of Malaya Medical Centre (UMMC) with ethics approval. Patients were randomized to two groups, Group A (no prophylactic stent) and Group B (prophylactic stent). They were followed up for 3 months. Additional ERCP for stent removal was scheduled for patients in Group B. Primary objective was to compare the incidence of interval cholangitis. Secondary objective was to assess the potential risk of the additional ERCP procedure. Ethical clearance was obtained from the institutional review board of UMMC.

Results: A total of 150 patients were recruited. Seventy-six patients were randomized to Group A and 74 to group B. Baseline characteristics are shown in Table 1. The incidence of interval cholangitis in group A and group B were 9% and 5% respectively (P = 0.765). Among the patients who received additional ERCP, post ERCP pancreatitis was seen in 2 patients (2.7%). There was no ERCP associated morbidities such as perforation or bleeding noted.
OE-0493 (PP-0230) piR-823 combines EIF3B and actives hepatic stellate cells via TGF-beta1 in liver fibrogenesis

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Background/Aims: Piwi-interacting RNA (piRNA) is the largest class of small non-coding RNA, which have also been identified in somatic tissues, and aberrant expression of piRNAs in tumor tissues may be implicated in carcinogenesis. piR-823 is increased in liver cirrhosis and hepatocellular carcinoma (HCC), we hypothesized that there is a correlation between liver fibrosis and piR-823. However, there was no report in regarding to the function of piR-823 in HSCs activation during the hepatic fibrosis. The present study was to investigate the role of piR-823 in HSC activation.

Methods: Liver fibrosis was induced in mice by carbon tetrachloride (CCL4) injection and bile duct ligation (BDL). The expression of piR-823 was measured by real-time PCR. Protein binding to piR-823 was assayed by RNA pull down technique and liquid chromatography-mass spectrometry (LC-MS). Upregulation or inhibition of piR-823 was manipulated by either sense sequence or antisense sequence of piR-823 carried by liposome in cells or Adeno-associated virus in vivo.

Results: Our data for the first time showed that piR-823 was significantly upregulated in activated HSCs. Overexpression of piR-823 promoted HSC proliferation, α-SMA and COL1α1 secretions; whereas inhibition of piR-823 suppressed the activity of HSCs and attenuated murine liver fibrosis. Interestingly, piR-823 binding to EIF3B promoted TGF-β1 expression.

Conclusion: Our data illustrated a novel mechanism of piR-823 on HSC activities. The combination of piR-823 and EIF3B increased TGF-β1 expression which activates HSCs in liver fibrosis. piR-823 may be a new target in the treatment of liver fibrosis.

Keywords: Liver Fibrosis, Hepatic Stellate Cell Activation, Pir-823, Eif3b, Tgf-Beta1

OE-0529 (PP-0231)

Withdrawn
OE-0568 (PP-0232) Outcomes of needle knife fistulotomy and transpancreatic sphincterotomy in difficulty biliary access, a retrospective study in Taiwan

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Background/Aims: Selective deep biliary cannulation is the first and the most important step before further biliary therapy. Transpancreatic sphincterotomy (TPS), and needle knife fistulotomy (NKF) were commonly used in patients with difficult cannulation. To investigate the success rate and complications of NKF and TPS in the difficult biliary access. Methods: A total of 78 patients who met the criteria of difficult cannulation in the National Taiwan University hospital from October 2015 to October 2017 were retrospectively reviewed. Their baseline demography, success rate of biliary cannulation, and the incidence rate of adverse events were assessed. Results: 31 patients and 47 patients underwent TPS and NKF for difficult biliary access, respectively. The characteristics of the 2 groups were similar, but patients in TPS group had more frequent pancreatic duct cannulation. Bile duct cannulation was successful in 23 patients (74.2 %) in the TPS group and 39 (83.0%) in the NKF group (P=0.34). There was no difference between the groups for the incidence of complications, post endoscopic retrograde cholangio-pancreatography pancreatitis (PEP), and hemorrhage (22.6% vs. 21.3%, 16.1 % vs. 6.4%, 3.2% vs. 8.5%, respectively). No perforation occurred. Multivariate analysis showed age younger than 65-year-old and endoscopic papillary large balloon dilatation (EPLBD) were associated with pancreatitis. Conclusion: Both TPS and NKF are techniques with acceptable successful rate and complication rate for difficult biliary access. Younger age and EPLBD were associated with PEP in difficult endoscopic retrograde cholangiopancreatography. Keywords: Transpancreatic Sphincterotomy, Needle Knife Fistulotomy, Post Endoscopic Retrograde Cholangio-Pancreatography Pancreatitis Success/complication rate of TPS and NKF
OE-0993 (PP-0233) Blood salvage autotransfusion during liver transplantation and resection for hepatocellular carcinoma: Is there a risk of reintroduction of tumor cells?
Jarrod Kah Hwee Tan[1]; Ramanathan Pudhukode Vaidyanathan[2]; Pei Shan Tan[3]; Terry Ling Te Pan[3]; Chwee Teck Lim[2]; Alfred Wei Chieh Kow[1]


Background/Aims: Despite known benefits of reducing allogeneic transfusion requirements, the application of intra-operative blood salvage autotransfusion (IBSA) in liver transplantation (LT) and resection (LR) for hepatocellular carcinoma (HCC) remains controversial due to the theoretical risk of tumor cell (CTC) reintroduction. Current reports analyzing blood samples for CTC remain limited due to suboptimal detection techniques. The aim of this study is to evaluate the presence of HCC CTC in autologous blood recovered intra-operatively using highly sensitive microfluidics technology.

Methods: A prospective study of all HCC patients who underwent LT and LR at the National University Health System, Singapore from November 2017 to April 2018 was conducted. Blood samples were collected intra-operatively using the Cellsaver machine (IOCS) before filtration through the Leukocyte Depletion Filter (LDF). The samples were then processed using microfluidics technology and stained with antibody cocktails for CTC detection. Results: A total of six patients were recruited in this study, with three patients in each LT and LR group respectively. In the LT arm, all recipients had tumor characteristics within the University of California, San Francisco (UCSF) criteria. While one patient sample was found to have CTC after IOCS, all samples were negative for CTC after LDF filtration. For LR, patients with a range of T1 to T3 tumors based on the American Joint Committee on Cancer staging were found in the study. Despite existing tumor characteristics of giant HCC, vascular invasion and previous tumor rupture, all samples were negative for CTC in the final LDF-filtered blood.

Conclusion: The use of IBSA in HCC LT and LR should be considered, as it appears to be safe with minimal risk of tumor cell reintroduction after LDF filtration. Future studies with larger sample size should be performed to overcome the presence of any sampling error.

Keywords: Liver Transplantation, Liver Resection, Intra-Operative Blood Salvage Autotransfusion, Hepatocellular Carcinoma, Microfluidics

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Background/Aims: Study the efficacy of the 13C-mixed triglyceride respiratory test (13C-sTDT) in determining the degree of exocrine pancreatic insufficiency (EPI) in patients with chronic pancreatitis (CP). Methods: 45 patients with primary EPI and 10 healthy volunteers were examined on the basis of surgery department of Republican Clinical Hospital No. 1 of Tashkent City. To study the function of the pancreas, we used a standardized “gold standard” for determining the degree of EPI - fecal elastase 1 (FE1) by the enzyme immunoassay method, as well as 13C-sTDT, the samples of which were analyzed on the infrared spectrometer “IRIS by Wagner Analysen Technik”. The presence of EPI was determined by the level and time of recording the maximum concentration of exhaled 13CO2 and the cumulative dose of the released 13CO2 in the expired air over the six-hour test period. Results: In healthy subjects, the level of FE1 was (388 ± 90) μg / g. Analysis of respiratory samples at 13C-sTDT showed that in patients with mild EPI (FE1 = (151 ± 13) μg / g) the maximum concentration of the isolated 13CO2 was registered on average (271 ± 16) minutes and was (11.4 ± 3.4)% at a normal cumulative dose of 13CO2 (34.8 ± 8.8)% of the maximum concentration of exhaled 13CO2, which was (4.7 ± 1.4)% and recorded at (156 ± 40) minutes, with a reduced cumulative dose of the isolated 13CO2 (18.1 ± 5.9)% indicating moderate EPI (FE1 = (99 ± 18) μg / g). A decrease in the maximum concentration to (4.8 ± 1.3)% at (275 ± 27) minutes, a cumulative dose (16.7 ± 3.5)% indicates a severe EPI (FE1 = (46 ± 15) μg/g). Conclusion: A non-invasive, safe, standardized 13C-mixed triglyceride respiratory test makes it possible to determine the degree of BPH, which is of great practical importance for choosing the optimal treatment tactics.

Keywords: Fecal Elastase 1, 13c-Mixed Triglyceride Respiratory Test, Isolated 13CO2

OE-0028 (PP-0235) Clinical and biochemical profile of parathyroid adenoma-associated pancreatitis

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Background/Aims: Primary hyperparathyroidism due to parathyroid adenoma presenting with pancreatitis as the initial manifestation is rare. To study the clinical and biochemical profile of parathyroid adenoma-associated pancreatitis patients and outcome following parathyroidectomy for adenoma. Methods: We retrospectively studied the clinical and biochemical parameters of patients with recurrent acute and chronic pancreatitis who underwent parathyroidectomy for parathyroid adenoma, between April 2010 and October 2017. Results: Out of 88 patients with parathyroid adenoma-associated pancreatitis, 47(53.2%) had recurrent acute pancreatitis and 41(46.8%) had chronic pancreatitis. Serum calcium (12.4±1.7 mg/dl) and parathyroid hormone levels (367±286.4 pg/ml) were found to be elevated. Left inferior parathyroid adenoma (39.7%) was the most common finding on neck imaging. Patients with chronic pancreatitis (4.8±4.1 years) had longer disease duration and more pain episodes (10.9±10.1) than those with recurrent acute pancreatitis (0.72±0.7 years vs. 2.9±2.5) (P=0.0001). In all the patients, following parathyroidectomy, there was a significant decrease in serum calcium (12.4±1.7 mg/dl vs. 9.7±1.9 mg/dl; P=0.0001) and serum parathyroid hormone levels (367±286.4 pg/ml vs. 116.4± 7.1 pg/ml; P=0.0001) as well as there was reduction in the number of episodes and severity of pain. Conclusion: Estimating serum calcium after an episode of unexplained pancreatitis is important and can help minimize delay in diagnosing primary hyperparathyroidism, and possibly prevent the progression of pancreatitis.

Keywords: Primary Hyperparathyroidism, Parathyroid Adenoma, Acute Pancreatitis, Recurrent Acute Pancreatitis, Chronic Pancreatitis
Comparison between patients with recurrence

**OE-0118 (PP-0236) The effectiveness of the rectal administration of 25mg low-dose diclofenac for the prevention of post-endoscopic retrograde cholangiopancreatography pancreatitis**


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**Background/Aims:** A 50-100-mg rectal dose of nonsteroidal anti-inflammatory drugs (NSAIDs; diclofenac or indomethacin) has been shown to prevent post-endoscopic retrograde cholangiopancreatography (ERCP) pancreatitis (PEP). However, this is higher than the recommended 25-mg dose that is commonly administered to Japanese, especially elderly patients. The objective of this study was to evaluate the safety and efficacy of 25-mg rectal dose of diclofenac in preventing PEP. **Methods:** Between January 2016 and March 2017, a total of 147 patients underwent ERCP with (n = 74) or without (n = 73) the rectal administration of diclofenac (25 mg) 20 min before the procedure. A retrospective analysis was conducted to evaluate the efficacy and safety of this dose in preventing PEP. This study was approved by the Institutional Review Board and registered with UMIN 000026434. **Results:** Thirteen patients (8.8%) developed PEP: 3 patients (4.1%) in the diclofenac group and 10 (13.7%) in the control group (p = 0.0460). After ERCP, there were no cases of gastrointestinal hemorrhage, ulceration, acute renal failure, or death. A multivariate logistic regression analysis revealed that the non-administration of rectal diclofenac was a risk factor for PEP (odds ratio = 3.53; 95% confidence interval = 1.017-16.35; p = 0.0468). **Conclusion:** A 25-mg rectal dose of diclofenac might prevent PEP. **Keywords:** Diclofenac, Post-Ercp Pancreatitis, Prevention, 25-Mg Dose

**OE-0311 (PP-0239) Alteration of the fecal microbiota in Chinese patients with chronic pancreatitis**

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**Background/Aims:** Emerging evidences suggest that gut microbiota dysbiosis plays a role in Chronic pancreatitis (CP). However, the alterations in fecal microbiome in Chinese CP patients remains unknown. Gut bacteria contribute to nutrient metabolism and produce small molecules termed the “metabolome”, which may contribute to the development of CP. Here, we profiled the difference in gut microbial composition, structure and metabolome in CP patients and healthy controls. **Methods:** We conducted a cross-sectional study of CP patients (n = 77) with healthy controls (n = 77) with healthy controls. Faecal samples were collected. Microbiomes and bacteria-host co-metabolites were analysed by 16S ribosomal ribonucleic acid (RNA) sequencing and gas chromatography coupled to time-of-flight mass spectrometry (GC-TOFMS). The relationships between fecal microbiota and CP clinical characteristics were analyzed. **Results:** The richness and diversity of the fecal microbiota were significantly lower in CP patients than healthy controls. Genera Escherichia-Shigella, Klebsiella, Phascolarctobacterium, Romboutsia were enriched in the feces of CP patients. A signature defined by increased abundance of four genera and decreased abundance of eight genera strongly correlated with CP (AUC=0.79). There are ten different intestinal metabolomes between CP patients and healthy controls. The abundance L-Proline, 5-Dodecanoic acid, Dodecanoic acid, Stearic acid, Arachidic acid, Phenylacetic acid, Palmitic acid were significantly higher in CP patients than healthy controls. The abundance of Hydrocinnamic acid was lower in CP patients than healthy controls. We found that multiple KEGG (level 3) categories were disturbed in CP from 16S rRNA sequencing data with PICRUSt analysis. The pathways enriched in CP highlighted pathogenic Escherichia coli infection, Shigellosis, Bacterial invasion of epithelial cells, Lipopolysaccharide biosynthesis proteins, Bacterial toxins. **Conclusion:** This study presents that dysbiosis was found in the gut microbiome in Chinese CP patients. Gut microbiota is a potential therapeutic target and diagnostic biomarker for CP. Modification of the microbiota could be integrated into prevention and treatment strategies for CP. **Keywords:** Chronic Pancreatitis, Intestinal Microbiome, Metabolomics
OE-0720 (PP-0240) Fluids and its initial management in acute pancreatitis: How much should we give?

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Background/Aims: Fluid shift is an important factor in the pathophysiology of acute pancreatitis and the management of fluid resuscitation in the initial treatment of acute pancreatitis has been increasingly studied. Till date, there is no clear evidence regarding how much fluids should be administered during the initial resuscitation and whether a more liberal or restrictive approach should be adopted. This study aims to evaluate the relationship of fluid administration and outcome of patients with acute pancreatitis in our institution. Methods: Retrospective data of patients (n=246) diagnosed with acute pancreatitis at the National University Hospital Singapore from December 2012 to June 2014 were included. Medical records were reviewed and variables including Glasgow scoring, Modified Marshall Score at admission and at 48Hrs, types of fluids, rate of infusion, volume infused within first 24Hrs, 30day mortality and length of stay were collected. Results were analysed based on the Atlanta Criteria and Modified Marshall Scoring System using ordered logistic regression and logistic regression. Results: Analysis of the data showed that administration of more than 4.5L or 2.9ml/kg/hr of fluids over the first 24hrs is associated with worsening of respiratory dysfunction in patients with acute pancreatitis, with an odds ratio of 1.34 (95% CI 1.06-1.69). This means that for every 1L of additional fluids the patient receives, there is a 34% increase in risk of them developing respiratory complications during fluid resuscitation. There was no difference between the amount of fluids administered and progression in cardiovascular or renal dysfunction in patients with pancreatitis. Conclusion: Fluid management in acute pancreatitis is a complex process and the practice of aggressive fluid replacement is not all-encompassing. Patients may instead benefit from a more restricted fluid regime with a resultant better outcome, especially in respiratory outcomes for patients diagnosed with acute pancreatitis.

Keywords: Pancreatitis, Fluids, Aggressive, Restrictive, Atlanta

OE-0759 (PP-0241) Long-term Outcome of IgG4-Related Disease

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Background/Aims: Autoimmune pancreatitis (AIP) and IgG4-related sclerosing cholangitis (IgG4-SC) are the most common pancreaticobiliary manifestation of IgG4-RD. Generally, AIP and IgG4-SC had favorable short-term outcome based on the remarkable response to corticosteroid treatment. However, there is limited information on natural course of AIP or IgG4-SC during long-term follow-up. This study aimed to investigate the demographics, clinical features at presentation, treatment response and long-term outcomes of IgG4-RD using data from one tertiary referral hospital in Taiwan. Methods: We performed a retrospective cohort study of 54 patients with IgG4-SC (47 male; mean age, 67.5 ± 1.7 years) in National Taiwan University Hospital from 2003 to 2017. Patients were diagnosed with AIP based on the International Consensus Diagnostic Criteria for AIP in 2011 and IgG4-SC based on 2012 Japanese clinical diagnostic criteria. The baseline characteristics between groups were compared by Fisher exact test for categorical variables and by Mann-Whitney U test for continuous variables. Survival and relapse were assessed using the Kaplan-Meier curve and log-rank test. Results: In our series, there are 15.1% IgG4-SC without AIP, 24.5% AIP with IgG4-SC and 15.1% AIP with late-onset IgG4-SC. Symptoms at presentation included jaundice (66.7% of patients), pain (35.2% of patients) and weight loss (57.4% of patients). Response to prednisolone was excellent in 79.6% of patients, but relapse was observed in 53.7% of patients after a median delay of 11 months. Malignancy and death was found in 4 (7.4%) and 7 (13%) patients, respectively. However, relapse did not affect overall survival (p=0.506). Conclusion: In summary, most patients responded well to initial CST, but relapse rate seems higher in Taiwan, probably due to shorter steroid duration. Relapse occurs mostly in bile duct and pancreas. No patient developed pancreaticobiliary malignancy during follow-up, and relapse did not seem to affect overall survival.

Keywords: Igg4-Related Sclerosing Cholangitis, Autoimmune Pancreatitis, Igg4-Related Disease
OE-0827 (PP-0242) Factors affecting outcome after percutaneous catheter drainage of fluid collection in patients with acute pancreatitis

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Background/Aims: Percutaneous catheter drainage (PCD) is effective initial step of step-up approach for management of acute pancreatitis (AP). The objective of this study was to identify factors associated with successful outcome after PCD. Methods: This was a prospective observational study between July 2016 - Nov 2017. A total of 101 consecutive AP patients were recruited. Step up approach of management was followed, initially all patients received medical management and subsequently 51 patients requiring PCD were enrolled in the study. We evaluated the association between success of PCD drainage (survival without necrosectomy) and baseline parameters (aetiology, APACHE II, CRP demography, % necrosis, CTSI, and intra-abdominal pressure, morphologic characteristics on computed tomography), characteristics of collection before PCD (nature of collection, volume, site, solid component), PCD parameters (initial size, maximum size, number and duration of drainage) and factors after PCD insertion (fall in CRP, fall in IAP, reduction in volume of collection). Results: Out of 101 patients of AP, 51 patients required PCD drainage. The success rate of PCD in our study was 66.66% (34/51) and 4 patients required additional surgical necrosectomy after PCD. Overall mortality rate in our study was 29.4% (15/51, including 2 deaths after necrosectomy). PCD alone improved organ failure in 72.54% patients. Of all the parameters evaluated, initial PCD size (P= 0.011) and > 50% volume reduction in collection after PCD insertion (P=0.000) were positive predictors of PCD success. Total volume of collection more than 750 CC before PCD was a negative predictor of PCD outcome (P=0.05). Conclusion: Larger size of the initial PCD catheter and >50% volume reduction of fluid collection predict the successful PCD.

Keywords: Acute Pancreatitis, Fluid Collection, Per Cutaneous Catheter Drainage, Predictors Of Per Cutaneous Catheter Drainage Success

EE-0251 (PP-0244) The role of biopsy in determining treatment strategy in Early Gastric Cancer

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Background/Aims: A biopsy based histologic diagnosis is critical for determining treatment strategy in early gastric cancer (EGC). However, there was no study to investigate the role of biopsy to determine treatment in EGC. The aim was to compare between histologic diagnosis from biopsy and final diagnosis from endoscopic resection (ER) and surgical specimens. We tried to find predictive factors related to discrepancy between biopsy and final histology. Methods: 1,043 patients with a biopsy diagnosis of gastric adenocarcinoma were treated by ER or surgery. To compare the histological discrepancy, we checked the histologic diagnosis from the biopsy sample and the final diagnosis from the ER and surgical specimen. Results: 44% of EGC patients were treated by ER, and 56% by surgery. Among patients with ER, histologic discrepancies (group 1) was 10.3%. Differentiated-type EGC (D-EGC) based on biopsy and undifferentiated-type EGC (UD-EGC) on ER pathology was 84% of group 1. Among them, curative resection (CR) was 33.3%, and non-CR was 66.6%. UD-EGC on biopsy and D-EGC on ER pathology was 16% of group 1, and all of them were diagnosed with CR. In surgery group, histologic discrepancy was 11.0% (group 2). Among group 2, D-EGC on biopsy and UD-EGC on surgical pathology was 22.1%. Among them, patients with absolute indication (AI) of ER was 13.3%, EI was 40%, and beyond EI was 46.7% according to final pathology. Age, size, upper-third location of stomach, and elevated gross appearance were significant predictive factors for histologic discrepancies between biopsy and final pathology. Conclusion: Decision of treatment based on biopsy in EGC may be acceptable. However, to determine more accurately, reduction of histologic discrepancy is important.

Keywords: Histologic Discrepancy, Treatment Strategy, Early Gastric Cancer
EP-0093 (PP-0245) The usefulness of combination of Helicobacter pylori status and serum pepsinogen for predicting of gastric cancer in South Korea
Sung Min Baek[1]; Nayoung Kim[1]; Young Jae Kwon[1]; Hye Seung Lee[3]; Jaebong Lee[4]; Hyuk Yoon[1]; Cheol Min Shin[1]; Young Soo Park[1]; Dong Ho Lee[2]
Affiliation: Departments of [1] Internal Medicine, [3] Pathology, [4] Statistics in Medical Research Collaborating Center, Seoul National University Bundang Hospital, and [2] Department of Internal Medicine and Liver Research Institute, Seoul National University Hospital, Seongnam, Republic of Korea

Background/Aims: Screening method combining anti-H.pylori (Hp) antibody and serum pepsinogen (PG) have been established to be effective in screening for high risk patients of gastric cancer (GC) in Japan. However, in South Korea, Hp antibody alone is unlikely to be suitable for the diagnosis of Hp infection and combination of Hp status and PG has not been well assessed for the risk stratification method of GC. The aim of this study is to investigate the usefulness of combination method of actual Hp status with PG, in predicting GC in South Korea.

Methods: Total of 2,940 subjects were enrolled during 2006-2017. Serum tests of PG and four HP infection tests were performed and the OLGA/OLGIM staging systems were evaluated. The subjects were divided into ABCD groups. Synergistic interaction of Hp status and serum PG in predicting of GC was calculated.

Results: Among 1,149 patients with GC, 203 patients (17.7%) were classified into Group A, 339 (29.5%) into Group B, 546 (47.5%) into Group C, and 61 (5.3%) into Group D. Group C (OR = 3.09) was found to be more associated with the presence of GC than group D (OR = 1.49). Similarly, gastric dysplasia also showed a higher risk in group C (OR = 3.06) than group D (OR = 1.47). Furthermore, when compared with the histologic risk of GC, high risk of GC patients (OLGA/OLGIM stage 3-4) were found slightly more in group C (OR = 5.41/2.97) than group D (OR = 5.24/2.91). Conclusion: Group A and B patients were found to be occupying considerable portion in GC. Group C patients showed equal or higher risk of GC compared to group D. Therefore, careful surveillance should also be required in group C as well as group D in South Korea.

Keywords: Gastric Cancer, Gastric Dysplasia, Pepsinogen, Helicobacter Pylori, Abc Method

OE-0113 (PP-0246) Identification of Serum Circular RNAs and CircRNA-miRNA-mRNA Network of Gastric Cancer
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Background/Aims: Circular RNAs (circRNAs) are a type of newly identified non-coding RNAs through high-throughput deep sequencing, which play important roles in miRNA function and transcriptional controlling in diseases. To date, there is no report in serum of gastric cancer patient regarding the circRNAs identification and roles in the tumorigenesis.

Methods: In present study, the total RNA was extracted from serum of gastric cancer patients and healthy controls, respectively. Then, the circRNAs enriched library based deep sequencing was performed and the circRNAs were identified using bioinformatics tools. Results: 3110 circRNAs were increased in serum of gastric cancer patients while 3849 were decreased. Among them 31 circRNAs were significantly changed. In addition, these circRNAs were found to act as miRNAs sponges. Besides, 25 significantly different circRNAs were further validated in serum of 50 gastric cancer patients by real-time PCR assay and hsa_circ_0003218 were proved to be a promising gastric cancer biomarker for the first time. Gene Ontology (GO) and Kyoto Encyclopedia of Genesand Genomes (KEGG) pathway analysis of the targeted miRNAs revealed that the circRNAs were predicted to be involved in key cellular signaling pathways related to cell fate decisions and gene transcription, like Notch and Wnt signaling pathways.

Conclusion: We conducted this study to show a comprehensive expression profile of circRNAs in the serum of gastric cancer patients and found hsa_circ_0003218 could be the noninvasive biomarker of gastric cancer.

Keywords: Circular Rnas, Gastric Cancer, Serum, Micro Rnas
**OE-0241 (PP-0247) Oestrogen Receptors: A Potential Therapeutic Pathway in Oesophageal Cancer**

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**Background/Aims:** Oestrogen and its receptors play a pivotal role in the development of many cancers, such as breast cancer, where oestrogen receptor (ER) expression has both prognostic and therapeutic implications. Oesophageal cancer is a male dominant disease, with a male: female ratio of 5:1 to 10:1. We hypothesise that ERs are expressed in oesophageal cancer cells and may contribute to the gender bias. **Methods:** The expression of ERα and ERβ at the mRNA and protein level was determined in female (OE33) and male (OE19) oesophageal AC cell lines using Reverse transcription polymerase chain reaction and western blotting, respectively. The breast cancer cell line, MCF7, was a positive control. ERα and ERβ expression in oesophageal cancer biopsy tissue obtained at gastroscopy was determined by immunohistochemistry. **Results:** The mean ERα mRNA expression in MCF7, OE19 and OE33 was 24.2(SD±1.0), 4.9(SD±0.6), and 4.2(SD±0.3), respectively, and the mean ERβ mRNA expression was 2.4(SD±0.7), 0.7(SD±0.3), and 1.2(SD±0.2), respectively, and the mean ERβ protein expression was 0.4(SD±0.2), 0.1(SD±0.03), and 0.0(SD±0.02), respectively. The mean ERβ Allred score was 6.8 (SD ±1.3) in oesophageal cancer biopsies (n=18). None of the oesophageal cancer biopsy specimens demonstrated ERα protein expression at immunohistochemistry. **Conclusion:** ERβ is the dominant ER subtype expressed in oesophageal cancer cell lines and human cancer tissue. Further studies to define the role of the ERβ subtype in oesophageal cancer are needed. **Keywords:** Oesophagus, Oestrogen Receptor

**OE-0242 (PP-0248) Tamoxifen: A Novel Treatment Option in Oesophageal Cancer**

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**Background/Aims:** Tamoxifen has been the gold-standard treatment for oestrogen receptor (ER) positive breast cancer for over 30 years. Tamoxifen works via ERs and has either agonist or antagonistic effects dependant on the target tissue, which is determined by the repertoire of coregulatory proteins and the ratio of ER subtypes. Oesophageal cancer cell lines and oesophageal cancer tissue express ERs and we hypothesis that tamoxifen inhibits oesophageal cancer cell growth in-vitro. **Methods:** The expression of ERα and ERβ at the mRNA and protein level was demonstrated in OE33, oesophageal AC cell lines using reverse transcription polymerase chain reaction and western blotting, respectively. The effect of tamoxifen at five different concentrations (1 – 10,000nM) on cell proliferation was assessed using 5-bromo-2'-deoxyuridine (colorimetric) assay. Changes in the expression of the folowing proliferation-associated proteins with tamoxifen treatment were investigated by western blotting: Ki67, PCNA, Cyclin D and E-cadherin. **Results:** Tamoxifen significantly inhibited OE33 proliferation in a dose-dependent manner. Importantly, a tamoxifen dose of 100nM, the concentration achievable in-vivo with standard dose tamoxifen administration, significantly inhibited OE33 cell proliferation (p<0.0001). There was no significant change in the expression of Ki67, PCNA, Cyclin D or E-cadherin with tamoxifen treatment. **Conclusion:** This in-vitro study on oesophageal cancer cell lines demonstrated tamoxifen inhibits cell growth in a dose dependent manner. The mechanism of action of tamoxifen is complex and can be either ER-mediated or ER-independent. The mechanism of action of tamoxifen in oesophageal cancer is still undetermined and warrants further investigation, as does the effect of tamoxifen on oesophageal cancer growth in-vivo. **Keywords:** Oesophagus, Oestrogen Receptors
OE-0248 (PP-0249) Histological architecture of gastric epithelial neoplasias that showed absent microsurface pattern visualized by magnifying endoscopy with narrow-band imaging

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Background/Aims: The objective of this study was to elucidate the histological structure that exhibits absent microsurface pattern (AMSP) visualized by magnifying endoscopy. Methods: Three hundred seventy-one gastric epithelial neoplastic lesions were treated at Fukuoka University Chikushi Hospital between August 2015 and January 2018. The study included the neoplasias for which magnifying endoscopy findings and histopathological findings could be compared on a one-to-one basis. The lesions were classified as AMSP and present MSP (PMSP) based on the findings obtained by magnifying endoscopy with narrow-band imaging (M-NBI). Of the histopathological findings for each lesion that corresponded to the findings for M-NBI, crypt opening density, crypt length, crypt opening diameter, intercrypt distance, and crypt angle were measured. The measured values for each group were compared. Results: Thirty-six lesions were included in the analysis. Seventeen lesions (47.2%) exhibited AMSP, and 19 (52.3%) exhibited PMSP. Comparing the histological measurements for AMSP vs. PMSP, median crypt opening density was 0.9 crypt openings/mm vs. 4.8 crypt openings/mm (p < 0.001), respectively. Median crypt length was 80.0 μm vs. 160 μm (p < 0.001). The median intercrypt distance was 572.5 μm vs. 166.7 μm (p < 0.001). Median crypt angle was 21.6 degrees vs. 15.5 degrees (p < 0.001). All of the above differences were significant. The median crypt opening diameter was 40.0 μm vs. 44.2 μm (p = 0.087), the difference being nonsignificant. In examining histological type, the ratio including undifferentiated adenocarcinoma was significantly higher in the AMSP group than the PMSP group (p=0.007).

Conclusion: The histological findings showed that lesions exhibiting AMSP had a lower crypt opening density, shorter crypt length, greater intercrypt distance, and larger crypt angle.

Keywords: Magnifying Endoscopy, Narrow Band Imaging, Gastric Cancer, Microsurface Pattern, Histopathological Measurement

OE-0360 (PP-0250) Risk of Lymph Node Metastasis in Gastric Mucosal Cancer with Poorly Differentiated Histologic Component

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Background/Aims: The clinical feature of gastric mucosal cancer with mixed histology are incompletely understood. The aim of this study was to evaluate the frequency of lymph node metastasis (LNM) and to clarify the feasibility of endoscopic submucosal dissection (ESD) in mucosal cancer with mixed histology. Methods: We evaluated medical data of 600 patients with mucosal gastric cancer and 375 patients who were belong to expanded ESD indication who underwent surgical resection between 2008 and 2017. The tumors were histologically classified into purely differentiated type (DP), differentiated-predominant mixed (DM), undifferentiated-predominant mixed (UM) and purely undifferentiated types (UP).

Results: LNM was observed in 17 (2.83%) of the 600 patients with mucosal gastric cancer and was identified more frequently in UM (7.69%, 3 of 39), UP (3.86%, 9 of 233), and DM (5.40%, 2 of 37) compared with DP (1.01%, 3 of 291) (p = 0.024, 0.031, 0.100, respectively). LNM was observed in 7 (1.86%) of the 375 patients who were belong to expanded ESD criteria. LNM was detected more frequently in UM (25.0%, 1 of 4), UP (2.63%, 2 of 76) and DM (7.14%, 2 of 28) compared with DP patients (0.74%, 2 of 267) (p=0.044, 0.214, 0.046, respectively). There was no LNM in patients who were belong to absolute ESD indication. Conclusion: Gastric mucosal carcinoma with an undifferntiated component has more LNM than DP in expanded criteria. Physicians should be considered the risk of LNM in these cases, although the curative resection criteria was achieved after ESD.

Keywords: Lymph Node Metastasis, Gastric Mucosal Cancer
OE-0486 (PP-0251) The Study of the Correlative Factors of the Progressed Low-grade Gastric Intraepithelial Neoplasia
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**Background/Aims:** This study aims to explore the outcome of patients with LGIN, and to analyze the correlative factors of the progression group.

**Methods:** A total of 3308 patients were included, who were diagnosed as LGIN by endoscopic biopsy during 1980-2017, and have completed an endoscopic follow-up research for more than one year. The patient’s basic information, endoscopic appearance, and biopsy diagnosis of each time were collected. Patients found HGIN or gastric cancer during follow-up were categorized as the Progression Group, while others, as Non-progression Group. We calculated the progression rate, and analyzed the distributions of the clinical factors between two groups.

**Results:** (1) 114 of the 3308 patients progressed, and the progression rate is 3.4%. Among them, 68 patients were found gastric cancer, and the canceration rate is 2.0%.

(2) Uni-variate analysis showed that there were significant differences in progression between genders, ages, stages of lesion, locations, and with or without gastric ulcer, while, the duration of follow-up, with or without H.pylori, atrophy, intestinal metaplasia, duodenal ulcer, reflux esophagitis, stump, polyp, or varices had no statistic differences.

(3) Logistics regression analysis found that the stage of lesion, age, male gender, and gastric ulcer were the independent promotion factors of progression, female gender was the inhibition factor, and that LGIN in gastric angle, gastric stump, or in more than 2 locations were easier to progress.

**Conclusion:** The progression of LGIN is related with many clinical factors, patients with heavier first-diagnosis, male gender, aged, gastric ulcer, may have a higher risk of progression. Lesions in gastric angle, gastric stump, or more than 2 locations, may also easier to progress.

**Keywords:** Gastric Intraepithelial Neoplasia, Gastric Dysplasia, Gastric Cancer, Follow-Up

OE-0735 (PP-0252) Gender-specific gastric cancer mortality by age and body mass index
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Affiliation: Department of Internal Medicine-GI/Hepatology, Kyungpook National University Medical Center, Daegu, Republic of Korea

**Background/Aims:** There is rare report for the effect of body mass index on gastric cancer mortality. We evaluated gastric cancer mortality by age, sex, and body mass index (BMI).

**Methods:** Patients with gastric cancer were retrospectively enrolled from 2005 to 2013 in a single tertiary center and followed up until December 2017. To evaluate gender-specific gastric cancer mortality by age and body mass index, age and BMI were categorized. Age groups: <50yr, 50-60, 60-70, and ≥70yr. BMI groups by Asian-Pacific guideline; <18.5, 18.5-23, 23-25, 25-30, and ≥30 kg/m².

Cox regression analysis using hazard ratios (HRs) and 95% confidence intervals (CIs) was performed to assess gender-specific mortality by age and BMI.

**Results:** A total of 6005 gastric cancer patients (4007 men and 1998 women) underwent ESD (n=1056, 17.6%), gastrectomy with or without chemotherapy (n=4529, 75.4%), or palliative chemotherapy only (n=420, 7.0%). In adjusted analysis, mortality was higher in advanced stage (HR, 3.39; 95% CI, 3.16-3.67) and increased by aging (HR, 1.69; 95% CI, 1.57-1.82). Mortality was higher in low BMI (HR, 0.78; 95% CI, 0.72-0.84) and male sex (HR, 1.59; 95% CI, 1.36-1.85). In gender- and age-specific analysis, mortality was higher in women in less than 50 years, whereas mortality was higher in men in older than 50 years.

**Conclusion:** Gastric cancer mortality increased by aging and higher in low BMI and male sex. However, gender-specific analysis showed that mortality was higher in women in less than 50 years, whereas mortality was higher in men in older than 50 years.

**Grant:** This study was supported by the National R&D Program for Cancer Control, Ministry of Health & Welfare, Republic of Korea (1631100) and the National Research Foundation, Republic of Korea (NRF-2015R1D1A1A01059219).

**Keywords:** Gastric Cancer, Gender, Mortality, Age, Body Mass Index
OE-0739 (PP-0253) Prediction of Concurrent Chemo-radiotherapy Response in esophageal cancer using Primary organoid

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Background/Aims: Information for prediction factors of concurrent chemo-radiotherapy (CCRT) response has been limited. Patients-derived primary 3-dimensional cultured cells (organoids) have advantages in providing more physiologically relevant and predictive data for in-vivo response. Methods: Primary organoid was acquired from esophageal cancer before 1st CCRT start. After 7days cultured, same sized organoids were collected and were treated with 5-FU and 5Gy radiotherapy was provided. After 6days, primary organoids were stained and fluorescent images were captured. Clinical response was assessed after 4th cycle CCRT. Clinical response was classified as complete remission (CR), partial remission (PR), and disease progression (PD). Results: A total of 27 esophageal cancer patients were enrolled. Final success rate of primary organoids was 78% (21/27). CCRT response in primary organoids were evaluated in 21 cases. A total of 20 persons were followed up more than 4 cycles of CCRT and were analyzed. Clinical CR was observed in 12 persons and remained subjects showed clinical PR (n=6) or PD (n=2). Live activity was noted in less than 10% of primary organoids in all patients with clinical CR and was observed in 30-40% of primary organoids in all patients with clinical PD. Live activity was noted in less than 20-30% of primary organoids in all patients with clinical PR. Organoids from patients with clinical PD were immortal. They showed strong expression of stem cell marker (CD44, ICAM1, and ALDH1). Conclusion: It takes 2weeks to evaluate the CCRT response in primary organoids. High agreement between clinical response and response in primary organoids was observed. The evaluation of CCRT response in primary organoids will be a good predictor of clinical CCRT response.**Grant: This work was supported by Biomedical Research Institute grant, Kyungpook National University Hospital (2016) and National Research Foundation, Republic of Korea (NRF-2015R1D1A1A01059219).

Keywords: Esophageal Cancer, Organoid, Chemoradiotherapy, Stem Cell

OE-0779 (PP-0254) Succinate Dehydrogenase B as a Novel Prognostic Marker in Gastrointestinal Stromal Tumors

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Background/Aims: The clinico-pathologic heterogeneity in gastrointestinal stromal tumors (GISTs) is paralleled by underlying molecular diversity; majority are associated with KIT, PDGFRA or BRAF activating mutations. Additional subsets are driven by defect in NF1 or components of succinate dehydrogenase (SDH) enzymatic complex. This study was done to determine the prognostic indicators in GISTs and analyse the expression of immunohistochemical markers, along with assessment of their prognostic significance. Methods: Paraffin blocks of cases with clinical or morphologic suspicion of GIST, were evaluated immunohistochemically for expression of CD117, DOG1 and SDHB. The expression of these markers and other pathological features were correlated with overall survival. Results: A total of 67 mesenchymal tumors of the gastrointestinal tract (51 GISTs, 16 other neoplasms) were studied. The age group of patients with GIST ranged from 29 to 75 years, with a median age of 55 years and male preponderance (M:F-1.7:1). The commonest presenting feature was pain abdomen followed by abdominal lump. The commonest site of occurrence of GIST was gastric (commonest from posterior wall) followed by small intestine. The overall incidence of metastasis was 35.3%. The commonest morphology was unifocal, presence of necrosis, spindled cells, >5 mitotic figures/5mm² and high risk category. CD117 immunohistochemistry was positive in 88.2%, DOG 1 in 84.3% and SDHB in 96%. One case of SDHB-deficient GIST was of Carney Stratakis syndrome. 7.8% cases had another primary. The overall survival correlated significantly with tumor size at presentation, presence or absence of metastasis and necrosis, risk categorisation, SDHB expression and treatment modality. The commonest treatment offered was surgical resection along with imatinib therapy (49%), followed by surgical resection (27.4%) or imatinib alone (15.7%). Conclusion: It is prudent to perform SDHB IHC in GIST as expression correlates with prognosis. Also, syndromic associations can be determined.

Keywords: Gastrointestinal Stromal Tumors, Succinate Dehydrogenase, Immunohistochemistry, Imatinib, Prognosis
**OE-0801 (PP-0255) Time trends in gastric cancer over 16 years in Korea**  
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Affiliation: Departments of [1]Internal Medicine, [2]Pathology, [3]Division of Statistics in Medical Research Collaborating Center, Seoul National University Bundang Hospital, Seongnam-Si, Republic of Korea

**Background/Aims:** The incidence of gastric cancer (GC) of Korea is very high in the world. The aim of this study is to investigate trends of GC patients over 16 years.

**Methods:** 1227 patients with GC were prospectively enrolled at Seoul National University Bundang Hospital during 2003 to 2018. Age, sex, histologic type (Lauren classification), and Helicobacter pylori (HP) were compared among three periods (2003-2007, 2008-2012, and 2013-2018). HP infection status was evaluated by histology, CLO test, culture, serology, and history of HP eradication. **Results:** Most of GC patients underwent ESD or surgery. EGC and AGC were 769 (62.7%) and 458 (37.3%), respectively and intestinal and diffuse type were 714 (58.2%) and 485 (39.5%), respectively. The proportion of EGC increased from 54.0% (252/467), 63.5% (359/565) to 81.0% (158/195) in 2003-2007, 2008-2012, and 2013-2018, respectively. HP-positive decreased from 93.4% (436/467), 88.5% (500/565) to 82.1% (160/195), respectively during these three periods (p<0.001). Multivariate logistic analysis regarding diffuse type showed it significantly increased under age 50, female and smoking, but AGC decreased over time (Table). Family history of GC (OR, 0.420) and ever smoking (OR, 4.032) was higher at 2013-2018. However, there was no change in HP infection and alcohol (Table). **Conclusion:** Over 16 years, there are several change of trends of GC. The diffuse type GC became more common in young, AGC, and female patients. The proportion of EGC increased and HP infection decreased.

**Keywords:** Gastric Cancer, Trends, Lauren, Diffuse, Intestinal Multivariate analysis

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Background/Aims: To evaluate the feasibility and safety of endoscopic ultrasound (EUS)-guided 125-iodine seed implantation in patients with unresectable esophageal cancer and to explore the possibility of its replacing esophageal stenting.

Methods: We performed a prospective study on patients with unresectable esophageal cancer who refused traditional chemotherapy or radiotherapy since August 2017 to June 2018. 125-iodine seed (0.4 mCi/seed) was implanted into the esophageal cancer under EUS-guided with a rule of 10 seeds/cm.

Results: Total 5 patients with esophageal cancer underwent EUS-guided 125-iodine seed implantation. The median age of patients was 74 years old (69-82 years). The median number of 125-iodine seeds was 35/case (20-50/case). The success rate of implantation was 100% (5/5). There was no complication occurred after treatment among these patients. Before treatment, 3 patients had liquid diet only and 2 patients had semiliquid diet. After treatment, 4 patients could have a normal diet but one still had liquid diet 2 weeks after treatment. Follow-up endoscopy showed the tumor of 2 patients disappeared and 2 patients’ tumor shrank obviously, and 1 patient was still in follow-up.

Conclusion: EUS-guided 125-iodine seed implantation is a feasible, safe and promising option in patients with unresectable esophageal cancer. This novel therapy may replace traditional esophageal stenting to relieve dysphagia symptom as well as with high quality life.

Keywords: Esophageal Cancer, Endoscopic Ultrasound, Iodine 125 Seed

OE-0877 (PP-0257) Long-term outcome of endoscopic submucosal dissection for early esophageal squamous cancers in Taiwan

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Affiliation: Department of Department of Internal Medicine, E-Da Hospital, I-Shou University, Kaohsiung, Taiwan

Background/Aims: Endoscopic submucosal dissection (ESD) is gradually becoming the standard treatment for early esophageal squamous cell carcinoma (ESCC), but the long-term outcome is rarely reported outside Japan.

Methods: We consecutively enrolled patients with early ESCC who were treated with ESD at E-DA Hospital. The demographics, pathologic characteristics, and the Lugol-staining background pattern (type A or B: none or <10 small Lugol-voiding lesions (LVLs); type C or D: >10 small or multiniform LVLs) were recorded and then correlated to the outcome and survival.

Results: A total of 229 lesions were enrolled. The mean age was 54 (range 30-87) years, and the mean size of lesions was 3.28 ± 1.69 (range 1-10) cm. Seventy-two percent of them showed type C-D Lugol-staining pattern, and 93 extended more than half of the circumference. After ESD procedure, the en bloc, and R0 resection rates were 93.9% and 83.5%, respectively. Forty-nine subjects developed complications, including 6 (2.6%) major bleeding, 2 (0.9%) perforation, and 41 (17.9%) stricture. The pathological staging showed 19 cases invaded deeper than sm1, and adjuvant therapies were applied. During a mean follow-up period of 37.6 months (range 6-124), forty-one developed metachronous recurrence. Type C, D Lugol-staining background was associated with a higher recurrence risk than those with few LVLs (log-rank P=0.019). The 10-year survival was more than 90%, and only 8 patients died of ESCC. Conclusion: ESD procedure is associated with an excellent long-term outcome, but a high metachronous recurrence risk, which may be partly explained by field cancerization phenomenon.

Keywords: Esophageal Squamous Cell Carcinoma, Endoscopic Submucosal Dissection, Lugol Voiding Lesions, Recurrence, Survival
EE-0327 (PP-0258) Chemopreventive Effects of Silibinin on Colitis-associated Tumorigenesis by Inhibiting IL-6/STAT3 Signaling Pathway

Authors: JIAHENG MA; RONGJUAN ZHENG; DAN WANG; WENXIAO DONG; SINAN WANG; TIANYU LIU; RUNXIANG XIE; LI LIU; BANGMAO WANG; YUE SUN; LU LI; HAILONG CAO; KUI JIANG; BANGMAO WANG

Affiliation: [1]Department of Gastroenterology, General Hospital, Tianjin, China

Background/Aims: Inflammatory bowel diseases (IBD), characterized by sustained inflammation, is a latent risk factor of colon tumorigenesis. Silibinin has been reported to be anti-inflammatory and anti-neoplastic, but its efficacy on colitis-associated cancer (CAC) hasn’t been reported. Interferlin-6/signal transducer and activator of transcription 3 (IL-6/STAT3) is the key signaling pathway involved in CAC. We evaluated the chemopreventive effect of silibinin on a CAC mice model and determined its impact on IL-6/STAT3 signaling. Intestinal tumor cells (IMCE and HCT-116 cell lines) were also treated by graded concentration of silibinin, and cellular viability was determined. Methods: Silibinin (750mg/kg/day) was administered to an azoxymethane/dextran sulfate sodium (AOM/DSS) C57BL/6 mice model for 10 weeks by gavage. Body weight, colon length and the amount and diameter of colon tumors were documented, respectively. Specimens were subjected to H&E staining for colitis and tumor scoring, immunohistochemical staining and terminal deoxynucleotidyl transferase dUTP nick-end labeling for proliferation assessment, and immunofluorescent staining for mucosa barrier assessment. Production of inflammatory cytokines was determined by Realtime-PCR. IL-6/STAT3 pathway activation was evaluated through immunohistochemical staining and western blot. Results: Silibinin significantly inhibited the viability of intestinal tumor cells. The production of inflammatory cytokines and the phosphorylation of STAT3 were both inhibited in intestinal tumor cells. Meanwhile, silibinin decreased the amount and size of tumors in AOM/DSS mice. Colitis and tumor score were decreased accompanying with inhibition of colon tumor cells proliferation and promotion of cellular apoptosis. Additionally, silibinin could reduce the production of inflammatory cytokines and attenuate the impairment of colon mucosal barrier. Furthermore, STAT3 phosphorylation was significantly suppressed by silibinin. Conclusion: In conclusion, silibinin could protect against colitis-associated tumorigenesis in mice via inhibiting IL-6/STAT3, which showed promising chemopreventive potential of CAC. Keywords: Silibinin, Chemoprevention, Colitis-Associated Cancer, Interleukin-6/signal Transducer And Activator Of Transcription 3, Inflammatory Bowel Diseases

OE-0821 (PP-0259) Prenatal maternal stress induced intestinal low grade inflammation and impaired intestinal development of offspring mice

Authors: YUE SUN; LU LI; HAILONG CAO; XIAOCANG CAO; KUI JIANG; BANGMAO WANG

Affiliation: [1]Department of General Hospital, Tianjin Medical University, China, Department of Gastroenterology and Hepatology, Tianjin, China

Background/Aims: Adverse exposures or beneficial interventions in early life have been recorded to have long-term effects on the intestinal health of future generations, possibly through the establishment of gut microbiota and developmental programming. Psychological stress is known to cause intestinal inflammation. However, whether prenatal maternal stress (PNMS) will also induce the intestinal inflammation and impair intestinal development of the next generation remains elusive. The present study was to determine the effects of exposure to PNMS on intestinal development of offspring mice. Methods: C57BL/6 pregnant dams were subjected to repeated restraint stress from gestational day 10 to day 18, and their offspring were assessed at 3 weeks of age. Intestinal epithelial cell differentiation, proliferation, tight junction and barrier integrity were evaluated as indicative of intestinal development. Moreover, intestinal inflammatory cytokines and intestinal microbiota composition and abundance were also determined in the infants. Results: A significant increase of inflammatory cytokines in PNMS mice intestine suggested that low grade of inflammation was induced, while HE staining showed no macroscopic inflammation in both groups. HE staining showed that 3-week old PNMS pups had an impaired development of intestinal and colon. The serum level of FITC-D in PNMS pups was considerably higher, suggesting an increased intestinal permeability. What’s more, intestinal epithelial cell proliferation, goblet cell differentiation and tight junction formation were obviously decreased in PNMS mice. Conclusion: The exposure of PNMS could impair intestinal development of offspring by inducing low grade intestinal inflammation, which might have a lasting negative impact of adult intestinal health. Keywords: Early Life, Stress, Inflammation, Microbiota
EP-0033 (PP-0260) Protection of indomethacin-induced gastric mucosal injury with ethanolic extract of perilla leaf

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Affiliation: Departments of [1] Physiology, School Of Medical Sciences, [2] Biochemistry & Molecular Biology, School Of Medical Sciences, University Of Phayao, Phayao, and [3] Department of Pathology, Faculty Of Medicine, Chiang Mai University, Chiang Mai, Thailand

Background/Aims: Nonsteroidal anti-inflammatory drugs are the most commonly prescribed drugs in the world and used as anti-inflammatory drugs. However, this agents have problems of gastric injury. There are many drugs used for gastric ulcer treatment, the majority of them exhibit adverse events and ulcer relapse. Thus, natural products with fewer side effects are highly requested to protective its gastric injury effect. Perilla frutescens or Ngamon leaf is a rich source of rosmarinic acid with anti-inflammatory and antioxidant properties. Therefore, the aim of this study was to investigate the protective effects of ethanolic extract of perilla leaf (EPL) against indomethacin (IND)-induced gastric mucosal injury in rats.

Methods: Wistar rats were pretreated with EPL at 50 and 500 mg/kg body weight, famotidine (reference drug) at a dose of 20 mg/kg body weight once daily for 14 days prior to ulcer induction. Gastric ulcers were induced by a single oral gavage of IND 40 mg/kg body weight. At the end of the experiment, gastric tissue and biological parameters were analyzed. Results: The pretreatment with EPL significantly decreased ulcer index, gastric secretion volume, but increased gastric pH relative to IND-induced gastric mucosal injury. Histologically, EPL significantly decreased mucosal injury, inflammatory infiltration and degenerative lining cells. Pretreatment with EPL preserved mucusand protected apoptosis of gastric mucosal injury by IND. Furthermore, IND-induced expression of inflammatory mediators were all significantly attenuated with EPL pretreatment such as TNF-α, IL-1β and IL-6. Conclusion: Our results strongly suggest that EPL is capable of protective effect on IND-induced gastric mucosal injury via anti-inflammatory mechanisms. EPL should be further developed to be a potential dietary supplement against gastric inflammation and ulcer.

Keywords: Perilla Leaf, Rosmarinic Acid, Gastric Ulcer, Anti-Inflammatory, Indomethacin

OE-0030 (PP-0263) miR-877-5p involved in aspirin-induced injury via regulating PDK1 expression in gastric epithelial cells

Authors: WEIWEI HAN; ZONGDAN JIANG; CHAO LI; LUXUAN TAN; ZHENYU ZHANG

Affiliation: Department of Department of Gastroenterology, The Affiliated Nanjing Hospital of Nanjing Medical University (Nanjing First Hospital), Nanjing, China

Background/Aims: Aspirin is one of the most used NSAIDs due to its particular anti-platelet action, which is very valuable in the prevention of atherothrombotic disease. The main shortcoming of aspirin is the gastrointestinal toxicity, which ranges from mild upper gastrointestinal problems to peptic ulcer disease and its complications. Several microRNAs have been found associated with the anti-inflammatory, anti-platelet and anti-cancer effects of aspirin. It was reported that the levels of hsa-miR-877-5p was significantly elevated in the serum samples of APAP overdosed patients. 3-phosphoinositide-dependent protein kinase-1 (PDK1) was also reported to be involved in the anti-inflammatory effect of NSAIDs. However, it is still unclear about the expression level and the role of miR-877-5p in aspirin-induced gastrointestinal damage and the relationship of miR-877-5p and PDK1.

Methods: miR-877-5p was measured by quantitative real-time PCR (qRT-PCR) after human Gastric epithelial cells (GES-1) incubated with different concentrations (1.25, 2.5, 5, and 10nmol/L) of aspirin. CCK-8 assay was used to detect cell proliferation, flow cytometry analysis was used to detect cell apoptosis. bioinformatics analysis was used to predict the potential mRNA target of miR-877-5p, then dual-luciferase reporter assay was used to confirm the target association. The expression of PDK1 was measured by qRT-PCR and Western blotting. Results: miR-877-5p level was significantly increased in GES-1 after stimulation with aspirin, continuously increased with aspirin concentrations (p<0.05). The over-regulation of miR-877-5p attenuated the proliferative capacity and enhanced the apoptosis of GES-1 cells. PDK1 was a target gene of miR-877-5p and was down-expression in aspirin-treated GES-1 cells. The Western blotting showed that the expression of PDK1 could be downregulated by miR-877-5p overexpression. Conclusion: miR-877-5p could directly target to repress PDK1 expression involving in aspirin-induced GES-1 cells damage.

Keywords: Aspirin, Gastrointestinal Damage, Mir-877-5p, Pdk1, Ges-1 Cells
OE-0604 (PP-0264) The Mechanism of tobacco derivatives protects against DSS colitis through regulating Na-K-ATPase
Authors: JIALIN HE; HONG GUO; HUI DONG
Affiliation: Department of Internal Medicine-GI/Hepatology, Xinqiao Hospital, Army Medical University, Chongqing, China

Background/Aims: Ulcerative colitis (ulcerative colitis) is a life-long disease caused by interaction of gene and environmental factors. The type of diarrhea caused by ulcerative colitis is a type of absorption disorder in secretory diarrhea. The ATPase function is down and the concentration of Na+ ions in the epithelial cells is elevated, resulting in a decrease in the reabsorption of sodium water from the apical membrane. The mechanism of the regulation of Na-K-ATPase function on the basal membrane side of the cell reveals the effect of tobacco derivatives on the secretion and absorption of colonic epithelial cells. Methods: Ussing Chamber (multichannel current voltage clamp) is an important technology for the study of trans-epithelial cell ion transport, which can be used in the study of ion transport, transport of nutrients and drug transport. Results: We successfully constructed ulcerative colitis model by feeding C57 mice with 4% DSS and constructed the mice model of smoking ulcerative colitis by subcutaneous injection of nicotine. The expression of Na-K-ATPase in colonic tissue of ulcerative colitis mice was down regulated by immunofluorescence and immunohistochemistry. The Na-K-ATPase expression in the ulcerative colitis mice was also downregulated. It was proved that the expression of Na-K-ATPase was up and the function was enhanced in the mice with ulcerative colitis in smoking colitis mice. Conclusion: The expression and function of Na-K-ATPase in ulcerative colitis mice were significantly reduced; the expression and function of Na-K-ATPase in smoking ulcerative colitis mice were significantly enhanced; the main component of NNK in tobacco could further enhance the expression and function of Na-K-ATPase in ulcerative colitis mice; Na-K-ATPase could be used as a treatment for UC diarrhea. The target of drug action of symptoms is that its enhanced function can enhance the reabsorption of Na+ and water in colon epithelial cells, thereby reducing diarrhea symptoms. Keywords: Ulcerative Colitis, Tobacco Derivatives, Smoking, Na-KAtPase

OE-0745 (PP-0266) Intracellular Asporin promotes the metastasis of colorectal cancer by enhancing EMT via TGF-beta/Smad2/3 pathway
Authors: HENCUN LI; ZHENG ZHANG; LI MIN; SHUTIAN ZHANG
Affiliation: Department of Department of Gastroenterology, Beijing Friendship Hospital, Capital Medical University, China

Background/Aims: Asporin (ASPN) was reported as an oncogene in gastric, prostate, and pancreas cancer in numerous studies. However, previous studies mainly focused on the function of ASPN as an extracellular matrix component, with intracellular ASPN has yet to be further studied. Methods: Immunohistochemistry and bioinformatic analysis were implemented to detect the expression of ASPN in both colorectal cancer (CRC) and normal tissues. To examine the function of ASPN in colorectal cancer cells, cell invasion and migration assays were carried out using RKO and HCT-8 cell lines. Interaction between ASPN and Smad2/3 was demonstrated by co-immunoprecipitation (co-IP) and further validated by immunofluorescence co-localization. The expression of Smad2/3 downstream Epithelial-Mesenchymal Transition (EMT) related molecules was detected by q-PCR. To validate the effect of ASPN in the development of CRC via TGF-beta pathway, rescue assay was performed. Results: The expression of ASPN in CRC was significantly higher than adjacent normal tissues. The overexpression of ASPN in CRC patients related to a worse clinical prognosis. We demonstrated that ASPN enhances cell migration and invasion via TGF-beta pathway, both in RKO and HCT-8 cell lines. Furthermore, we found the interaction between ASPN and Smad2/3, and ASPN could promote the expression of EMT related molecules by facilitating Smad2/3 entering nucleus. Necessity of TGF-beta pathway for the metastasis promoting effect of ASPN was validated by rescue assays. Conclusion: ASPN enhances the metastasis of CRC cells by activating TGF-beta/Smad2/3 signaling. The higher expression of ASPN indicates a worse clinical prognosis in CRC patients. Keywords: Asporin, Smad2/3, Tgf-Beta, Metastasis, Colorectal Cancer
OE-0771 (PP-0267) Synergistic effect of pantoprazole and docetaxel to inhibit EMT via induction of SHP-1 in gastric cancer cells

Authors: SUNGHEE KAM[1]; MOON KYUNG JOO[1]; JIN SUNG KOH[1]; BEOM JAE LEE[1]; JONG-JAE PARK[1]; HOON JAI CHUN[2]; SANG WOO LEE[3]

Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Korea University Guro Hospital, [2]Department of Internal Medicine-GI/Hepatology, Korea University Anam Hospital, Seoul and [3] Department of Internal Medicine-GI/Hepatology, Korea University Ansan Hospital, Ansan, Republic of Korea

Background/Aims: In this experimental study, we aimed to investigate the synergistic effect of pantoprazole and docetaxel to inhibit signal transducer and activator of transcription 3 (STAT3) activity and epithelial-mesenchymal transition (EMT), and the role of SH2 domain-containing phosphatase-1 (SHP-1) in gastric cancer. Methods: We performed wound closure assay, Matrigel invasion assay and 3-D spheroid culture for functional studies of EMT, and western blot by using AGS cells. Xenograft tumor assay, Matrigel invasion assay and 3-D spheroid culture for functional studies of EMT, and western blot by using AGS cells. Xenograft tumor model showed that co-administration of both drugs. Xenograft tumor and/or docetaxel was administrated via intraperitoneal injection. Results: Combination of minimal dose of pantoprazole (40 μM) or docetaxel (50 nM) downregulated the p-STAT3 and upregulated SHP-1, which was not observed in single administration. Combination of both drugs also downregulated mesenchymal marker (Snail1, vimentin) and upregulated epithelial marker (E-cadherin), and significantly inhibited cellular migration and invasion compared with single administration. To validate the role of SHP-1 in inhibition of STAT3 activity, we transfected SHP-1 siRNA before treatment of pantoprazole and docetaxel, and this significantly downregulated SHP-1 expression and upregulated p-STAT3. We observed that transfection with SHP-1 siRNA significantly attenuated anti-migration and invasion effect by combination of both drugs. Xenograft tumor model showed that co-intraperitoneal injection of pantoprazole (40mg/kg weekly) and docetaxel (3mg/kg weekly) significantly reduced the tumor volume, which was not observed by single administration of each drug. Conclusion: Our findings suggest that pantoprazole may have synergism with docetaxel to induce anti-EMT effects via induction of SHP-1 and inhibition of STAT3 activity in gastric cancer cells.

Keywords: Pantoprazole, Docetaxel, Epithelial-Mesenchymal Transition, SH2-containing Protein Tyrosine Phosphatase 1, Signal Transducer And Activator Of Transcription 3

OE-0933 (PP-0268) HER2 regulates the cancer stem cell activities by Wnt signaling pathway in gastric cancer cell

Authors: DA HYUN JUNG[1]; YOO JIN BAE[1]; JIE-HYUN KIM[1]; YOU KEUN SHIN[2]; HEI-CHEUL JEUNG[2]

Affiliation: Departments of [1]Internal Medicine-GI/Hepatology, [2] Internal Medicine, Gangnam Severance Hospital, Seoul, Republic of Korea

Background/Aims: The HER2 gene is amplified in about 20% of human gastric cancers and is associated with prognosis. The previous study showed that HER2 overexpression in breast carcinoma cell lines drives mammary carcinogenesis, tumor growth and invasion through its effects on mammary stem cells. Therefore, we investigated the role of HER2 in the regulation of cancer stem cell (CSC) activity using HER2 transfected gastric cancer cell lines. Methods: HER2 was transfected into gastric cancer cell MKN-28 to investigate its role on regulating CSC activity. Western blotting was used to measure the levels of HER2, CSC markers, and epithelial to mesenchymal transition (EMT) markers in gastric cancer cell lines. Sphere formation assay and transwell migration assay were performed. Wnt/β-catenin signaling activity was measured by luciferase assay. Results: The size of spheres and frequency of sphere formation significantly increased in HER2-overexpressing MKN-28 as compared to the MKN-28 controls. The HER2-transfected cells more expressed the CSC markers Oct4 and Bmi1 than controls. The EMT process in generally accompanied with an enhancement in cellular invasion and migration. We observed that the level of E-cadherin was dramatically downregulated and a mesenchymal marker snail upregulated in the HER2 transfected cells. And, transfected cells displayed a remarkable capacity to invade through a matrigel. We investigated the HER2 related signal interaction. Overexpression of HER2 activated the well-characterized CSC-associated pathway Wnt/β-catenin signaling. Conclusion: These studies establish a role for HER2 in the regulation of gastric CSC activity and show that Wnt/β-catenin signaling is mediated via a HER2 dependent pathway. Combining Wnt inhibitors with current HER2-targeted therapies has potential as an effective therapeutic strategy to reduce CSC activity in gastric cancer and improve the survival of HER2-positive patients.

Keywords: Her2, Gastric Cancer, Wnt, Cancer Stem Cell, Epithelial To Mesenchymal Transition
**OE-0967 (PP-0269) Hemostatic and wound healing effects of a catechol-conjugated chitosan hemostatic pad after endoscopic mucosal resection in porcine model**

**Authors:** JU SUNG KIM; MUGE USTAOGLU; GA WON SONG; IN KYUNG YOO; WON HEE KIM; SUNG PYO HONG; JOO YOUNG CHO

**Affiliation:** Department of Internal Medicine-GI/Hepatology, Bundang CHA, Seongnam, Republic of Korea

**Background/Aims:** Gastrointestinal bleeding is the common problem in daily clinical practice. InnoSEAL Plus® is a sheet-type hemostat that is made of a mussel-inspired catecholic adhesive material. It can stop a variety of bleedings in a coagulopathy independent manner. The aim of this study was to evaluate hemostatic efficacy of the catechol-adhesive sheet on gastric ulcer bleeding on porcine model.

**Methods:** In a total of 15 pigs, iatrogenic ulcer bleedings were made using endoscopic mucosal resection method. Five minutes before intervention the pigs were given full weight-adjusted heparin. Four ulcer bleedings (Forrest Ib) were made per 1 pig, and one of them was not treated as a negative control (NC) group. The other ulcers were treated with gauze compression (GC), argon plasma coagulation (APC), and InnoSEAL Plus® respectively. Initial hemostasis and recurrent bleeding were recorded.

**Results:** Initial hemostasis achievement at 2 minutes after the treatment was 14 of 15 (93.3%) with InnoSEAL Plus® group while 1 of 15 (6.7%) of NC group, 2 of 15 (13.3%) of GC group, and 13 of 15 (86.7%) of the APC group. There was no recurrent bleeding in InnoSEAL Plus® group. Recurrent bleedings were occurred in NC group (n=2), GC group (n=1), and APC group (n=2) on day 1. One in APC group also showed recurrent bleeding on day 5.

**Conclusion:** InnoSEAL Plus® has hemostatic efficacy to stop Forrest I b bleeding in pigs receiving anticoagulant therapy. This could be new endoscopic treatment for GI bleedings.

**Keywords:** Gastrointestinal Bleeding, Endoscopic Treatment, Mussel Adhesion

**EE-0024 (PP-0270) Pancreatic Tuberculosis Presenting As Pancreatic Mass In A Young Immunocompetent Patient: A Case Report**

**Authors:** KARLA MIA GARCIA VILLENA; LOVELL BALUTE GATCHALIAN; MICHAEL ANGELO VILLANUEVA CHU; FELIX LUCERO DOMINGO; MARICHONA CRUZ NAVAL

**Affiliation:** [1]Department of Internal Medicine-GI/Hepatology, East Avenue Medical Center, Quezon City, Philippines

**Background/Aims:** Pancreatic tuberculosis is a rare clinical condition, even in endemic regions. Definitive diagnosis rests on histopathological and bacteriological evidence of tuberculosis, either through image-guided interventions or surgery thus, making its diagnosis and management a challenge. We report here an unusual case of pancreatic tuberculosis in a young immunocompetent patient who presented with a pancreatic mass.

**Methods:** A 24-year-old, Filipino gentleman with no known immunodeficiency and no history of prior tuberculosis, came in due to 3-week history of non-specific abdominal pain and a pancreatic mass noted upon work-up. Physical examination was unremarkable.

**Results:** Abdominal imaging revealed a heterogeneously enhancing, predominantly cystic mass in the pancreatic head and body, with encasement of common hepatic artery and multiple lymphadenopathies. Exploratory laparotomy with gastrojejunostomy, lymph node biopsy, pancreatic mass aspirate and drainage was performed with noted caseation intra-operatively. Histopathologic analysis revealed chronic granulomatous inflammation with caseation necrosis and Langhans’ type multinucleated giant cells. Mycobacterium tuberculosis was detected in PCR assay and AFB staining of pancreatic mass aspirate. Antimycobacterial therapy was given for 9 months, which provided subsequent symptom relief and significant regression of pancreatic mass and lymphadenopathies.

**Conclusion:** There should be a growing awareness of pancreatic TB as an important differential diagnosis of pancreatic malignancy, especially in endemic areas for TB in younger patients. Although presenting and radiological features are non-specific, and without evidence of tuberculosis elsewhere, high index of suspicion is warranted to make an appropriate diagnostic approach and avoid unnecessary surgery.

**Keywords:** Case Report, Isolated Pancreatic Tuberculosis, Pancreatic Tb, Pancreatic Mass

Authors: KWANG YEON KIM; TAE HYEONG KIM; JIN SOO MOON; JAE SUNG KO
Affiliation: [1]Department of Pediatrics-Gastroenterology, Seoul National University Hospital, Seoul, Republic of Korea

Background/Aims: Dubin Johnson syndrome (DJS) is an autosomal recessive disorder that produces conjugated hyperbilirubinemia. The excretion mechanism of conjugated bilirubin is disturbed by mutation of the adenosine triphosphate-binding cassette subfamily C member 2 (ABCC2) gene. DJS is rarely diagnosed in the neonatal period. The aim of this study was to investigate mutation analysis and biochemical features of neonatal DJS. Methods: From May 2013 to April 2018, 132 infants with neonatal cholestasis at Seoul National University Hospital were enrolled. Diagnosis of DJS was confirmed by ABC22 genetic study. Direct bilirubin (DB), total bilirubin (TB), DB/TB ratio, aspartate transaminase (AST), alanine transaminase (ALT) and γ-glutamyltransferase (GGT) were evaluated in all infants with neonatal cholestasis. Results: Three infants (2.3%) were diagnosed with DJS. Homozygous or compound heterozygous pathogenic variants of ABCC2 were identified in all patients, representing 5 distinct pathogenic variants (c.2439+2T>C, p.Arg768Trp, p.Arg100Ter, p.Arg1310Ter, and p.Tyr119SfsTer34). Serum DB (mean 9.2 mg/dL, range 7.0–11.0 mg/dL) and TB (mean 13.7 mg/dL, range 12.0–15.6 mg/dL) were significantly higher in infants with DJS than those with the other causes of neonatal cholestasis (p=0.008 and p=0.002, respectively). The levels of AST (mean 38 IU/L, range 25-61 IU/L) and ALT (mean 16 IU/L, range 15-17 IU/L) were normal and significantly lower in DJS infants (p=0.024 and p=0.036, respectively). There were no significant difference in DB/TB ratio and GGT (both p>0.05). Serum DB decreased gradually with age (last follow up; mean 0.9 mg/dL, range 0.7–1.2 mg/dL). Conclusion: When AST and ALT are normal in infants with neonatal cholestasis, genetic testing of DJS should be considered. Keywords: Dubin Johnson Syndrome, Neonatal Cholestasis, Bilirubin

OE-0063 (PP-0273) SINGLE CENTRE INITIAL EXPERIENCE OF EUS-GUIDED GALLBLADDER DRAINAGE USING A LUMEN APPOSING METAL STENTS (LAMS), FOR NONSURGICAL CANDIDATES

Authors: ADEEL URREHMAN; CHRISTOPHER JL KHOR; YUNG KA CHIN; RAVISHANKAR ASOKKUMAR; DAMIEN MY TAN
Affiliation: Department of Internal Medicine-Gastroenterology, Singapore General Hospital, Singapore, Singapore

Background/Aims: EUS guided gallbladder (GB) drainage is now becoming a viable alternative to percutaneous GB drainage with favourable clinical success rates and potentially fewer adverse events. Methods: Patients with cholecystitis who were not surgical candidates underwent EUS guided GB drainage in a single centre from April 2017 till OCT 2017. LAMS 15mmx10mm with electrosurgery-enhanced delivery system were used in all patients. Results: Total of 6 patients underwent endoscopic GB drainage. Median age 65 years (range, 58-93). Three patients had severe cardiovascular disease and rest had advanced hepatobiliary malignancy. Cholecystitis was graded moderate in three patients and mild in three per the Tokyo guidelines. Out of the six GB drainage cases; three were performed as primary GB drainage and three were performed as endoscopic internalisation of prior percutaneous biliary drainage. LAMS deployment was technically successful in four patients. Two patients had contrast extravasation on initial filling of GB via percutaneous drain and after needle puncture respectively. As the GB was not distended in each case, the respective procedures were aborted and referred for surgical management. Of the four deployed stents, one had the proximal migration of GB via percutaneous drain and after needle puncture respectively. As the GB was not distended in each case, the respective procedures were aborted and referred for surgical management. Of the four deployed stents, one had the proximal flange obstructing the pylorus and this was treated with another LAMS deployed at the pylorus to prevent gastric outlet obstruction. There was no periprocedural complication. Median duration of the successful procedures was 33.5 min (20-83). Three patients had advanced malignancy, so the LAMS was left permanently. One patient had transmural stone extraction through the LAMS. During this procedure a stone migrated into the common bile duct. This patient underwent ERCP and LAMS removal at one month after placement. One patient had severe abdominal pain due to post-procedure bile leak, and treated conservatively with intravenous antibiotics. The overall success rate was 67% (4/6). Conclusion: GB drainage using LAMS with electrosurgery-enhanced delivery system is technically feasible in non-surgical candidates with cholecystitis. Keywords: Gb Drainage, Endoscopic Ultrasound, Cholecystitis, Lumen Apposing Metal Stents
**OE-0338 (PP-0274) Validating A Predictive Model for The Use of Coronary Angiography in Pre-Liver Transplant Cardiac Evaluation**

**Authors:** JESEREEN KAUR CHEEMA[4]; JIA HAO LAW[1]; NING QI PANG[1]; TERRY PAN[2]; RAYMOND WONG[3]; GLENN BONNEY[1]; SHRIDHAR IYER[1]; KRISHNAKUMAR MADHAVAN[1]; ALFRED KOW[1]

**Affiliation:** Departments of [1]Surgery, [2]Anesthesiology, [3]Internal Medicine-Cardiology, National University Health System, Singapore, and [4]Department of Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Singapore

**Background/Aims:** Thorough cardiac evaluation during pre-liver transplantation is essential to ensure that the risk of transplant operation is minimized. Proper selection can reduce the number of unnecessary coronary angiograms (CA). A predictive model was created by the National University Center for Organ Transplant (NUCOT) in Singapore for selection of LT candidates for CA. In this study, we seek to prospectively validate this predictive model to identify LT candidates who require CA.

**Methods:** Among 135 LT candidates who completed cardiac evaluation, 108 underwent CA based on existing protocol. Our predictive model employed a probability score of abnormal CA of P<0.25 to indicate that the CA was unnecessary. One third of these patients (n=16, 32.7%) had P<0.25, and could have avoided CA. This could reduce the number of pre-LT patients who underwent CA from 49 to 33. The predictive model (P<0.25) missed 4 (6.8%) patients with abnormal CA, but all of them had mild CAD which did not require any intervention. Of those who had significant CAD, 3 of 10 patients (30.0%) with moderate CAD and all 14 patients (100.0%) with severe CAD underwent preoperative revascularization (all underwent PCI except one who had CABG).

**Conclusion:** The predictive model reduced the number of unnecessary CA by 32.7% and did not fail to identify any patient with significant CAD. This model is useful in guiding the selection of pre-LT patient for CA and we propose its routine use in LT patients.

**Keywords:** Liver Transplantation, Cardiac Evaluation, Coronary Angiogram

**OE-0552 (PP-0275) Comparison of the diagnostic performance of new torque technique by twisting the scope with standard technique for EUS-guided tissue acquisition in solid pancreatic lesions: A multicenter prospective randomized study**

**Authors:** SE WOO PARK[1]; SANG SOO LEE[2]

**Affiliation:** [1]Department of Internal Medicine-GI/Hepatology, Dongtan Sacred Heart Hospital, Hwaseong-Si, and [2]Department of Internal Medicine-GI/Hepatology, Asan Medical Center, Seoul, Republic of Korea

**Background/Aims:** Although several techniques including fanning technique for improved outcomes in endoscopic ultrasound (EUS)-guided tissue acquisition have been reported, the reported diagnostic yield for pancreatic masses is not satisfactory. The effects of novel technique (torque method) on twisting the scope in the clockwise or counter clockwise direction during EUS-fine needle biopsy (EUS-FNB) in unknown. We compared the diagnostic yield of EUS-FNB for pancreatic masses using the torque and standard techniques.

**Methods:** From 20 April, 2017 to 16 March, 2018, 124 consecutive patients with solid pancreatic mass who underwent EUS-FNB using eigher the torque or standard technique were randomly assigned. Three passes were made with each technique, comprising 10 uniform to-and-fro movements on each pass with a 10-mL syringe suction. The primary outcome was procurement rates of histologic cores; the secondary outcomes were the diagnostic performance and technical failure.

**Results:** There were significant differences between the groups regarding the procurement rate of the histologic core and optimal quality core (standard vs. torque: 87.1% [54/62] vs. 98.4% [61/62], p=0.038 and 79.0% [49/62] vs. 93.5% [58/62], p=0.037). The sensitivity, specificity, positive predictive value, and negative predictive values of EUS-FNB were 85.45%, 100%, 100%, and 46.67%, respectively, for the torque technique. The diagnostic accuracies of the standard and torque techniques were 87.10% and 96.77%, respectively.

**Conclusion:** The torque technique for EUS-FNB offered acceptable technical feasibility and superior diagnostic performance, including optimal histologic core procurement, compared with the standard technique.

**Keywords:** Eus-Fnb, Torque, Histologic Core, Tissue Acquisition, Solid Pancreatic Lesion

<table>
<thead>
<tr>
<th>Table 1 Diagnostic performance</th>
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<tr>
<td>Number of biopsy pieces, (mean ± SD)</td>
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<tr>
<td>Presence of histologic core, n (%)</td>
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<tr>
<td>Optimal histologic core, n (%)</td>
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<tr>
<td>Possibility for IHC stains, n (%)</td>
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<tr>
<td>Final diagnosis, n (%)</td>
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<tr>
<td>- Ductal adenocarcinoma</td>
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<tr>
<td>- Pancreatic NET</td>
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<tr>
<td>- Chronic pancreatitis</td>
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<tr>
<td>- Lymphoma</td>
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<td>- Small cell carcinoma</td>
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<tr>
<td>- Solid pseudo-papillary neoplasm</td>
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<td>- Metastatic cancer (from lung cancer)</td>
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<tr>
<td>- IPMN without malignant transformation</td>
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<td>Diagnostic performance, % (95% CI)</td>
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<td>Sensitivity</td>
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<td>Specificity</td>
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<td>Accuracy</td>
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IHC, immunohistochemical; NET, neuroendocrine tumor; IPMN, intraductal papillary mucinous neoplasm
OE-0621 (PP-0276) Accuracy and excellence of the three-dimensional analysis in computed tomography on pancreatic cancer

Authors: SEUNG BAE YOON[1]; MOON HYUNG CHOI[2]; IN SEOK LEE[1]; JU HYUN LEE[1]; TAE HO HONG[3]; MYUNG AH LEE[4]; MEIYING SONG[4]; MYUNG-GYU CHOI[1]


Background/Aims: Although pancreatic cancer has irregular shape in three-dimensional (3D), when T staging by imaging, only the axial plane is generally used to measure the largest diameter of. We analysed the size of the pancreatic cancer from multi-plane and 3D reconstructed CT images and investigated their clinical usefulness.

Methods: Patients who underwent surgery for pancreatic adenocarcinoma from 2009 to 2016 were included in this study. We measured the largest diameter of pancreatic cancer in axial, coronal, and sagittal planes of CT. In addition, semi-automated segmentation was performed and three-dimensional (3D) maximal diameter and cancer volume were obtained. The obtained data were compared with the actual pathology report and the effect of each value on prognosis was analyzed by receiver operating characteristics (ROC) curves.

Results: A total of 183 patients were analyzed and the maximal pathologic diameter of cancer was 3.4 ± 1.4 cm. The maximal diameters measured in axial, coronal, and sagittal planes were 2.9 ± 1.1, 3.2 ± 1.0, and 3.2 ± 0.9, respectively, which were significantly smaller than pathologic data. The longest diameter among measured on the 3 planes (3.4 ± 1.1) were not significantly different from that of pathologic report. Cancer volume demonstrated the higher area under the ROC in predicting early death within 18 months than any measured diameter.

Conclusion: The diameter of pancreatic cancer needs to be measured on all of axial, coronal, and sagittal planes of CT. Cancer volume had a stronger correlation with overall survival than cancer diameter.

Keywords: Pancreatic Cancer, Three-Dimension, Volume, Diameter, Computed Tomography

Figure 1

OE-0661 (PP-0277) Optimal Follow-up of Incidental Pancreatic Cystic Lesions: Clinical Outcome After Long-term Follow-up

Authors: DONG-WON AHN[1]; SANG-HYUB LEE[2]; WOO HYUN PAIK[2]; JI BONG JEONG[1]; JI KON RYU[2]; YONG-TAE KIM[2]

Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Seoul National University Boramae Medical Center and [2]Department of Internal Medicine-GI/Hepatology, Seoul National University Hospital, Seoul, Republic of Korea

Background/Aims: Although it is generally accepted that cystic lesions in the pancreas (CLPs) 3 cm or less in size and without features suggesting malignancy can be managed conservatively with follow-up, the optimal duration and interval of follow-up for CLPs is not yet well established. This study was performed to investigate the optimal duration and interval of follow-up for CLPs in clinical practice.

Methods: Patients with CLPs 3 cm or less in size and without high-risk stigmata or worrisome features received follow-up with computed tomography at 6, 12, 18, and 24 months and then per 12 months. A retrospective analysis with prospectively collected data was performed.

Results: A total of 253 patients with CLPs detected from 2004 to 2014 (initial mean size, 1.3±0.6 cm) received follow-up during the median period of 80.9 months. Within the first 12 months of follow-up, no patients experienced the growth of cyst or the development of surgical indication and three patients (1.2%) underwent simultaneous surgery for another intra-abdominal lesion. A total of 20 patients underwent surgery during follow-up and two malignant cysts were detected. Overall rate of malignant progression during follow-up was 0.8%. In these two cases with malignancy, the malignancy progression occurred after 62 months and 69 months of follow-up. Development of surgical indications did not occurred within 36 month of follow-up.

Conclusion: Long-term follow-up more than 5 year should be performed because of the potential for malignant transformation of CLPs. The 12 months interval of follow-up for asymptomatic CLPs might be sufficient in clinical practice. For the first follow-up, the 24 months interval might be sufficient in CLPs 2 cm or less in size.

Keywords: Pancreatic Cyst, Natural History
OE-0798 (PP-0278) Real-time monitoring of radiofrequency ablation and postablation assessment using contrast-enhanced harmonic EUS.

Authors: JUN HO CHOI[1]; DONG WAN SEO[2]; TAE JUN SONG[2]; DO HYUN PARK[2]; SANG SOO LEE[2]; SUNG KOO LEE[2]; MYUNG HWAN KIM[2]

Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Dankook University Hospital, Cheonan, and [2]Department of Internal Medicine-GI/Hepatology, Asan Medical Center, Seoul, Republic of Korea

Background/Aims: The evaluation of the therapeutic response to radiofrequency ablation (RFA) extremely important for correctly deciding whether further treatment is necessary. The purpose of this study was to assess the usefulness of contrast-enhanced harmonic EUS (CH-EUS) in monitoring early treatment response to EUS-guided radiofrequency ablation (EUS-RFA).

Methods: In a single-center prospective study, sixteen lesions were treated by EUS-RFA, and CH-EUS was performed before, 4-7 days after RFA. Treatment response was further confirmed by contrast-enhanced magnetic resonance imaging or computed tomography 3 mo and 1-year after RFA. Complete response was defined as the absence of enhancing tissue at CH-EUS and cross-sectional imagings. In cases of incomplete response, an additional session of RFA was performed under CH-EUS guidance.

Results: EUS-RFA was technically successful in all 16 patients (29 sessions); 7 patients underwent one session of RFA, 5 underwent two sessions, and 4 patients were treated with three sessions. Diagnoses were: nonfunctioning NET (n=11), SPN (n=2), insulinoma (n=1), adrenal metastasis (n=1), and adrenal adenoma (n=1). The median largest diameter of the tumors was 20 mm. After first session of RFA, five of the ablated tumors showed no intratumoral enhancement at CH-EUS, whereas eleven showed residual intratumoral enhancement. Nine residual intratumoral enhancement at CH-EUS were treated with additional RFA under real-time CH-EUS guidance. Overall complete response was observed for 11 of 16 tumors in one (n=5) or two (n=2), or three (n=3) sessions of RFA. After RFA, we observed two procedure related adverse events which were treated with conservative treatment.

Conclusion: CH-EUS can be used as an alternative to cross-sectional imaging for monitoring the early therapeutic effect to RFA and may help to target residual tumor during the additional ablation session.

Keywords: Radiofrequency Ablation, Endoscopic Ultrasound, Contrast


Authors: SE YEOL YANG; JONG-CHAN LEE; MIN JAE KIM; DONG WOO SHIN; JIN-HYEOK HWANG

Affiliation: Department of Internal Medicine-GI/Hepatology, Seoul National University Bundang Hospital, Seongnam, Republic of Korea

Background/Aims: Although almost patients with surgically resected pancreatic cancer (PC) experience recurrence, the optimal treatment option of recurrent PC is still unclear. Numerous studies have been reported about this issue, but all the scattered evidences are too small and heterogeneous to reach a conclusion. The aim of this systematic review is to perform ‘evidence mapping’ and subgroup meta-analysis.

Methods: In regards to local recurrence and metastatic recurrence respectively, four treatment options including re-operation (ReOP), chemotherapy (CTx), radiotherapy (RT), best supportive care (BSC) were searched from Medline, Embase, Cochrane library, Scopus and Web of Science from the inception to April 2018. To visualize the mapping of evidence, we established a web-based mapping tool (http://plotting-e-map.com) and used it. In the treatment options with selected study types, subgroup meta-analyses were conducted using overall survival as a primary endpoint.

Results: Among detected 15871 studies, a total of 142 studies were included. In locally recurrent PC, overall 80 studies (33 ReOP, 15 CTx, 26 RT, and 2 BSC) were included. Median overall survival (OS) of each treatment option was 14.1 months (95% CI 4.9–22.1, I2 58%) for ReOP, 14.9 month (95% CI 7.5–18.9, I2 63%) for CTx, 13.8 months (95% CI 5.6–17.0, I2 59%) for RT. In metastatic recurred PC, overall 26 studies (10 ReOP, 8 CTx, 4 RT, and 2 BSC) were included. Median OS’s were 7.2 months (95% CI 3.6–11.2, I2 56%) for Re-OP, and 6.8 months (95% CI 4.1–9.5, I2 33%) for CTx.

Conclusion: Evidences showed that re-operation for highly selected patients with locally and metastatic recurrent PC could be a considerable therapeutic option. However, since the heterogeneity among the studies is relatively high, more well-designed RCTs for re-operation with multimodality treatment are needed.

Keywords: Pancreatic Cancer, Recurrence, Meta-Analysis, Evidence Mapping
OE-0849 (PP-0280) Stent Patency According to the Chemotherapy in Patients with Pancreatic Cancer

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Affiliation: [1] Department of Internal Medicine-GI/Hepatology, Seoul National University Boramae Medical Center and [2] Department of Internal Medicine-GI/Hepatology, Seoul National University Hospital, Seoul, Republic of Korea

Background/Aims: Jaundice and subsequent biliary infection caused by tumor can be detrimental for the patients with pancreatic cancer. Therefore, stent insertion for biliary decompression is necessary for the patients with biliary obstruction by pancreatic cancer and it is important to keep the stent patent as long as possible. However, few studies have compared stent patency according to chemotherapy itself and chemotherapy regimen. We aimed to evaluate the difference of stent patency according to chemotherapy and the factors associated with better stent patency.

Methods: Between January 2015 and May 2017, One hundred and two patients with pancreatic cancer who underwent biliary stent insertion with metal stent for the first time were retrospectively analyzed. The relationship between chemotherapy and stent patency were assessed. Additionally, factors for better stent patency and stent patency according to the chemotherapy regimen were also assessed.

Results: Median stent patency was 163 days for patients with best supportive care, 338 days for patients with chemotherapy, respectively. (p=0.041) Compared with patients who received best supportive care only, patients who underwent chemotherapy after stent insertion had better stent patency in multivariate analysis (OR 0.494; CI 0.247-0.988; p=0.046). FOLFIRINOX also showed better stent patency than gemcitabine-based chemotherapy in multivariate analysis (OR 0.318; CI 0.113-0.900; p=0.031).

Conclusion: Compared with patients who received best supportive care only, patients who underwent chemotherapy after stent insertion had better stent patency. Better stent patency can be expected for the patients with FOLFIRINOX.

Keywords: Pancreatic Cancer, Chemotherapy, Stent Patency, Folfirinox

OE-0869 (PP-0281) Tolerability and Safety of the Ad5-yCD/mutTKS39rep-ADP with Chemotherapy in Locally Advanced Pancreatic Cancer: Phase 1 Trial

Authors: JONG-CHAN LEE; DONG WOO SHIN; MIN JAE KIM; SE YEOL YANG; JIN-HYEOK HWANG

Affiliation: Department of Internal Medicine, Seoul National University Bundang Hospital, Seongnam, Republic of Korea

Background/Aims: Up to 35% of pancreatic cancers are considered ‘locally advanced’ (LAPC) at the time of diagnosis. Replication-competent adenovirus-mediated double suicide gene therapy (Ad5-yCD/mutTKS39rep-ADP, Theragene®) showed an anti-cancer effect in prostatic cancer patients in previous study. We aimed to investigate tolerability and safety of theragene® in combination with gemcitabine in patients with LAPC.

Methods: In this single-center, open label, dose-escalation phase I trial, we are recruiting adult patients (≥18 years) with newly diagnosed LAPC. Patients need to meet following criteria: histologically confirmed pancreatic ductal adenocarcinoma; ECOG 0-2; and good marrow-liver-kidney function. We inject theragene® into pancreatic mass with EUS-FNB needle in combination with oral 5-fluorouracil 500mg qd (prodrug of 5-fluorouracil), oral valgancyclovir 450mg qd (prodrug of ganciclovir), and standard gemcitabine (1000mg/m², day 1-8-15 infusion every 4 weeks). We apply a three-stage dose-escalation scheme with traditional 3+3 design. The dose of theragene® in each cohort is 1x10¹¹, 2x10¹¹, and 1x10¹² vp/mL, respectively. Every patient is evaluated theragene®-injected toxicity in 8 weeks and tumor response in 12 weeks. The primary aim is to establish the maximum tolerated dose (MTD) of theragene®, as assessed by dose-limiting toxicities (DLT).

Results: From August 2016 to June 2018, we enrolled eight patients for the final cohort. Any of patients did not experience dose-related serious adverse event, and adenovirus DNA fragments were disappeared in 8 weeks. Only one patients experienced non-febrile neutropenia, which was not directly related with theragene®. In the 12 weeks evaluation of tumor response, seven patients showed stable disease (SD) and two ongoing patients do not reach the 12 weeks.

Conclusion: In this phase I trial, theragene® has been well-tolerated with no dose-related adverse events, and no MTD reached to date. - ClinicalTrials.gov (NCT02894944)

Keywords: Locally Advanced Pancreatic Cancer, Gene Therapy, Ad5-Ycd/muttkrs39rep-Adp, Theragene
OE-0984 (PP-0282) The long-term outcome of patients with untreated intraductal papillary mucinous neoplasm

Authors: YU-CHUN LIN[1]; CHIEN-NENG KAO[2]; YU-TING KUO[2]; WEI-CHIH LIAO[2]; HSIU-PO WANG[2]
Affiliation: [1]Department of Division of Gastroenterology, Department of Internal Medicine, Mennonite Christian Hospital, Hualien, and [2]Department of Internal Medicine, National Taiwan University Hospital, National Taiwan University College Of Medicine, Taipei, Taiwan

Background/Aims: Intraductal papillary mucinous neoplasm (IPMN) with worrisome features or high-risk stigmata as defined by International Consensus Guidelines are associated with high rate of malignancy and require surgical resection. However, there is limited information on natural course of high-risk IPMN without undergoing operation during long-term follow-up. Understanding the long-term outcome of untreated high-risk IPMN is crucial in determining the choice of surgical management for elderly patients or patients with comorbidities. Methods: We performed a retrospective cohort study of 44 IPMN patients from April 2005 through April 2017 at the National Taiwan University hospital. Patients were examined over a median follow-up period of approximately 5 years. The primary outcome was pancreatic malignancy or death and secondary outcome was overall as- signanted time. Results: Of 44 patients with median age 77 years, 32 patients (72.7%) had branch duct (BD)-IPMN and 12 patients (27.3%) had main duct (MD) or mixed-type IPMN. At initial diagnosis, 35 patients (79.5%) did not have any symptoms. Overall, 8 patients (18.2%) had high-risk stigmata and 8 patients (18.2%) had worrisome features. Comparing with BD-IPMN, MD/mixed type IPMN had higher rate of high-risk stigmata (50% vs 6.3%, P=0.003). Although the MD/mixed type group tended to have higher risk of associated complications and disease in progression, there was no significant difference between two groups in either primary or secondary outcome. Neither patients with worrisome features nor high-risk stigmata developed pancreatic malignancy or death during long-term follow-up. The longest follow-up period was 122.7 months. Conclusion: All patients with worrisome features or high-risk stigmata are alive 5 years after initial diagnosis. The clinical course of elderly patients with untreated high-risk IPMN seems indolent and conservative management may be appropriate. Keywords: Ipmn, Outcome

EE-0403 (PP-0283) Modified fully covered self-expandable metal stent versus plastic stent for preoperative biliary drainage in patients with resectable malignant biliary obstruction

Authors: HYUN WOO LEE; JONG HO MOON; HYUN JONG CHO; YUN NAH LEE; TAE HOON LEE; SANG-WOO CHA; YOUNG DEOK CHO; SANG-HEUM PARK
Affiliation: Department of Internal Medicine-GI/Hepatology, Soon Chun Hyang University Bucheon Hospital, Seoul, Republic of Korea

Background/Aims: Preoperative biliary drainage (PBD) can be performed to relieve jaundice or cholangitis in patients with malignant biliary obstruction (MBO). Fully covered self-expandable metal stent (FCSEMS) may be better than plastic stent (PS) for PBD. However, modification of current FCSEMS designed originally for nonresectable MBO is needed to be an ideal stent for PBD. The aim of this study was to evaluate the possible superiority of modified FCSEMS (M-FCSEMS) over PS, by comparing the PBD-related outcomes, re-intervention rates, and postoperative adverse events in patients with resectable MBO. Methods: Prospectively maintained database were retrospectively evaluated including patients with obstructive jaundice due to resectable extrahepatic MBO. From August 2015 to August 2017, total 56 patients underwent PBD and subsequently went to operation, including 27 patients using M-FCSEMS (BONASTENT M-Intraductal, Standard Sci Tech Inc, Seoul, Korea) and 29 patients using plastic stents. Results: Patients characteristics did not significantly different between the two groups. The overall technical success rates of the PBD using the M-FCSEMS and PS were 100%. The time from PBD to operation was similar between groups (18.21 ± 11.89 vs. 22.76 ± 15.99 days, P = 0.262). PBD-related adverse events were 7.4% (2/27) in the M-FCSEMS group versus 31.0% (9/29) in the PS group (P = 0.026). Re-intervention before operation was required in 20.7% (6/29) of the PS group, whereas none of the patients in M-FCSEMS group (P = 0.012). Re-intervention was due to stent occlusion (n = 2), persistent hyperbilirubinemia (n = 2), stent migration (n = 1), and hemobilia (n = 1). However, no differences were found between postoperative adverse events in the M-FCSEMS and PS groups (29.6% vs. 31.0%, P = 0.909). Conclusion: M-FCSEMS may be a novel stent for PBD in patients with resectable MBO. Keywords: Preoperative Biliary Drainage, Self-Expandable Metal Stents, Plastic Stent
Authors: TEIJIRO HIRASHITA; MASAYUKI OHTA; HIROAKI NAKANUMA; KAZUHIRO TADA; KUNIHIRO SAGA; TAKASHI MASUDA; YUICHI ENDO; YUKIO IWASHITA; MASAFUMI INOMATA
Affiliation: Department of Surgery, Oita University, Yufu, Japan

Background/Aims: Intraductal papillary mucinous neoplasms (IPMNs), which are commonly identified as pancreatic cystic neoplasms, are precursors to invasive carcinoma. The aim of this study was to assess utility of the positron emission tomography with computed tomography (PET/CT) and to investigate the relation between expression of glucose transporter (GLUT) 1 or phosphorylated S6 ribosomal protein (pS6) and carcinogenesis of IPMN.

Methods: Records of 31 patients who underwent preoperative PET/CT and curative resection were retrospectively reviewed. We investigated the relationship between the clinical data and the expressions, and malignancy using univariate and multivariate analyses.

Results: Univariate analyses showed that enhanced nodule, thickness of cystic wall, and SUVmax of PET/CT were significant factors related to diagnosis as intraductal papillary mucinous adenoma (IPMA) or intraductal papillary mucinous carcinoma (IPMC). Multivariate analysis revealed that SUVmax of PET/CT was the independent factor related to diagnosis as IPMA or IPMC (odds ratio = 8.516, 95% confidence interval =1.217-59.6, P = 0.031). PET/CT detected IPMC with sensitivity of 85.7%, specificity of 95.8%, and accuracy of 93.5%. There were no significant differences in expression of GLUT1 and pS6 between normal cells and IPMA. Expressions of GLUT1 and pS6 were significantly higher in IPMC than in normal cells and IPMA.

Conclusion: Glucose uptake increases on adenoma-carcinoma sequence in the patients with IPMN and PET/CT is a useful for detecting malignancy in IPMN.

Keywords: Intraductal Papillary Mucinous Neoplasm, Positron Emission Tomography, Ipmm, Pet

OE-0188 (PP-0285) Impact of preoperative biliary drainage for hilar cholangiocarcinoma on postoperative outcome and survival
Authors: WONG HOI SHE; TAN TO CHEUNG; KA WING MA; WING CHIU DAI; ALBERT CY CHAN; KENNETH SH CHOK; KELVIN KC NG; CHUNG MAU LO
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Background/Aims: The management of hilar cholangiocarcinoma (HC) may result in high postoperative mortality and morbidities. The modalities of the preoperative biliary drainage remained controversial. The aim of this study was to investigate preoperative biliary drainage in affecting the short-term outcome of resectable HC.

Methods: Between January 1989 and December 2014, all patients presented with HC at our hospital were included. Patients who were found unresectable were excluded. All clinical information was collected prospectively and analyzed retrospectively. Either endoscopic retrograde cholangio-pancreatography (ERCP) and/or percutaneous transhepatic biliary drainage (PTBD) were used. The patients were divided into 3 groups (A.ERCP alone, B. PTBD alone and C. ERCP +PTBD). Pearson’s chi-squared test or Fisher’s exact test, where appropriate, was used to analyze categorical variables.

Results: There were total 90 patients who had undergone curative treatment for hilar cholangiocarcinoma. 86 patients had undergone either preoperative ERCP only(A, n=32, 32/86=37.2%), PTBD alone (B, n=10, 10/86=11.6%) or combination of both (C, n=44, 44/86=51.2%). Patients in group B tended to have a high normal INR (p=0.008). There was no difference in terms of the operative detail, hospital stay and mortality. There were 52 patients suffered from postoperative complications. There were more patients in group A and C suffered from subphrenic collection (A=25%, B=0%, C=9.1%, p=0.035), which required subsequent radiological drainage procedure, while the numbers of Clavien 3a complication or above were similar in three groups (p=0.159).

Conclusion: The use of ERCP, PTBD or combined approaches are acceptable and can be used to optimize patient’s condition. The use of PTBD alone may reduce post-operative subphrenic collection.

Keywords: Hilar Cholangiocarcinoma, Preoperative Drainage, Ptbd, Ercp
OE-0258 (PP-0287) Significance of pancreatic calcification on preoperative CT image of intraductal papillary mucinous neoplasm

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Background/Aims: Chronic pancreatitis has been widely accepted as a risk factor of pancreatic cancer. Pancreatic calcification is one of the typical features of chronic pancreatitis, however its significance in oncogenesis of intraductal papillary mucinous neoplasm (IPMN) remains unknown. Therefore, we investigated its frequency and relationship between pancreatic calcification and invasive IPMN.

Methods: This study included 157 patients who underwent surgical resection for IPMN between April 2001 and October 2016: IPMA (intraductal papillary mucinous adenoma), N=76; non-invasive IPMC (intraductal papillary mucinous carcinoma), N=33; invasive IPMC, N=49. We divided into two groups by preoperative CT images; presence or absence of pancreatic calcification. Firstly, factors associated with pancreatic calcification was investigated in univariate analysis. Second, multivariable logistic regression analysis was conducted to assess the relationship between pancreatic calcification and invasive IPMC, adjusted by clinical characteristics or imaging studies.

Results: Pancreatic calcification was observed in 17.2% (27/157) of resected IPMN cases on preoperative CT scan. In univariate analysis, presence of jaundice, high serum CA19-9 levels and invasive IPMC were significantly associated pancreatic calcification (4/27 [14.8%] vs 4/103 [3.0%], P = 0.01, 12/27 [44.4%] vs 31/130 [23.8%], P = 0.03, and 15/27 [55.6%] vs. 34/130 [26.2%], P = 0.003, respectively). Presence of pancreatic calcification was significantly associated with invasive IPMC (multivariable odds ratio [OR] = 2.80, 95% confidence interval [95% CI] = 1.13–6.93, P = 0.03, adjusted by clinical characteristics, OR=2.88, 95% CI=1.15 to 7.21, P=0.02, adjusted by imaging studies, respectively). Conclusion: Pancreatic calcification was observed one-fifth of resected IPMN before surgery and was related to invasive IPMC. Pancreatic calcification on CT scan might be a potential predictor of invasive IPMC.

Keywords: IPMN, Calcification, Chronic Pancreatitis, IPMC, Incasive Ipmc

OE-0290 (PP-0288) Impact of postoperative skeletal muscle change on survival after resection of peripancreatic cancer

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Background/Aims: There have been a few studies showing that sarcopenia is associated with decreased survival in patients with peripancreatic cancer; however, postoperative muscle changes and their effects on survival in cancer patients undergoing pancreaticoduodenectomy have not been well studied. This study aimed to assess the degree of postoperative muscle changes and their effect on survival of patients with surgically treated periampullary cancer.

Methods: We analyzed data of patients diagnosed with ampulla of Vater, distal common bile duct, and pancreatic head cancer who underwent surgery from 2008 to 2015. Skeletal muscle areas and changes at L3 vertebral levels obtained before and after cancer resection. The percent change in skeletal muscle between the first and follow-up scans were calculated as the percent change per 60 days. Results: Among 242 patients, 80 (33.1%) had increased muscle mass (<–10%/60 days), and 12 (5.0%) patients had increased muscle mass (>10%/60 days) after surgery. The remaining 150 (62.0%) did not show a significant postoperative muscle change. Mean postoperative muscle change was -6.4 ± 13.8 %/60days and there was no difference among the type of cancer. There was a significant difference in overall survival according to the postoperative muscle change (p=0.023). Median survival for muscle-losers, patients without significant change, and muscle-gainers were 22.7, 32.6, and 67.8 months, respectively. Postoperative muscle loss (hazard ratio [HR], 1.61: 95% confidence interval [CI], 1.02-2.52) and gain (HR, 0.34: 95% CI, 0.13-0.86) were identified as independent predictors of survival on multivariable analyses. Conclusion: Postoperative muscle change can be one of the predictive factors for overall survival in patients with peripancreatic cancer after surgery.

Keywords: Periampullary Cancer, Muscle Loss, Pancreaticoduodenectomy, Survival
OE-0364 (PP-0289) Efficacy and safety of endoscopic ultrasound-guided ethanol ablation therapy for pancreatic neuroendocrine tumors: a prospective pilot study

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Background/Aims: Recently, endoscopic ultrasonography (EUS)-guided ethanol ablation for small pancreatic neuroendocrine tumors (p-NETs) has been reported. However, the efficacy and safety of the technique remain unclear. We launched a prospective pilot study of EUS-guided ethanol ablation therapy for p-NETs. Methods: Major eligibility criteria are the presence of a pathologically diagnosed grade (G) 1 or G2 p-NET, a tumor size of 2cm, and being a poor candidate for surgery. For the treatment, we advanced 25 G fine needle aspiration needle into the tumor, then pure ethanol was injected. Contrast enhanced-computed tomography (CE-CT) was performed on postoperative days 3 to evaluate tumor viability and the adverse events. When the CE-CT images show enhancement of tumor, 1 session of EUS-guided ethanol ablation therapy was scheduled of the same hospitalization period. The primary endpoint is the complete ablation rate at 1 month after treatment. Results: A total of 5 patients was treated. All patients were pathologically diagnosed G1. Median age was 57 years (range 55-74) and median size of tumor was 10 mm (range 7-14). The locations of tumor were as follows: head 2, body 1, tail 2. Median volume of injected ethanol per session was 0.8 ml (IQR 0.5-0.9). Of 5 patients, 3 patients needed the second session of ablation therapy on the same hospitalization. Complete ablation at 1 month was achieved in 4 of 5 tumors (80%). During a median follow up of 10 months (IQR 3-14 months), no patients experienced procedure-related adverse events and no malignancy or no lymph node metastasis was discovered. Conclusion: EUS-guided ethanol injection appears to be a safe, feasible, and potentially effective method for treating small p-NETs. Long term follow up is necessary to evaluate the real meaning of efficacy of ethanol ablation for p-NETs.

Keywords: Neuroendocrine Tumor, Ethanol, Eus

OE-0439 (PP-0290) Significance of radiographic splenic vessel involvement in pancreatic ductal adenocarcinoma of the body and tail of the gland

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Background/Aims: In pancreatic head tumors, neoadjuvant therapy is typically administered when mesenteric vessels are involved due to concern for more advanced disease or inability to achieve a margin-negative resection. However, little is known about the biological significance of radiographic splenic vessel involvement with pancreatic ductal adenocarcinoma in the body and tail of the pancreas. Despite the fact that splenic vessels are routinely resected during distal pancreatectomy, we hypothesize their involvement may be an adverse prognostic factor. Methods: All distal pancreatectomies performed for upfront resectable pancreatic adenocarcinoma at Virginia Mason Medical Center between 2000 and 2016 were reviewed retrospectively. Preoperative computed tomography imaging was reviewed by a single radiologist who graded splenic vessel involvement as none, abutment, encasement or occlusion. Clinicopathologic data were collected and correlated to the degree of splenic vessel involvement. Results: Among a total of 71 patients included in the study cohort, splenic artery encasement/occlusion was present in 41% (29/71) of patients and splenic vein encasement/occlusion was identified in 41% (29/71) of patients. There were no significant differences in tumor size or grade, margin positivity, and perineural or lymphovascular invasion. However, splenic artery encasement (p = 0.001) and splenic vein encasement/occlusion (p = 0.038) both correlated with lymph node positivity. Splenic artery encasement was associated with a reduced median overall survival (20 vs. 30 months, p = 0.033). Multivariate analysis also showed that splenic artery encasement was independent risk factor of poor prognosis (HR, 2.246; 95% CI, 1.118-4.513; p = 0.023). Conclusion: Patients with cancer of the body or tail of the pancreas presenting with radiographic encasement of the splenic artery, but not the splenic vein, have a worse prognosis and should be considered for neoadjuvant treatment before an attempt at curative resection.

Keywords: Pancreatic Ductal Adenocarcinoma Of Body And Tail, Splenic Vessel Involvement, Radiographic Vessel Involvement, Prognostic Factor, Neoadjuvant Treatment
OE-0487 (PP-0291) Neoadjuvant therapy versus upfront surgery in resectable pancreatic cancer: a systematic review and meta-analysis

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Background/Aims: Neoadjuvant therapy (NAT) has recently emerged as an effective therapeutic option in borderline resectable pancreatic cancer (RPC), with conflicting results of survival gain as compared with upfront surgery (US). Therefore, this meta-analysis aimed to investigate the effectiveness of NAT over US in the patients with RPC.

Methods: A comprehensive database search of PubMed, EMBASE, and Cochrane library to February 2018, was performed for all relevant studies reporting survival outcomes of NAT for patients with RPC. Fourteen studies (including 2 RCTs although they were early terminated due to low accrual rate) showing overall survival (OS) and Kaplan-Meier curves between two modalities were analyzed. OS was compared as a primary outcome. Furthermore, subgroup analysis was conducted according to study design; “intention-to-treat analysis (ITT)” or “per-protocol analysis (PP)”, because there were attrited patients who received NAT but did not proceed curative surgery. Results: Among 2699 patients with NAT and 6992 with US, NAT had better OS compared with US (HR 0.80, 95% CI 0.70-0.92, P = 0.002). However, the subgroup analysis with ITT (7 studies; 452 patients with NAT, 340 patients with US) did not show the survival gain of NAT (HR 0.96, 95% CI 0.82-1.12, P = 0.610) although PP analysis with 10 studies (2354 patients with NAV, 6404 patients with US) showed that HR was 0.72 (95% CI 0.69-0.77, P <0.001). Conclusion: The survival benefit of NAT in RPC was demonstrated with PP analysis, not ITT analysis, revealing that only patients who proceed subsequent surgery after NAT have obtained the survival gain, thereby suggesting the clinical evidence of NAT effectiveness is insufficient so far. Therefore, well-designed randomized controlled trials are eagerly needed to evaluate the real effectiveness of NAT in RPC.

Keywords: Neoadjuvant, Resectable, Pancreatic Cancer, Meta-Analysis, Intention-To-Treat

OE-0526 (PP-0292) Prognostic Significance of Lymph Node Metastasis in Resected Pancreatic Cancer Followed by Adjuvant Therapy

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Background/Aims: This study aimed to compare and evaluate multiple lymph node (LN) classification systems for predicting prognosis in patients with pancreatic ductal adenocarcinoma (PDAC) surgically treated and followed by adjuvant therapy. Methods: We investigated 240 patients with PDAC who underwent surgery at Seoul National University Hospital between January 2005 and December 2017. Surgical and pathologic data were reviewed to characterize tumor location, size, histology, and differentiation. Overall survival (OS) and progression-free survival (PFS) were estimated by Kaplan-Meier method, and the log rank test was applied to assess the association of LN parameters (AJCC 7th and 8th editions, LN ratio, and log odds of metastatic LN) with OS and PFS. Results: Mean age at surgery for PDAC was 63.7 ± 8.9 years. Pancreatoduodenectomy was attempted in 137 (57.1%) patients, and all patients received either chemoradiation therapy (70.8%), chemotherapy (28.8%), or radiotherapy (0.4%) after surgery. R0 resection was achieved in 204 (85.0%), while 36 (15.0%) patients underwent R1 resection. Median OS and PFS were 20.1 (95% CI, 17.7-25.1) and 9.34 (95% CI, 8.4-10.8) months, respectively. Overall, all the lymph node classification systems showed good discrimination for OS and PFS (all with P <0.05). In subgroup analysis, AJCC 7th classification system didn’t predict the survival in patients treated with distal/subtotal pancreatectomy. Conclusion: All lymph node parameters showed significant relationship with OS and PFS in patients with PDAC. However, prognostic role of AJCC 7th edition LN classification was limited in patients treated with distal/subtotal pancreatectomy.

Keywords: Pancreatic Neoplasm, Lymph Nodes, Metastasis, Prognosis, Adjuvant Chemotherapy
OE-0572 (PP-0293) The impact of age and gender on the association of gallbladder polyp with the risk of colorectal neoplasia
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Background/Aims: Gallbladder polyps and colorectal neoplasia (CRN) share several risk factors such as diabetes, obesity, and metabolic syndrome. There have been several studies to support the potential association between gallbladder polyps and CRN. However, little is known about the age and gender on the relationship between gallbladder polyps and CRNs. We investigated the association gallbladder polyps with CRN by age and gender in a Korean population. Methods: The study population consisted of 7,092 consecutive, asymptomatic individuals drawn from a prospective health check-up cohort who underwent both ultrasonography and colonoscopy screening between January 2016 and December 2017. Histologically confirmed adenocarcinomas or adenomas were considered as CRN. Gallbladder polyps were diagnosed as immobile echoes protruding from inside the gallbladder wall into the lumen. Results: The prevalence of CRNs in patients with gallbladder polyps was significantly higher than that in the control group (29.8% vs. 25.7%; P = 0.003). In patients aged < 50 yr, CRNs were significantly more prevalent in patients with than in those without gallbladder polyps (25.6% vs. 20.2%; P = 0.001), but this was not the case for patients aged ≥ 50 yr (35.3% vs. 33.2%; P = 0.34). A multivariate analysis after adjusting obesity, diabetes and other variables showed that gallbladder polyps were an independent risk factor for CRN in patients aged < 50 yr (OR: 1.35, 95% CI: 1.11-1.63), whereas, in patients aged ≥ 50 yr, the adjusted OR was 1.11 (95% CI: 0.91-1.35) which was not statistically significant. Gender difference for the association of gallbladder polyps with CRN was not significant. Conclusion: A significant relationship is suggested between gallbladder polyps and CRN, especially in patients aged < 50 yr, but not in patients aged ≥ 50 yr. Gender difference was not significant between gallbladder polyps and CRN.
Keywords: Gallbladder Polyp, Colon Polyp, Gender, Age

OE-0588 (PP-0294) The comparison of endoscopic biliary drainage: bilateral metal stents vs. multiple plastic stents
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Background/Aims: Currently, there are two methods available for management of malignant hilar obstruction: endoscopic biliary drainage and percutaneous trans-hepatic biliary. Because of its convenience and less invasiveness, endoscopic biliary drainage became popular drainage method for malignant hilar obstruction. It is well known from previous study that larger diameter and bilateral stents are more effective than smaller and unilateral stent. In addition, the metal stent showed superior patency than plastic stent. But there is no study compare the bilateral metal stents vs. multiple plastic stents more than three. Methods: In this retrospective study, we analyzed the cases of palliative endoscopic biliary drainage for patients who diagnosed hilar cholangiocarcinoma and had malignant hilar obstruction between 1996 and 2018 at Samsung Medical center. We analyzed the cases of procedure with two or more metal or plastic stents. Bilateral metal stent group and multiple plastic stent groups were 34 and 135 cases, respectively. The primary outcome is successful drainage, defined as decrease in total bilirubin level in 30% and 50% within 14 days and 28 days, respectively. Results: In comparison of bilateral metal stents group versus multiple plastic stents more than two group, 20 cases(58.8%) achieved successful drainage but was not statistically significant. When compared with bilateral metal stent group and multiple plastic stents more than three group, 20 cases(58.8%) and 10 cases(29.4%) respectively, achieved successful drainage, which is statistically significant (P=0.015). Conclusion: In this study, there is no statistically different outcome of successful drainage between bilateral metal stent and multiple plastic stent (more than two stents). Furthermore, bilateral metal stents group showed better efficacy of drainage than three or more plastic stents group which was statistical significance.
Keywords: Endoscopic Biliary Drainage, Bilateral Metal Stent, Multiple Plastic Stents
OE-0647 (PP-0295) Evaluating the prognostic significance of clinical staging according to the 8th and 7th AJCC staging system for pancreatic cancer: a single institutional cohort study

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Background/Aims: The 8th edition of the American Joint Committee on Cancer (AJCC) staging system for pancreatic cancer (PC) has been validated in previous studies; however, its significance in clinical staging remains uncertain. We compared the performance of prognostic stratification between the 8th and 7th AJCC staging systems in clinical staging. Methods: A single institutional PC cohort were analysed. All patients were staged by images at diagnosis according to the 8th and 7th edition criteria, respectively. Survival analysis and performance comparison were conducted. Results: A total of 1,043 patients were included. The 8th edition showed better discriminating ability and homogeneity, but worse gradient monotonicity than the 7th edition. In the 8th edition, although the survival of T1 and T2 was significantly different (P=0.001), T3 was not distinguished from T1 or T2 in non-metastatic PC (P=0.159; P=0.247). Novel N classification could not discriminate the prognosis (N0/N1; P=0.064, N1/N2; P=0.057). In both editions, IIB was rarely classified (<4%) and showed no survival differences compared to III (8th, P=0.745; 7th, P=0.552) (Figure 1). Among the 152 patients who received upfront surgery, 61 (40.1%) were changed from clinical node-negative to pathological node-positive, which suggested remarkable chances of LN underestimation in clinical staging. Conclusion: For clinical staging, the 8th AJCC staging system showed better discriminating ability and homogeneity than the 7th edition. However, its clinical significance, particularly the N classification, remains controversial. A more suitable separate cTNM classification for PC should be established.

Keywords: Pancreatic Cancer, Ajcc, Tnm, Staging, 8th

Figure 1 Kaplan-Meier estimates of OS

EP-0034 (PP-0296) Antispasmodic effect of Acmella spp. flowers extracts on rat ileum

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Background/Aims: Acmella spp. has been used as a traditional medicine for treatment of asthma, sore throat, haemorrhoids and anti-toothache. However, Acmella spp. on gastrointestinal functions such as regulation of intestinal contraction has not been fully elucidated. Therefore, in the present study was to investigate the effect of Acmella spp. flowers extracts (AFE) on rat ileum contractions and the possible mechanism(s) of its action. Methods: The extract was prepared by soxhlet apparatus with 95% ethanol. Ileum was removed from male Wistar rats and mounted in an organ bath containing Krebs’ solution. The tissue contractions were recorded by an isotonic transducer under 1 g tension. Results: The cumulative concentrations of the AFE (0.01-1 mg/mL) reduced the ileum contractions induced by KCl (80 mM) (n=6, p<0.05). AFE (1 mg/mL) attenuated the contractions induced by cumulative concentrations of CaCl2 (1-20 mM) while spasmolytic effect of the extract did not reduce after tissue incubation with L-NAME (100 μM, 20 min). Conclusion: These results suggest that AFE inhibits ileum contractions without involving nitric oxide pathway, possibly mediated via blockade of voltage dependent calcium channels. Acmella spp. may be useful in gastrointestinal disorders such as diarrhea.

Keywords: Acmella Spp., Ileum, Relaxation, Cacl2, L-Name

Cumulative concentration-response curves
OE-0253 (PP-0297) The resection capability of conventional EMR versus underwater EMR in the treatment of superficial duodenal epithelial tumor
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Background/Aims: Recently the effectiveness of underwater endoscopic mucosal resection (UEMR) for superficial duodenal epithelial tumor (SDET) is frequently discussed. However, there is a concern that the recurrent risk of UEMR is higher than conventional endoscopic mucosal resection (EMR) due to omission of a submucosal injection. To clarify this, here we compared the horizontal and vertical margin and resection depth between EMR and UEMR procedures. Methods: This was a single-center, prospective, observational study (UMIN000025442). Between October 2017 and April 2018, we treated 38 non-pedunculated lesions using a snaring technique for SDET (EMR n=18 and UEMR n=20). We compared the negative resection rate of horizontal and vertical margin with EMR and UEMR group. In lesions resected in a single piece, we measured a submucosal area and a length of muscularis mucosae using the image analysis software (ImageJ 1.51w), and the mean submucosal depth (MSD) was calculated from dividing a submucosal area by a length of muscularis mucosae. Results: The negative horizontal margin rate in EMR group and UEMR group were 78% and 55% (p=0.14), respectively. The negative vertical margin in EMR group and UEMR group were 89% and 90% (p=0.91). MSD was 0.84±0.37mm in EMR group and 0.77±0.21mm in UEMR group and we couldn’t find significant differences between the two groups (p=0.56). Conclusion: There was no significant difference in the resection depth between EMR group and UEMR group. In terms of horizontal margin, further investigation would be necessary since negative margin rate tend to be lower in UEMR group.
Keywords: Superficial Duodenal Epi-Thelial Tumor, Underwater Endoscopic Mucosal Resection, Resection Depth

OE-0287 (PP-0298) HOXC10 directly regulated by miR129-5p can modulate WNT signaling pathway in gastric cancer: CCND1 is a crucial target gene.
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Background/Aims: We have previously found that HOXC10 is up-regulated in gastric cancer and functions as a candidate tumor promoter, whose high expression indicates poor survival outcome. The aim of this study is to determine the potential regulatory network of HOXC10 in gastric cancer.
Methods: As HOXC10 is an important transcription factor, CHIP-seq assay was performed firstly. Bioinformatic analyses, such as Gene Ontology (GO), Kyoto Encyclopedia of Genes and Genomes (KEGG) were used to investigate the molecular mechanism affected by the target genes of HOXC10. Additionally, the potential miRNAs targeting HOXC10 were investigated through miRanda, pita, RNAhybrid and targetSCAN. Reverse transcription polymerase chain reaction (RT-PCR) and western blotting were utilized measure mRNA and protein expression, respectively.
Results: According to CHIP-seq assay, we found a variety of genes involved in the development of gastric cancer. Through KEGG analyses, these target genes may be involved in many cancer-related signaling pathways. We focused on the Wnt signaling related genes and found down-regulation of HOXC10 significantly influenced mRNA expression including CCND1, CD44, CCN2, MMP7, CREBBP, especially the downregulation of CCND1. Meanwhile, HOXC10 also modulated the phosphorylation of β-catenin but not its total protein levels, which can also influence the expression of CCND1. Positive correlation were found between CCND1 and HOXC10 (r=0.13, p<0.001) based on TCGA database. Besides, combined with miRanda, pita, RNAhybrid and targetSCAN analyses, 130 miRNAs were predicted to target HOXC10. We verified that miR-129-5p can significantly decreased mRNA expression of HOXC10, thereby down-regulating CCND1 expression in two ways. Conclusion: HOXC10 may be an important direct target of miR-129-5p and play a significant role in gastric cancer by regulating various pathways, particularly the Wnt signaling pathway, CCND1 is found to be crucial target of HOXC10.
Keywords: Hoxc10, Mir-129-5p, Gastric Cancer, Wnt Signaling Pathway, Ccnd1
OE-0484 (PP-0299) Clinical outcomes of undifferentiated-type early gastric cancer between endoscopic and surgical resection

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Background/Aims: The efficacy of endoscopic resection for undifferentiated-type (UD-type) early gastric cancer (EGC) is controversial by the relative high risk of lymph node metastasis. We compared the long term clinical outcome of UD-type EGC between endoscopic and surgical.

Methods: We retrospectively reviewed the medical records of patients with UD-type EGC who were treated by endoscopic or surgical resection at the Seoul National University Hospital from 2007 to 2014. Long-term clinical outcomes were compared between the groups in terms of survival rates.

Results: A total of 1147 patients were included in this study during median 59.1 months of follow-up period. Endoscopic and surgical resection were performed in 125 and 1022 patients, respectively. Additional surgical resection was performed in 23 patients after initial endoscopic resection by the final mapping of non-curative resection or beyond expanded criteria. There was no significant difference in the overall survival rate (log rank p=0.324, p=0.294), the rate of distant metastasis (log rank p=0.563, p=0.689) in propensity score matched analysis and in ESD expanded criteria. In Cox regression analysis, the comorbidity index and N stage were predictor of overall survival. In the patients within the expanded criteria, lymph node metastasis was found in 2.5%. In the patients with lymph node metastasis within the expanded criteria, the lesions were more than 1cm in size and EGC IIb or IIc.

Conclusion: Endoscopic resection was a comparable treatment option with surgical resection for UD-type EGC within expanded criteria in terms of long-term survival. Meticulous indication of endoscopic resection for UD-type EGC is mandatory for the risk of lymph node metastasis.

Keywords: Early Gastric Cancer, Undifferentiated, Endoscopic Submucosal Dissection

OE-0553 (PP-0300) Gene Regulatory Network Identifies NFYA as A Prognostic Factor in Gastric Cancer

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Background/Aims: Lauren classification is a pathology-based gastric cancer (GC) subtyping system, which was widely used in clinical treatment of GC patients. However, genome-scale molecular characteristics of different Lauren subtypes, especially the gene regulatory mechanisms to distinguish between diffuse and intestinal GC remain incompletely characterized.

Methods: Gene regulatory networks in GC were constructed by Passing Attributes between Networks for Data Assimilation (PANDA). Transcriptional factors (TFs) activated specifically in the certain subtype of GC were identified by AnaPANDA software. Prognostic value of given genes was evaluated by Kaplan-Meier plot and Cox proportional hazards model. The biological effects of those genes on different GC cells were characterized by MTS and colony formation assays.

Results: More than 85% of TF-target edges were shared among diffuse, mixed and intestinal gastric cancer. NFYA, FOXL1 etc. were identified activated in diffuse gastric cancer. RELA, TLX1 etc. were identified activated in intestinal gastric cancer. Among all the TFs specifically activated in certain subtypes, NFYA [RR (95% CI) = 0.560 (0.349, 0.900), p = 0.017] and SRY [RR (95% CI) = 0.603 (0.375, 0.969), p = 0.037] were identified as independent prognostic factors in diffuse gastric cancer, whereas TLX1 [RR (95% CI) = 0.547 (0.321, 0.9325), p = 0.027] was identified as an independent prognosis factor in intestinal gastric cancer. Furthermore, interference of NYFA expression in MGC803 cells (diffuse GC derived) largely hampered their growth rates and abilities of colony formation. Same effects were also identified in SGC-7901 cells (intestinal GC derived), but in a much smaller degree.

Conclusion: We found that different subtypes of GC had different gene regulatory networks. NFYA was identified as a diffuse subtype-specific independent prognostic factors in GC.

Keywords: Gene Regulatory, Network Analysis, Prognosis, Gastric Cancer, Lauren Classification
OE-0911 (PP-0301) Small extracellular vesicle derived microRNA profiling reveals biomarkers for early detection of colon cancer
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Background/Aims: Colon cancer (CC) is the third most commonly diagnosed cancer worldwide, and there is a great need to detect CC at an early stage. Accumulating studies supported a potential role for small extracellular vesicles (sEVs) in early detection of many diseases. However, systematic screening of plasma sEVs derived CC biomarkers has not yet been reported. Methods: In this study, we recruited 21 Tis-T1 colon cancer patients (CC) before received endoscopic submucosal dissection (ESD) treatment and 17 normal controls (NC). sEVs were extracted from all participants’ plasma and characterized according to MISV2014 standard. The total circulating sEVs derived microRNA (miRNA) expression profile of all participants was investigated by the next generation sequencing (NGS).

Results: A total of 36 miRNA was identified differentially expressed between CC and NC. More than half (19/36) of them were also identified differentially expressed between CC and NC in TCGA dataset. Among those miRNAs, we selected miR-193a-5p and miR-125a-5p, which were both down-regulated in CC group, for further validation in an independent cohort consisting of 34 CC and 46 NC. In the validation cohort, the AUCs of miR-193a-5p and miR-125a-5p were 0.867 and 0.906 respectively. Additionally, an AUC of 0.921 was achieved, when combining those two biomarkers together. Conclusion: Our data suggested that circulating sEVs have a distinct miRNA profile in CC patients. Thus sEVs derived miRNA might be used as a promising biomarker to detect CC at an early stage.

Keywords: Colon Cancer, Early Diagnosis, Small Extracellular Vesicle, Mir-193a-5p, Mir-125a-5p

OE-0673 (PP-0302) Laparoscopic transhiatal approach for treatment of esophagogastric junction cancer
Authors: YO-SEOK CHO[1]; SA-HONG MIN[1]; YOONTAEK LEE[2]; YOUNG SUK PARK[1]; SANG-HOON AHN[1]; DO JOONG PARK[1]; HYUNG-HO KIM[1]
Affiliation: [1]Department of Surgery, Seoul National University Bundang Hospital, Seongnam, and [2]Department of Surgery, Korea University Ansan Hospital, Ansan, Republic of Korea

Background/Aims: Laparoscopic transhiatal approach (LA) for esophagogastric junction cancer has advantage in point of providing better view comparing with open approach (OA). In the present study, we focus on the surgical outcomes comparing LA with OA. Methods: A total of 108 patients with Esophagogastric junction cancer who underwent gastrectomy with curative intent at Seoul National University Bundang Hospital between 2003 and 2017 were analyzed. Surgical outcomes were reviewed using electronic medical records. Results: Thirty-seven patients underwent LA, and 71 underwent OA. Compared with OA, LA was associated with significantly less postoperative hospitalization duration (10.1 vs. 14.9 days, p=0.019) and extended operation time (251.5 vs. 213.8 min, p = 0.032). There was no significant difference between LA and OA in intraoperative blood loss (150 vs. 170 ml, p = 0.631), proximal resection margin(0.8 vs. 0.9 cm, p=0.555), or rate of surgical morbidity(≥ grade 2) for complications (8.1 vs 23.9 %, p=0.080). There were 2 cases of anastomotic leakage in OA group and no anastomotic leakage in LA group. There was no difference between groups in total number of harvested lymph nodes (58.5 vs. 57.7, p=0.889). The 5-year overall survival rate and 3-year disease free survival rate were 81.8% and 79.7% for LA, and 50.7% and 56.1% for OA(p=0.024 & 0.046). In multivariate analysis, TNM stage was the only independent factor associate with survival. Conclusion: LA for esophagogastric junction cancer appears feasible and safe in short-term or long-term oncologic outcomes.

Keywords: Gej Cancer, Transhiatal, Laparoscopy
OE-0676 (PP-0303) Three-year interval for endoscopic screening may reduce the mortality in patients with gastric cancer

Authors: SANG IL CHOI[1]; BORAM PARK[2]; JUNGNAM JOO[2]; YOUNG-IL KIM[1]; JONG YEUL LEE[1]; CHAN GYOO KIM[1]; IL JU CHOI[1]; MYEONG-CHERL KOOK[1]; SOO-JEONG CHO[1]

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Background/Aims: Endoscopic screening has been adopted in South Korea for the national screening of gastric cancer (GC). This study aimed to assess the effect on overall survival of GC patients and determine the optimal endoscopic screening interval.

Methods: The baseline characteristics and overall survival of GC patients treated at the National Cancer Center, Korea, between 2010 and 2016 were compared between those without a history of endoscopic evaluation (group N) and those in whom the interval between the initial and last endoscopic evaluations was ≤1, 1–2, 2–3, 3–4, or >4 years (groups 1–5, respectively).

Results: A total of 2,362 patients met the criteria for the study (1,060 in group N and 1,302 in groups 1–5). More patients in groups 1–5 were diagnosed with stage I GC (83.7%, 83.7%, 71.8%, 78.2%, and 71.6%, respectively) than in group N (62.4%, P < 0.001) and were treated endoscopically (38.8%, 33.8%, 24.7%, 21.8%, and 15.5%, respectively, versus 13.5% in group N; P < 0.001). Group 2 had less-advanced tumor stages (P = 0.001) and was more likely to have received endoscopic treatments (P = 0.026) than group 3. Hazard ratios for death were significantly lower in groups 2 (0.45; 95% confidence interval [CI], 0.32–0.64) and 3 (0.57; 95% CI, 0.33–0.98) than in group N; the decrease was not significant in group 4 (0.49; 95% CI, 0.20–1.20).

Conclusion: Endoscopic screening every 3 years may reduce the mortality of GC patients, though screenings at least every 2 years may benefit patients with less-advanced stages.

Keywords: Endoscopic Screening, Gastric Cancer, Overall Survival, Screening

OE-0680 (PP-0304) Resumption of Warfarin within 3 days after Gastrointestinal Bleeding should be considered in Patients with Atrial Fibrillation

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Background/Aims: We assessed the hypothesis that resumption of warfarin after 3 to 7 days of interruption in atrial fibrillation (AF) patients with gastrointestinal bleeding (GIB) is safe.

Methods: This is a multicenter, retrospective cohort study. In AF patients with warfarin induced GIB, the association between reinitiation date of warfarin and incidences of rebleeding, thromboembolic event within 3 month after reinitiation of warfarin was assessed from May 2007 to May 2018. Patients who resumed warfarin within 3 days (n=114) and after 3 days (n=112) were compared. BARC type was used to evaluate the severity of GIB. Results: There were modest differences in the baseline characteristics between the groups except for BARC type of GIB (χ2 for trend between 2 groups, p< 0.01) which showed a positive correlation with reinitiation date (r = 0.53, p < 0.01). The higher BARC type, the more likely the physician was to resume warfarin late. Thromboembolic cases of 3 groups divided by interruption periods were 2, 2, 6 respectively and cases with recurrent GIB within 3 months were 4, 4, 1. Rebleeding did not differ significantly between the reinitiation within 3 days group and the reinitiation after 3 days group (4 [3.5%] patients vs 5 [4.5%]; p=0.71) and but thromboembolic events were different (2 [1.8%] vs 8 [7.1%] patients; p=0.04). Survival analysis also showed same results between 3 groups (Figure 1).

Conclusion: Late reinitiation of warfarin should be reconsidered in AF patients with GIB and high thromboembolic risk.

Keywords: Atrial Fibrillation, Warfarin, Barc, Gastrointestinal Bleeding survival analysis
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Background/Aims: Exosomes, a type of novel signaling molecules, are widely found in many body fluids. We found that the exosomes in the plasma of gastric cancer patients was significantly higher than that of non-cancerous individuals, and the expression of Exo-miR-211-5p was significantly higher than that of non-cancer patients. It suggests that it may be closely related to the occurrence and development of gastric cancer.

Methods: The morphology of exosomes was directly observed by transmission electron microscopy. The size of exosomes was determined by Nanosight Analysis. The protein markers of exosomes were detected by Western blot. Real-time quantitative PCR was used to screen differentially expressed miRNAs in gastric cancer and non-cancerous patients. Detect the expression of protein by Western blot. Luciferase reporter gene was used to detect the binding sites of miRNA and target protein. Scanning electrons and confocal microscopy were used to track exosomes and observe their uptake by recipient cells.

Results: We confirmed that the number of exosomes in the serum of patients with gastric cancer was higher than that of normal individuals, which was mainly secreted by gastric cancer cells. The expression of miR-211-5p contained in exosomes was also higher than that of normal individuals. The GC cell line SGC-7901 and AGS were cultured in exosome-deleted medium, the growth and invasiveness of the cancer cells are decreased compared with untreated culture medium. Down-regulation the expression of miR-211-5p in exosomes by transfection can achieve the same effect. It is suggested that miR-211-5p may be transmitted by exosomes to promote the development of gastric cancer.

Conclusion: Our results suggest that exosomes can provide miR-211-5p to promote the growth and metastasis of gastric cancer, and serum exosome miR-211-5p can be used as a potential marker for the diagnosis and prognosis of gastric cancer, providing new ideas for the treatment of gastric cancer.

Keywords: Gastric Cancer, Exosomes, Mir-211-5p

OE-0872 (PP-0306) Nutrient drink test compares well with single photon emission tomography for evaluation of gastric accommodation in functional dyspepsia
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Background/Aims: Impaired gastric accommodation is a major pathophysiological mechanism in functional dyspepsia (FD). Nutrient drink test (NDT) is non-invasive test which can be used to assess gastric accommodation. We compared the findings of NDT and single photon emission tomography (SPECT) in healthy volunteers and patients with FD.

Methods: Twenty-six patients [12 men] with PDS diagnosed using Rome IV criteria, and 16 healthy volunteers [12 men] underwent NDT using Ensure [0.94 kcal/mL] at a rate of 30 mL/min. The maximum tolerated volume (MTV) was recorded. After drink, symptoms were rated using visual analogue scales for 2 hours. SPECT was done before and immediately after NDT to assess gastric volume and change in volumes were recorded.

Results: All patients [100%] had postprandial fullness and bloating at baseline. 85% had burping, 77% each had epigastric pain and nausea. Early satiety was present in 65%. The MTV [mean ± SEM] for NDT (625.38 ± 46 ml vs 648.75 ± 60.9), fasting SPECT volume (168.31 ± 15.16 vs. 160.13.6 ± 16.05 ml) and post-NDT SPECT volume (644.7 ± 34.57 vs. 652.38 ± 32.8) were similar in patients and controls. The MTV correlated with post NDT gastric volumes on SPECT [p=0.005]. Early satiety at baseline negatively correlated with MTV (p=0.009), and post NDT gastric volumes on SPECT [r = -0.46, p = 0.04]. Patients with severe early satiety (n=10) ingested 220 mL less drink than those who had mild symptoms (n=7). Other symptoms did not correlate with MTV or SPECT.

Conclusion: NDT is simple and inexpensive, and can be used to assess gastric accommodation instead of SPECT. Symptoms of FD do not correlate with MTV of nutrient drink. Patients with severe early satiety drink less nutrient drink as compared to those with mild or no symptoms.

Keywords: Functional Dyspepsia, Nutrient Drink Test, Gastric Accommodation, SPECT
OE-0899 (PP-0307) Detection of circulating tumor cells in early gastric cancer

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Background/Aims: The use of circulating tumor cells (CTCs) as an early diagnostic biomarker has been suggested for various cancers. The purpose of this study was to detect the CTCs in early gastric cancer, precancerous lesions and benign lesions, and to evaluate the screening value of CTCs in early gastric cancer. Methods: 57 early gastric cancer patients, 14 patients with precancerous lesions (low grade intraepithelial neoplasia) and 21 patients with benign gastric tumor (fundic gland polyps) were prospectively included between Oct 2016 and Jan 2018. Peripheral blood samples were collected and CTCs were examined using a system with a new fluid-assisted separation technique. The relationship between the preoperative CTCs levels and the clinicopathologic features of early gastric cancer patients were analyzed. Results: CTCs count was significantly higher in patients with early gastric cancer and precancerous lesions than in patients with benign gastric tumor \((p<0.001)\). CTCs sensitivity was 49.1% and specificity was 95.0%. The positive predictive value was 97.0% and the negative predictive value was 64.9%. Among 57 patients with early gastric cancer, CTCs had no significant relationship with clinicopathologic features such as age, sex, tumor size, depth of tumor invasion, or histologic type \((p>0.05)\). Conclusion: The peripheral blood circulation tumor cells of early gastric cancer and precancerous lesions were significantly increased. Although we could not prove the clinical feasibility of CTCs for early gastric cancer staging, our results suggest a potential role of CTCs as an early diagnostic biomarker of gastric cancer. Keywords: Early Gastric Cancer, Circulating Tumor Cells, Diagnosis, Liquid Biopsy, Precancerous Lesion

Tables and Figures
OE-0981 (PP-0308) Previous endoscopic screening interval may affect the mortality in patients with gastric cancer

Authors: AYOUNG LEE; HYUNSOO CHUNG; SANG GYUN KIM; JUNG KIM; JU LIE KIM; HYUN CHAE JUNG

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Background/Aims: The prevalence of gastric cancer in Korea yet high although the incidence of gastric cancer is decreasing within recent 10-years. For this reason, endoscopic screening program is adopted by national insurance. This study aimed to assess the relationship between endoscopic screening interval and overall survival of gastric cancer.

Methods: Baseline characteristics is analyzed for the 1,516 patients visited Seoul National University Hospital in 2013 and first diagnosed the gastric cancer including all stages. The overall survival of gastric cancer is compared between those in without history of screening endoscopy and those in interval of between diagnosis of gastric cancer and the history of previous endoscopy (<12, <24, <36, ≥36 months).

Results: A total of 895 patients met criteria for the analysis. More patients in groups with the shorter interval of endoscopic exam were diagnosed with early stage of gastric cancer (71.0%, 68.6%, 67.2%, 53.2%) than no history of endoscopy (37.9%, p<0.001) (Table 1). The interval point of intersecting stage of early and advanced gastric cancer could be approximately around in three year. Hazard ratio (HR) for death were significantly more lower in the shorter previous endoscopic exam interval (<36 months HR 0.417; 95% confidence interval [CI], 0.307-0.566; ≥36 months HR 0.630; 95% CI, 0.358-0.625) than no history group.

Conclusion: Three-year interval of screening endoscopy can become a reference point diagnosing early versus advanced stage of gastric cancer and make significant difference in mortality.

Keywords: Endoscopic Screening, Interval, Overall Survival, Gastric Cancer

Figure 1
**OE-0650 (PP-0309) Mechanism of Qizhiweitong Granules on the Treatment of Functional Dyspepsia - Relaxion of Gastric Fundus by up-regulation of 5HT1A Receptor**

**Authors:** BIN WANG; WEI ZHAO; HONG JIN; LILI ZHANG; QIUYU CHEN; XIN ZHANG; BANGMAO WANG; HAILONG CAO

**Affiliation:** Department of Department of Gastroenterology and Hepatology, Tianjin Medical University General Hospital, Tianjin, China

**Background/Aims:** Impaired accommodation and hypersensitivity to gastric distention are believed to be involved in the development of functional dyspepsia (FD). Nowadays, a variety of traditional Chinese medicine therapies are used for the treatment of FD, while the mechanism is not well clarified. The aim of this study was to determine the role of a traditional medicine, Qizhiweitong Granules, in modulating gastric fundus muscle tension and the efficacy in relieving symptoms of FD.

**Methods:** Rats were randomly divided into 6 groups, including high, middle and low-dose Qizhiweitong granules groups, Flupentixol and Melitrace group, model group and control group. Except for the control group, before treatment, rats of other groups were conducted tail pain stimulation for 7 days to establish FD model. The observation lasted for 14 days. General condition of the rats and data of gastric emptying and intestinal propulsion were collected. The expression and level of 5-HT1A receptor in the fundus of stomach were detected by immunohistochemistry. Further, full-thickness stomach fundus muscle strips from Qizhiweitong granules groups were used to measure smooth muscle isometric contractions, and the contraction after the inhibition of 5-HT1A receptor by WAY-100135.

**Results:** After treatment, the general condition in all the Qizhiweitong granules groups obviously improved accompanied with delayed gastric emptying (P<0.05) and augmented expression of 5-HT1A receptor in stomach fundus (P<0.05). Besides, stomach fundus smooth muscle strips were relaxed concentration-dependently in all the Qizhiweitong granules groups (P<0.05). The 5-HT1A receptor antagonist WAY-100135 inhibited the Qizhiweitong granules-evoked gastric fundus smooth muscle relaxation.

**Conclusion:** Qizhiweitong granules may relieve symptoms of FD by relaxing stomach fundus smooth muscle via up-regulating 5HT1A receptor in gastric fundus.

**Keywords:** Qizhiweitong Granules, Functional Dyspepsia, 5ht1a Receptor

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**OE-0750 (PP-0310) Distribution trend of colorectal cancer: A colonoscopy database analysis involving 75,183 Chinese patients**

**Authors:** JINGYI WU; HAILONG CAO; DANFENG CHEN; BANGMAO WANG

**Affiliation:** Department of Department of Gastroenterology and Hepatology, General Hospital, Tianjin Medical University, Tianjin, China

**Background/Aims:** Some western researches have manifested a left-to-right shift of colorectal cancer (CRC), with the proportion of right colon cancer increasing remarkably. However, relevant reports are rare in Asia, and conclusions remain controversial. We aimed to describe the time trend in the distribution of CRC and analyze its clinical characteristics in the Chinese population.

**Methods:** A colonoscopy database was reviewed, and the data of patients diagnosed with CRC by biopsy from 2000 to 2017 were recorded. According to the anatomic location of the lesion, patients were divided into left-sided colorectal cancer (LSCRC) group and right-sided colon cancer (RSCC) group, and their clinical characteristics were compared.

**Results:** The final analysis included a total of 75,183 patients and 2,319 patients were diagnosed with CRC. The detection rate of CRC showed a significant downward trend from 2000-2008 to 2009-2017 (3.8% vs 2.7%, P<0.01). Totally, there were more LSCRC than RSCC, and the proportion of RSCC declined from 2000-2008 to 2009-2017 (40.6% vs 37.7%, P<0.05). There were more RSCC in female than that in male (40.9% vs 36.5%, P<0.05). There were slightly more RSCC in elderly patients (≥50 years) than that in young patients (38.6% vs 37.7%, P<0.05). The clinical symptoms between LSCRC and RSCC demonstrated statistic difference (P<0.05).

**Conclusion:** The present study reveals that there was no obvious left-to-right shift of CRC among the Chinese population in Tianjin over the past 18 years, suggesting that the distribution pattern of CRC of Chinese patients is still different from that of Western patients at the present stage.

**Keywords:** Colorectal Cancer, Anatomic Site, Clinical Characteristics, Comparative Study

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Background/Aims: Colonic diverticulosis tends to increase in Vietnam, especially in the elderly. Research topic in 18 months (01/2016-06/2017).

Aim: Prevalence, endoscopic image, complication and treatment of colonic diverticulosis in 108 Central Hospital (Hanoi-Vietnam).

Methods: Diagnosis of colonic diverticulosis is based on endoscopic findings. The information to monitor: endoscopy (location, size, number), clinical (abdominal pain, fever, gastrointestinal disorders), complications (perforation, bleeding). Evaluation of treatment outcome and mortality.

Results: Detection rate: 238/4964 (4.8%). Clinical: Abdominal pain (13.9%), diarrhea (28.1%), bloating (4.6%). Endoscopic results: Diverticular colon: Cecum (52.9%), ascending colon (26.5%). 1-2 diverticular colon: 48.7%. Size of colonic diverticular: 0.5-1.0 cm (62.6%). Complications: Peritonitis caused by free perforation of colonic diverticular: 3/238 (1.3%), lower gastrointestinal bleeding: 31/238 (13%); colovesical fistula: 1/238 (0.4%).

Conclusion: Colonic diverticulosis will tend to increase in Vietnam. Must be closely monitored and have treatment regimen.

Keywords: Colonic Diverticulosis

OE-0099 (PP-0313) QUALITY OF LIFE OF SRI LANKAN COLORECTAL CANCER PATIENTS

Authors: DAKSHITHA WICKRAMASINGHE; PRAVEEN DAYASENA; PRAGATHI WEERAKKODI; SANJEEWA SENEVIRATNE; NANDADEVA SAMARASEKERA
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Background/Aims: The quality of life (QOL) in patients with colorectal cancer (CRC) in Sri Lanka has not been evaluated before. We present the findings of the first study on the QOL of Sri Lankan CRC patients.

Methods: Colorectal cancer patients with stage I – III who underwent treatment with a curative intent at 2 referral centres in Sri Lanka were invited to participate in the study. Translated and validated Sinhala version of the European Organization for research and treatment of cancer (EORTC) QLQ-C30 and QLQ-CR29 questionnaires were administered. Mann-Whitney and Kruskal-Wallis tests (KWT) were used to identify statistically significant differences in the QOL among subgroups. Spearman correlation coefficient was used to identify correlations.

Results: A total of 102 participants (Male: Female 53: 49) were recruited. Their mean age was 57.2 years (SD 12.0). Twenty-five of them (24.5%) were undergoing neoadjuvant treatment while the remaining had had surgery at different times. The majority (N=79, 77.5%) were treated for rectal cancer. Patients who had had an abdominoperineal resection (APR) had a higher score for financial difficulty scale than patients who had anterior resection (AR) or colectomy. Of patients diagnosed with rectal cancer, patients who received radiotherapy had higher scores for symptom scales and lower scores for functional scales. The time since surgery had a statistically significant effect on the QOL of the patients. There were no statistically significant differences in the QOL scales between patients who underwent open or laparoscopic surgery. Patients with cancer of the rectum with a stoma had significantly higher scores for Body image scale (U=456, p=.022), Urinary incontinence (U=556.5, p=.009) and Hair loss (U=513, p=.033) and financial difficulty (U=458, p=.004). The patients without a stoma had significantly higher scores for constipation (U=431, p=.001).

Conclusion: The QOL of patients with CRC in Sri Lanka have been described. Several significant associations and trends have been identified.

Keywords: Quality Of Life, Colorectal Cancer, Sri Lanka
OE-0226 (PP-0314) Modified colonic transit test in healthy subjects and chronic constipated patients: a triple-phase, two-center prospective study

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Affiliation: [1]Department of Gastroenterology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, and [2]Department of Gastroenterology, The First Affiliated Hospital Of Xinxiang Medical University, Weihui, China

Background/Aims: Classic daily-ingestion single-film method using radiopaque markers (ROM) for colonic transit time (CTT) is unsuitable for Chinese patients due to rapid colonic motility. A new modified method needs to be established. Methods: The triple-phase study was performed. In Phase I, the classic ROM-test was assessed to evaluate its feasibility for Chinese subjects. In Phase II, a modified ROM protocol was performed in two centers on 180 healthy subjects and 90 constipated patients to determine optimal conditions. In Phase III, the simplified protocol was validated on 90 constipated patients. Anorectal manometry (ARM) was also surveyed (Figure 1). Results: Classic ROM-test is unsuitable for Chinese patients. The 20.9 hr. mean total CTT for healthy Chinese subjects was much faster than that seen in Western countries. As shown by Phase II, P2TCTT and P3 barium excretion ratio. Therefore, the simplified protocol with single-film taken at 72 hrs was further established. The simplified protocol had a diagnostic accuracy for constipation of 0.81, with a sensitivity and specificity of 0.46 and 0.97, respectively. The correlation between CTT and symptoms presents differently in functional constipation and IBS-C patients. There was no association between recto-sigmoid CTT and rectal pressures in chronic constipated patients. Conclusion: Colon movement in Chinese individuals is significantly faster than that of Western populations. The diversity of colonic transit characteristics should be considered. The modified ROM test generated in this study is appropriate for diagnosis of constipation in population with rapid colonic motility.

Keywords: Colonic Transit Test, Radiopaque Markers, Chronic Constipation

OE-0378 (PP-0315) Comparison of Colorectal Cancer Screening among US-born versus Foreign-born Asians: an Analysis of Two National Surveys in the United States

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Background/Aims: Colorectal cancer (CRC) burden is generally lower among Asians. However, studies have suggested that immigrants acquire CRC risk as US-born persons in the same generation. We aim to determine uptake of CRC screening (with fecal occult blood test or endoscopy) among US-born and foreign-born Asians. Methods: We used the 2007 Health Information National Trends Survey (HINTS) and identified 3,510 white and Asian respondents (weighted population size = 65,156,690). We also used 2013 HINTS 4 cycle 3 and identified 1,040 white and Asian respondents (weighted population size = 62,447,951). We compared compliance with CRC screening guidelines among whites and Asians and also compared US-born Asians with foreign-born Asians in HINTS 2007. We repeated our analysis and evaluated whether survey respondents were ever screened for CRC in HINTS 4 cycle 3. Results: Asians were 3.1% in 2007 HINTS and 4.2% in HINTS 4 cycle 3. Overall, Asians were less likely to have ever undergone CRC screening when compared to whites in 2007 HINTS (45.7% versus 65%; OR = 0.41; 95% CI: 0.21-0.81). Although non-statistically significant, but Asians were less likely to have ever undergone CRC screening when compared to whites in HINTS 4 cycle 3 (65% versus 73.2%; OR = 0.65; 95% CI: 0.28-1.53). In both datasets, foreign-born Asians were as likely to be non-compliant with CRC screening as their US-born counterparts (Table 1). Conclusion: There is a need to improve cancer education and CRC screening among all Asians in the US.

Keywords: Colon Cancer, Screening, Fobt, Colonoscopy, Sigmoidoscopy

CRC screening among Asians in the USA

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<th>2007 HINTS</th>
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<td>2007 HINTS 4 cycle 3</td>
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<tr>
<td>US-born</td>
<td>46.9%</td>
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<td>Foreign-born</td>
<td>45.4%</td>
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Adjusted for age, sex, education, health insurance and marital status
OE-0541 (PP-0316) ASSOCIATION OF COLORECTAL CANCER RISK WITH CUMULATIVE FECAL IMMUNOCHEMICAL TEST VERSUS COLONOSCOPY

Authors: HYUN-SOO KIM[1]; SOO YOUNG KIM[1]; YOON TAE KIM[1]; SOON JUNG KIM[1]; SU JIN AHN[1]; GEUNU PARK[2]; SO HEE PARK[2]; JAE MYUNG CHA[3]; JOO SUNG KIM[4]; WON HO KIM[5]


Background/Aims: We performed the comparative effectiveness study of cumulative fecal immunochemical tests (FITs) versus colonoscopy for the risk of colorectal cancer (CRC) through a population-based CRC case-control design.

Methods: Using National Health Insurance Service (NHIS) administrative big data, we identified patients (cases) diagnosed and treated with CRC from January 2009 through December 2013. We selected four matched controls (age, sex, level of socioeconomic status, and smoking) without any cancer for each case. We assessed whether the association between the cumulative FITs versus colonoscopy and CRC occurrence varied with age, sex, endoscopist specialty, and cancer location, respectively.

Results: We identified 61,221 cases (12,488 proximal [20.4%], 41,313 distal [67.5%), and 7,420 unknown site [12.1%]) and 306,099 controls. Compared with controls, cases were less likely to have undergone colonoscopy (9.3% vs. 25.3%, odds ratio [OR], 0.29; 95% CI, 0.28 to 0.30) or FIT (25.2% vs. 32.3%, OR, 0.74; 95% CI, 0.73 to 0.76). The stronger associations of colonoscopy with a reduced risk of CRC were found in the cases with 50-74 years of age (OR, 0.27), male (OR, 0.27), specialty of gastroenterology department (OR, 0.26), and previous diagnostic colonoscopy (OR, 0.27). Importantly, ORs of FIT exposure for CRC gradually decreased from 0.81(0.80-0.83) to 0.45(0.39-0.51), as the frequency of cumulative FIT increased from one to 5 times or more during the previous 10 years.

Conclusion: As the number of FITs increased over the last 10 years, the risk associations of CRC incidence decreased. However, this association of cumulative FITs with CRC risk did not reach that of colonoscopy in a population-level real world practice.

Keywords: Fit, Colonoscopy, Colorectal Cancer, Population

OE-0626 (PP-0317) Association between concentrations of fecal hemoglobin and development of colorectal cancer after a negative fecal immunochemical test: A nationwide population-based cohort study in Korea

Authors: SU YOUNG KIM[1]; HYUN-SOO KIM[1]; YUN TAE KIM[2]; MIN HEUI YU[2]; JUNG KUK LEE[2]; DAE RYONG KANG[2]

Affiliation: [1]Department of Internal Medicine-GI/Hepatology, Wonju Severance Christian Hospital, and [2]Department of Center of Biomedical Data Science, Yonsei University Wonju College of Medicine, Wonju, Republic of Korea

Background/Aims: Studies on development of CRC among subjects with negative FIT has been lacking. We aimed to evaluate the association between fecal hemoglobin (fHb) concentration below the FIT cut-off value and subsequent development of CRC.

Methods: We collected data from both National Health Insurance Service (NHIS) and National CRC Registry for participants who determined negative FIT between 2009 and 2011. Among them, we select the subjects who received a colonoscopy within 5 years of performing FIT. The incidence of CRC was estimated, and hazard ratios (HRs) for CRC were ascertained using Cox proportional-hazards regression analyses.

Results: We identified 140 CRC arising among 49,465 subjects with negative FIT. After 5 years of follow up, subjects with concentrations of 50-75 or 75-100 ng/mL had a higher cumulative incidence of CRC (0.82 and 1.14 %, respectively) than 0-25 ng/mL (0.26%). Compared with reference (0-25 ng/mL), adjusted HRs increased with the fHb value (25-50 ng/mL: 1.94 [95% CI 1.09-3.44, P = 0.024], 50-75 ng/mL: 3.06 [95% CI 1.25-7.49, P = 0.014], 75-100 ng/mL: 4.35 [95% CI 1.61-11.79, P = 0.004], respectively).

Conclusion: In analyzing data from register-based cohort study in Korea, we determined that the risk of CRC show a clear increasing trend as the value of fHb larger. These results suggest that development of CRC may be different depending on fHb concentrations even in negative FIT.

Keywords: Fecal Immunochemical Test, Colorectal Cancer, Fecal Hemoglobin, Nationwide, Population
Background/Aims: The risk of post-colonoscopy colorectal cancer (PCCRC) has been reported in screening and population-based studies. However, the risk of PCCRC among symptomatic patients is unknown. This study aimed to evaluate the risk of PCCRC among symptomatic patients.

Methods: This retrospective cohort study included consecutive symptomatic patients undergoing colonoscopy between 2000-2010 in three endoscopy centres. Subjects with no history of significant bowel problem and with non-malignant finding at their index colonoscopy were followed until 2013. The primary outcome was the risk of overall PCCRC, PCCRC within three-year and five-year after the index colonoscopy. The secondary outcome was risk factors associated with PCCRC; age, gender, endoscopist specialty, CRC site, rectal bleeding, altered bowel habit and abdominal pain were fitted into a multivariate regression model. Results: This study followed 43,893 subjects with mean 7.25 years. The mean age was 55.63; 45.62% were male. There were 181 (0.41%) overall PCCRC; 71 (0.16%) and 111 (0.25%) were found within three years and five years. CRC in the proximal colon were 46% more likely to be PCCRC (OR=1.46; 95%CI:1.03–2.07, p=0.032); and patients presenting with rectal bleeding during the index colonoscopy were 46% more likely to develop PCCRC (OR=1.46; 95%CI 1.03–2.07, p=0.035).

Conclusion: The risk of PCCRC among symptomatic patients were comparable with population-based studies. PCCRC was more likely to develop in the proximal colon and in patients presenting with rectal bleeding during their index colonoscopy.

Keywords: Post-Colonoscopy, Colorectal Cancer, Symptomatic

Table 1

<table>
<thead>
<tr>
<th>Post-colonoscopy Colorectal Cancer (n=181)</th>
<th>Colorectal Cancer Diagnosed at Index Colonoscopy* (n=3,299)</th>
<th>Multivariate Regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>------</td>
<td>----</td>
<td>------</td>
</tr>
<tr>
<td>Age</td>
<td>69.33</td>
<td>11.67</td>
</tr>
</tbody>
</table>

No. of Subjects | % | No. of Subjects | %
---|---|---|---|---|---|---|---|
Gender | | | | | | | |
Female | 88 | 48.62 | 1,385 | 49.18 | 0.079 | 1.34 | [0.99 – 1.83] | 0.061 |
Male | 93 | 51.38 | 1,914 | 50.82 | Ref | 0.89 | [0.63 – 1.25] | 0.497 |
Endoscopist specialty | | | | | | | |
Physician | 61 | 33.70 | 1,133 | 34.35 | 0.857 | Ref | 1.46 | [1.03 – 2.07] | 0.032 |
Surgeon | 120 | 66.30 | 2,165 | 65.65 | Ref | 1.46 | [1.03 – 2.07] | 0.032 |
CRC site | | | | | | | |
Proximal colon | 57 | 33.14 | 887 | 27.28 | 0.093 | Ref | 1.46 | [1.03 – 2.07] | 0.032 |
- Appendix vermiformis | 2 | 1.10 | 7 | 0.21 | 1.34 | [0.99 – 1.83] | 0.061 |
- Cecum | 12 | 6.63 | 78 | 5.40 | 1.46 | [1.03 – 2.07] | 0.032 |
- Descending colon | 25 | 13.81 | 320 | 9.70 | Ref | 0.89 | [0.63 – 1.25] | 0.497 |
- Hepatic flexure | 8 | 4.42 | 199 | 6.03 | Ref | 0.89 | [0.63 – 1.25] | 0.497 |
- Transverse colon | 10 | 5.52 | 183 | 5.55 | Ref | 0.89 | [0.63 – 1.25] | 0.497 |
Distal colon | 115 | 66.86 | 2,365 | 72.72 | Ref | 1.46 | [1.03 – 2.07] | 0.032 |
- Splenic flexure | 2 | 1.10 | 59 | 1.79 | 1.34 | [0.99 – 1.83] | 0.061 |
- Descending colon | 12 | 6.63 | 186 | 5.64 | 1.46 | [1.03 – 2.07] | 0.032 |
- Sigmoid colon | 34 | 18.78 | 783 | 23.73 | 1.46 | [1.03 – 2.07] | 0.032 |
- Rectosigmoid junction | 9 | 4.97 | 298 | 9.03 | Ref | 0.89 | [0.63 – 1.25] | 0.497 |
- Rectum | 47 | 25.97 | 1,006 | 30.49 | Ref | 0.89 | [0.63 – 1.25] | 0.497 |
- Anal canal | 3 | 1.66 | 20 | 0.61 | 1.34 | [0.99 – 1.83] | 0.061 |
- Anal, unspecified site | 5 | 2.76 | 10 | 0.30 | 1.34 | [0.99 – 1.83] | 0.061 |
- Other sites of rectum, rectosigmoid junction & anus | 3 | 1.66 | 3 | 0.09 | 1.34 | [0.99 – 1.83] | 0.061 |
Unspecified | 9 | 4.97 | 47 | 1.42 | 1.34 | [0.99 – 1.83] | 0.061 |

Symptoms | | | | | | | |
Rectal bleeding | Yes | 63 | 34.81 | 958 | 29.04 | 0.097 | 1.46 | [1.03 – 2.07] | 0.032 |
No | 118 | 65.19 | 2,241 | 70.96 | Ref | 0.89 | [0.63 – 1.25] | 0.497 |
Alter bowel habit | Yes | 13 | 7.18 | 306 | 9.28 | 0.342 | 0.94 | [0.51 – 1.70] | 0.825 |
No | 168 | 92.82 | 2,993 | 90.72 | Ref | 0.89 | [0.63 – 1.25] | 0.497 |
Abdominal pain | Yes | 6 | 3.31 | 118 | 3.58 | 0.853 | 0.80 | [0.32 – 2.03] | 0.643 |
No | 175 | 96.69 | 3,181 | 96.42 | Ref | 0.89 | [0.63 – 1.25] | 0.497 |

* 3,299 subjects diagnosed with CRC at index colonoscopy were not included into the cohort. All included subjects (n=43,893) had no history of colorectal cancer and had non-malignant finding at their index colonoscopy and were followed up until 2013.

** Univariate analysis with Chi’s square test for categorical variable and t-test for continuous variable

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OE-0832 (PP-0318) The Risk of Post-Colonoscopy Colorectal Cancer among 43,893 Symptomatic Patients

Authors: HOYEE HIRAI; JESSICA YL CHING; JUSTIN CY WU; JOSEPH JY SUNG; FRANCIS KL CHAN; SIEW C NG

Affiliation: Department of Medicine & Therapeutics, The Chinese University of Hong Kong, Hong Kong, Hong Kong
OE-0988 (PP-0319) Clinical factors associated with adherence to the additional examination in patients with positive fecal occult blood test in National Colorectal Cancer Screening: A nationwide population-based cohort study
Authors: CHANG MO MOON[1]; EUNJUNG PARK[2]; KYEONG AE KONG[3]; DUK HWAN KIM[4]; YU JIN KIM[5]; MINJOO KANG[2]; SINSHEE KANG[2]; JUNG-IM SHIM[2]; JESSIE LEE[2]; HA JIN TCHOE[2]; BYUNG CHANG KIM[6]; KUI SON CHOI[7]

Background/Aims: Compliance to the additional examination after FOBT was lower than expected, but few studies have evaluated clinical factors related to it. Therefore, we aimed to evaluate the adherence rate to the additional examination in patients with positive FOBT and also identify which clinical factors are associated with this adherence in Korea National Cancer Screening Program. Methods: The study population was adults aged 50 years or older that were participated in the NCSP for CRC from January to December, 2013. Data were obtained from the Korea National Health Insurance Corporation database. Good compliance was defined as having undergone additional examination (colonoscopy or barium enema) within 1 year after FOBT if FOBT was positive. Results: Among 238,235 persons, 131,303 (55.1%) were in the compliance and 106,932 (44.9%) were in the non-compliance group. In multivariate analysis, good compliance was independently associated with men (odds ratio [OR]=1.13), younger age (vs. >80 years) (70-79 years, OR=2.15; 60-69 years, OR=3.16; 50-59 years, OR=3.38), prior experience of CRC screening (negative FOBT, OR=1.17; positive FOBT, OR=2.42; additional examination, OR=2.04), higher economic income (Quartile 3, OR=1.14; quartile 4, OR=1.22), non-smoker (OR=1.12), active physical activity (3 times/week, OR=1.13), history of benign colorectal diseases (OR=1.08), dyslipidemia (OR=1.14), and depression (OR=1.10). Conclusion: Men, younger age, prior screening experience, higher economic income, non-smoker, active physical activity, history of chronic diseases are associated with good compliance to the additional examination after positive FOBT. These results are expected to be used for increasing the rate of additional examination in Korea NCSP.

Keywords: Colorectal Cancer, Fecal Occult Blood Test, Additional Examination, Compliance

OE-1003 (PP-0320) Can a WhatsApp reminder improve the quality of colorectal cancer screening? A randomized controlled study
Authors: THOMAS YUEN TUNG LAM; JESSICA YUET LING CHING; RAYMOND SHING YAN TANG; JUSTIN CHE YUEN WU; JOSEPH JAO YIU SUNG
Affiliation: Department of Medicine and Therapeutics, The Chinese University of Hong Kong, Hong Kong, Hong Kong

Background/Aims: Bowel preparation is one of the important factors to ensure a high quality colonoscopy. Efforts to improve bowel preparation level through traditional communication routines have proven to be useful. However, the impact of WhatsApp reminder on the bowel preparation level of screening colonoscopy is still unknown. We aimed to investigate the effectiveness of WhatsApp reminder in bowel preparation level of screening colonoscopy. Methods: Subjects recruited and randomized to a population-based CRC screening program. All subjects would receive both verbal and written instructions of bowel preparation by a healthcare professional on the day of appointment making. For subjects randomized to the WhatsApp reminder group, they will receive a WhatsApp reminder with same content of the written instruction and a video of detailed bowel preparation instruction 4 days prior colonoscopy. For subjects randomized to usual care group, they will not receive any reminder. Results: From June 2017 to April 2018, 357 subjects were recruited and randomized to WhatsApp reminder and usual care groups with similar demographics. During colonoscopy, the caecal intubation rate of both groups was 97.2%. When compared to usual care group, more subjects achieving satisfactory bowel preparation level (84.7% vs 76.8%, p=0.062) and polyp detection rate was higher (75.0% vs 72.9, p=0.455), however, no statistical significance can be observed. Conclusion: WhatsApp reminder shows no significant improvement in the bowel preparation level and polyp detection rate of colonoscopy during CRC screening.

Keywords: Colorectal Cancer Screening, Whatsapp, Bowel Preparation, Polyp Detection

Demographics and colonoscopic findings

<table>
<thead>
<tr>
<th></th>
<th>WhatsApp</th>
<th>Usual Care</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>176</td>
<td>181</td>
<td></td>
</tr>
<tr>
<td>Male Gender (%)</td>
<td>99 (56.3)</td>
<td>110 (60.8)</td>
<td>0.153</td>
</tr>
<tr>
<td>Age (SD)</td>
<td>66.1 (1.5)</td>
<td>66.3 (2.8)</td>
<td>0.463</td>
</tr>
<tr>
<td>Caecal intubation (%)</td>
<td>171 (97.2)</td>
<td>176 (97.2)</td>
<td>0.465</td>
</tr>
<tr>
<td>Satisfactory bowel preparation level (%)</td>
<td>149 (84.7)</td>
<td>139 (76.8)</td>
<td>0.062</td>
</tr>
<tr>
<td>Polyp detection (%)</td>
<td>132 (75.0)</td>
<td>132 (72.9)</td>
<td>0.455</td>
</tr>
</tbody>
</table>
**EP-0119 (PP-0322) Delayed gastric emptying after pylorus preserving pancreaticoduodenectomy: Impact of straight stomach reconstruction with feeding jejunostomy tube placement**

**Authors:** HIROYUKI SUGO; YUKI SEKINE; RYOSUKE ICHIKAWA; YUKO ICHIKAWA; SHOZO MIYANO; IKUO WATANOBE; MICHIYO MACHIDA; TOSHIKI KITABATAKE; KUNIAKI KOJIMA

**Affiliation:** Department of General Surgery, Juntendo University Nerima Hospital, Tokyo, Japan

**Background/Aims:** Delayed gastric emptying (DGE) is a leading cause of complication after pylorus preserving pancreaticoduodenectomy (PPPD). The aim of this study was evaluated for straight stomach reconstruction with insertion of intestinal feeding tube to prevent for DGE. **Methods:** A retrospective analysis was conducted for 37 consecutive patients who underwent a PPPD in which a straight stomach reconstruction with insertion of intestinal feeding tube was performed. After PPPD, reconstruction was done using conventional Child procedure: the stomach was mobilized downward in a straight line. The duodenum was anastomosed end-to-side to the jejunum, antecolically, 40 cm from the choledochojejunostomy. The efferent jejunum is placed in the left lower abdomen with the feeding jejunostomy tube placement. DGE was defined according to the International Study Group of Pancreatic Surgery. **Results:** DGE occurred in seven patients (19%) as Grade A in six and Grade B in one. Clinical significant DGE (grades B and C) was only 1 (3%). Of all 37, the postoperative hospital stay is 28.0 days **Conclusion:** Straight stomach reconstruction with a insertion of intestinal feeding tube could reduce the incidence of DGE after PPPD. **Keywords:** Pylorus Preserving Pancreatoduodenectomy, Delayed Gastric Emptying, Straight Stomach Reconstruction

**OE-0109 (PP-0323) Robotic docking and operative console times- Are we getting better over the years with expertise?**

**Authors:** ABHISHEK AGRAWAL; SUDHEER O V

**Affiliation:** Department of Surgery, Amrita Institute Of Medical Sciences, Kochi, India

**Background/Aims:** Robotic surgery is at the forefront of Minimally Invasive Surgery and is pushing the boundaries in terms of its application in various specialties and surgical finesse. It is already well established as the “go to method” in pelvic surgeries and is fast becoming the gold standard for a variety of procedures. The learning curve, however, remains a key concern for robotic surgery and a crucial limiting factor in its universal acceptability. The aim of this study is to record the pattern of Docking time and Operative console time of Da Vinci Surgical Systems Xi Operating Robot, for its use in commonly performed surgeries in the fields of Surgical Gastroenterology, Gynee-oncology and Uro-oncology, at Amrita Institute of Medical Sciences. **Methods:** Retrospective data of a total of 100 patients who underwent Robotic Low Anterior Resection, Robotic Radical Prostatectomy with Bilateral Retroperitoneal Lymphadenectomy, Robotic hysterectomy with Bilateral Salpingo-Oopherectomy was collected and was analyzed for docking time and operative console time over a period of 2 years, from 2015 to 2017. For each chosen specialty, a single surgeon study was performed. **Results:** It was found that in each of the 3 specialties, both docking time and operative console times decreased significantly with increase in expertise and experience, over the duration of the study. **Conclusion:** Robotic surgery is the current flagbearer of Minimal Access Surgery, offering better maneuverability, vision and precision. With adequate exposure and training, the learning curve can be mastered and hence should not be a deterrent for upcoming minimal invasive surgeons. **Keywords:** Robotic Surgery, Davinci Surgical Robot, Operative Duration, Learning Curve, Docking Time
OE-0276 (PP-0324) Mechanisms of Action for Weight Reduction in Patients Treated with a Duodenal-Jejunal Bypass Sleeve

Authors: JESSICA JADE MCMASTER[1]; GERAELD J HOLTMANN[1]; ERIN R SHANAHAN[1]; ANH T DO[1]; LINDA M FLETCHER[1]; MARGUERITE J KUTYLA[1]; CAROLINE TALLIS[2]; VERONIQUE S CHACHAY[3]; MARK MORRISON[4]; GRAEME A MACDONALD[1]; MARGUERITE J KUTYLA[1]; LINDA M FLETCHER[1]; MARGUERITE J KUTYLA[1]; GERALD J HOLTMANN[1]

Affiliation: [1]Department of Gastroenterology and Hepatology, Princess Alexandra Hospital & School Of Clinical Medicine, Faculty Of Medicine, [2]School Of Human Movement And Nutrition Sciences, Faculty Of Health And Behavioural Sciences and [4]University Of Queensland Diamantina Institute, Faculty Of Medicine, University Of Queensland, and [2]Department of Gastroenterology and Hepatology, Princess Alexandra Hospital, Brisbane, Australia

Background/Aims: The duodenal-jejunal bypass sleeve (DJBS; Endobarrier®) induces weight loss, but little is known about potential mechanisms of action. The aim of this study was to define alterations of gut function, characterise mechanisms of action for inducing weight loss and assess the impact of the DJBS on the gastrointestinal microbiota.

Methods: We studied 19 morbidly obese subjects for 48 weeks after DJBS implantation and monitored body weight and dietary intake. Utilising 13C isotopes, gastric emptying and triglyceride absorption were measured at baseline, post-implant and post-explant. Visceral sensory function was also assessed by standardised nutrient challenge. Upon explant, samples from the mucosal-adjacent device biofilm were obtained. DNA was extracted and the bacterial 16S rRNA gene amplified and sequenced (MiSeq platform). This research has been approved by an ethical committee.

Results: Mean weight loss at 48 weeks was 17.0 (p<0.01). Meal-related symptoms significantly increased with the device in-situ, but returned to baseline after its removal. Neither gastric emptying nor triglyceride absorption changed with the DJBS in-situ. Energy intake was significantly reduced (p=0.01). There was a significant correlation between the relative abundance of six taxa on the device and weight loss, while eight taxa correlated with impaired weight loss. Three patients had devices explanted early due to abdominal pain. Compared to patients who completed the full intervention, they had significantly higher (FDR q<0.05) relative abundance of members of the Gammaproteobacteria class and the genera Klebsiella, Akkermansia, and Bifidobacterium. There was substantial overlap between taxa associated with both early explant and impaired weight loss. DJBS treatment resulted in substantial weight loss, which is related to reduced caloric intake that is linked to an augmented gastrointestinal symptom response. The relative abundance of specific bacterial taxa was linked with device tolerability and weight loss outcomes.

Keywords: Obesity, Bariatric Endoscopy

OE-0563 (PP-0325) CLINICO-PATHOLOGICAL SPECTRUM AND CORRELATION OF GASTROINTESTINAL STROMAL TUMOURS (GIST): AN EXPERIENCE AT TU TEACHING HOSPITAL

Author: DHRUBA NARAYAN SAH
Affiliation: Department of G& General Surgery, TU Teaching Hospital, Kathmandu, Nepal

Background/Aims: Introduction Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal neoplasms, accounted for 1-3% of all gastrointestinal malignancies. Objective - To determine clinic-pathological spectrum and risk category of GIST and correlate with tumor characteristics and immunohistochemistry (IHC) with perioperative events.

Methods: It is a retrospective review of all GIST patients admitted between 2015 – 2018 at TUTH. Patients’ demographics, clinical presentation, tumor characteristics, radiological, pathological and immunohistochemical findings, surgical procedures, perioperative events and follow-up were recorded. Results were analyzed by SPSS 23 (Statistical Package of Social Sciences).

Results: A total of 42 GIST patients were identified with age (19-81 years) and 69 % were males. Location of tumors were gastric (35.7%), small bowel (23.8%), duodenum (14.3%), large bowel (8.1%), omentum (10.8%) and rest (10.8%). Pain (17) followed by bleeding (13) were major indications. Max tumor dimensions were 2.8-30 cm and mitotic figures were 0-35. Patients were stratified as high, intermediate, low and very low risk (28.6%, 25.7%, 28.6% and 17.1% respectively). Majority was surgically managed out of which two cases underwent preoperative angioembolization. CD 117 was positive in 86.5%. Neoadjuvant imatinib given in 2 cases while adjuvant imatinib given in 18 cases. Follow up were available in 34 cases out of which 4 died and 30 had no issues. Conclusions: Majority of cases presented with pain abdomen and bleeding with location stomach, small bowel including duodenum. Surgical resection is the preferred choice of treatment. Most cases fall in risk category of intermediate-high. Long-term follow-up, other histopathological details and IHC reports are needed for future correlation

Keywords: Gastrointestinal Stromal Tumor, Immunohistochemistry, Risk Categorization, Tuth
OE-0704 (PP-0326) Comparative study of perioperative complications for elderly gastric cancer patients aged over 80 years old

Authors: AYATO OBANA; TATSUSHI SUWA; KENTA KITAMURA; TOMONORI MATSUMURA; MOTOI KOYAMA; KAZUHIRO KARIKOMI; KEIGO OKADA

Affiliation: Department of General Surgery, Kashiwa Kousei General Hospital, Kashiwa, Japan

Background/Aims: With Japan facing an unprecedented aging society, the number of gastric cancer operations for elderly patients (EPs) is rapidly increasing. Because most EPs have various comorbidities, EPs have a higher risk of severe perioperative complications than non-elderly patients (NEPs).

Methods: We analyzed 238 patients who underwent surgery for gastric cancer from April 2009 to December 2017 in our facility and performed retrospective analysis and group comparison between 61 patients aged over 80 (Group A) and 177 patients aged under 80 (Group B). Both groups are compared using American Society of Anesthesia Physical Status (ASA-PS) for preoperative evaluation and Clavien-Dindo classification (CD) for perioperative complications. Each status and complication was analyzed with chi-square test.

Results: The median age and male/female ratio were 84 (range 80-93) and 37/24 in group A, 70 (range 41-79) and 117/60 in group B. ASA-PS class I/2/3 and pStage a…/a…/a…/a…/e were 1/2/36 and 37/8/16 in group A, 37/111/29 and 119/26/32 in group B. Group A patients had more comorbidities besides gastric cancer and had lower ASA-PS score than Group B (p<0.001). Although group A had a higher rate of perioperative complications, classified as CD class 2 or greater, than group B as a whole (p<0.01), there was no difference in each complication developing rate except delirium (p>0.05). In-hospital mortality rate is significantly higher in group A (p=0.0042).

Conclusion: Although operations for EPs have a higher risk of perioperative complications than those for NEPs, there was no significant difference in developing rate of each complication except delirium between both groups. However, when EPs have postoperative complications, this can lead to severe consequences. With meticulous preoperative evaluation, surgery for gastric cancer may safely be performed in patients over 80 years old.

Keywords: Gastric Cancer, Postoperative Complication, Surgery, Age

OE-0757 (PP-0327) NOVEL BIO-DEGRADABLE STENT IN PATIENTS WITH PANCREATIC OBSTRUCTION

Authors: SUNDEEP LAKHTAKIA; D N REDDY

Affiliation: Department of Gastroenterology, Asian Institute of Gastroenterology, Hyderabad, India

Background/Aims: Pancreatic stents are placed endoscopically for management of respective ductal obstruction. Pancreatic stents are currently made of either plastic or metal alloy, which can occlude over a period of time due to formation of biofilms leading to either recurrence of original symptoms or additional complications. Repeat ERCP is often required for stent removal after resolution of index event or stent exchange to avoid adverse events. Biodegradable stents (ARCHIMEDES, amg International GmbH, Winsen, Germany) gradually degrade over a variable period of time, in principle, can be used to treat ductal obstruction without the need to undergo a repeat endoscopic procedure for stent retrieval.

Methods: This pilot study enrolled subjects with symptomatic pancreatic duct obstructions requiring management by ERCP guided stenting. Depending on degradation profile serial abdominal x-rays were taken at 14 days, 1, 3, 6, 9, and 12 months after placement to monitor the position of indwelling stent and its natural disintegration. The primary endpoint was technical success and safety of ERCP guided placement of biodegradable stent. The secondary endpoint was clinical success, defined as reduction of at least 20% of the initial serum bilirubin level at day 7 post stenting for biliary indication. A self-assessment scale from 0 to 10 was used to assess quality of life before and after stenting. Any adverse events were noted.

Results: Total of 24 patients were recruited. Technical success in all patients n=24 (100%), respectively. There was no requirement of ERCP with re-stenting. There were no repeat ERCP for device retrieval in the study. There were no stent related serious adverse event (SAE). Conclusion: Biodegradable stents are safe and efficacious for pancreatic duct obstruction in this pilot study. Using biodegradable stents may avoid a second ERCP procedure for stent removal. Further studies are needed to assess their wider use.

Keywords: Pancreatic, Stents, Bio-Degradable, Pancreatitis
OE-0802 (PP-0328) Changes in bone metabolism after gastrointestinal bariatric surgery

Authors: QI ZHANG[1]; YI CHEN[2]; LIU CHENGXIN[2]
Affiliation: Department of [1]Endocrinology and Metabolism, and [2] Department Of Gastrointestinal Surgery, Sichuan University West China Hospital Chengdu, Sichuan, China

Background/Aims: Bariatric surgery results in rapid weight loss and beneficial metabolic effects, but may have negative effects on bones. The aim of this study was to evaluate changes in bone metabolism after surgery.

Methods: 20 obese subjects (mean 31 years, BMI 39.3kg/m²) at baseline underwent gastrointestinal bariatric surgery. Calcium and vitamin D preparations were supplemented according to serum calcium and 25 hydroxy vitamin D [25(OH)D] level after surgery. Serum calcium, phosphorus, bone specific alkaline phosphatase (BALP), collagen type I C-telopeptide (CTX), parathyroid hormone (PTH), 25(OH) D, BMD (lumbar spine, femoral neck and total hip) and body composition were measured before and 6 and 12 months after surgery. Results: At 6 months after surgery, serum calcium, CTX and 25(OH) D increased (P=0.027; P<0.001; P=0.005, respectively). Total hip BMD and fat mass decreased (P=0.004; P=0.045, respectively). Serum phosphorus, BALP and PTH were unchanged. In addition, BALP was negatively correlated with lumbar spine BMD and total hip BMD but no significant correlation with femoral neck BMD (r=-0.784, P=0.003; r=-0.698, P=0.017; r=-0.587, P=0.058, respectively). 25(OH) D increased and total hip BMD decreased at 12 months after surgery. Lumbar and femoral neck BMD decreased, but this finding was not statistically significant (see Table 1).

Conclusion: Bone absorption was active after bariatric surgery and BMD at total hip decreased. Our results are needed to be further validated in large multi-center studies.

Keywords: Bariatric Surgery, Bone Turnover Markers, Bone Mineral Density

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>6-month change</th>
<th>P-value</th>
<th>12-month change</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum calcium (mmol/L)</td>
<td>2.20(0.15)</td>
<td>0.22(0.20)</td>
<td>0.027</td>
<td>0.13(0.20)</td>
<td>0.108</td>
</tr>
<tr>
<td>Serum Phosphorus (mmol/L)</td>
<td>1.05(0.54)</td>
<td>0.18(0.36)</td>
<td>0.203</td>
<td>0.22(0.38)</td>
<td>0.148</td>
</tr>
<tr>
<td>BALP (μg/L)</td>
<td>17.7(10.95)</td>
<td>2.88(14.14)</td>
<td>0.286</td>
<td>-3.93(0.47)</td>
<td>0.201</td>
</tr>
<tr>
<td>CTX (mg/ml)</td>
<td>0.52(0.39)</td>
<td>0.48(0.38)</td>
<td>&lt;0.001</td>
<td>0.13(0.21)</td>
<td>0.088</td>
</tr>
<tr>
<td>PTH (pmol/L)</td>
<td>6.10(4.48)</td>
<td>2.70(5.38)</td>
<td>0.485</td>
<td>0.77(1.32)</td>
<td>0.51</td>
</tr>
<tr>
<td>25(OH)D (nmol/L)</td>
<td>35.90(13.33)</td>
<td>15.39(19.32)</td>
<td>0.005</td>
<td>20.00(25.17)</td>
<td>0.019</td>
</tr>
<tr>
<td>Lumbar spine BMD (g/cm²)</td>
<td>1.12(0.19)</td>
<td>-0.03(0.06)</td>
<td>0.084</td>
<td>-0.21(0.21)</td>
<td>0.225</td>
</tr>
<tr>
<td>Femoral neck BMD (g/cm²)</td>
<td>1.09(0.15)</td>
<td>-0.02(0.07)</td>
<td>0.421</td>
<td>-0.23(0.12)</td>
<td>0.803</td>
</tr>
<tr>
<td>Total hip BMD (g/cm²)</td>
<td>1.14(0.14)</td>
<td>-0.06(0.06)</td>
<td>0.004</td>
<td>-0.33(0.11)</td>
<td>0.007</td>
</tr>
<tr>
<td>Fat mass (%)</td>
<td>41.65(4.45)</td>
<td>-3.56(4.14)</td>
<td>0.045</td>
<td>*</td>
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</tr>
</tbody>
</table>

OE-0812 (PP-0329) FIB4 identifies under-recognised advanced liver disease in hospital inpatients

Authors: RAHUL SRIRAM[2]; RONA FRANCISCO[2]; GIDEON MEYEROWITZ-KATZ[3]; RAYMOND KWOK[1]; GOLO AHLENSTIEL[1]; TIEN MING HNG[2]

Background/Aims: Advanced liver fibrosis is important to identify because progression to cirrhosis may be prevented with timely appropriate treatment. However liver disease, particularly NAFLD, is frequently under-recognised and insufficiently managed by clinicians, let alone those who may have advanced fibrosis. In a group of hospital inpatients, we analysed subjects who were retrospectively diagnosed to have advanced fibrosis using the FIB4 index, and subjects who had an established diagnosis of any form of liver disease.

Methods: Patients who were admitted to Blacktown Public Hospital under the Gastroenterology Service between 1st August to 31st October 2017 were included in the study. Relevant clinical information, and investigative results were obtained from medical records. The FIB4 was calculated using data from laboratory investigations taken during the inpatient admission. A cut-off of 3.25 was chosen to represent advanced fibrosis derived from a meta-analysis. Subjects were considered to have an established diagnosis of liver disease based on the documentation in the medical record. Results: Data was able to be collected for 117 subjects. There were 17(14.5%) subjects who had known liver disease (prior or new diagnosis), but there were 25 (21.4%) who had a FIB4 > 3.25. Of these, 12 (48%) were not documented to have any liver disease. A FIB4 > 3.25 was associated with hyperlipidaemia in multivariate analysis using binary logistic regression (OR 3.52, p=0.038).

Conclusion: There is a high prevalence of subjects with a FIB4 suggestive of advanced fibrosis. Despite being under the care of the gastroenterology service, almost half were not recognised. The association with hyperlipidaemia, suggests the main aetiology of advanced fibrosis may be NAFLD. Screening of liver fibrosis for gastroenterology inpatients with suspected NAFLD may increase the identification of severe liver disease.

Keywords: Naflid, Liver Fibrosis, Fib4 Index, Diagnosis
OE-0864 (PP-0332) Autotaxin is a non-invasive biomarker for estimating chronic liver disease status

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Affiliation: [1]Department of Medicine-GI/Hepatology, [2]Internal Medicine, Singapore General Hospital and [3]Department of Therapeutic Radiology and Oncology, National Cancer Centre, Singapore, Singapore

Background/Aims: Autotaxin (ATX) has been recently linked to liver fibrosis. We investigated the correlation of serum ATX level with disease stage in chronic liver disease patients.

Methods: Serum ATX values were measured in 1,015 patients (45% male, median age: 57 years, chronic hepatitis C: 584, chronic hepatitis B: 101, primary biliary cholangitis; PBC: 128, non-alcoholic fatty liver disease; NAFLD: 202), all of whom received liver biopsy, along with 160 healthy controls for comparisons of clinical parameters.

Results: Median age was significantly higher in CHC (58 years), PBC (57 years), and NAFLD (56 years) than in CHB (46 years) (P<0.001). The proportion of female patients was significantly higher for PBC (84%) than for other groups (CHC: 50%, CHB: 39%, NAFLD: 56%, P<0.001). The median ATX of healthy controls and of patients was higher in female than that in male (controls: 0.82 vs. 0.70, P<0.001, patients: 1.32 vs. 1.00 mg/L, P<0.001). ATX in patients was significantly higher than that in healthy controls (1.13 vs. 0.76 mg/L, P<0.001). ATX values for CHC and CHB (1.39 and 1.22 mg/L) were significantly higher than those of PBC and NAFLD (0.97 and 0.86 mg/L).

Significant correlations were found between ATX and fibrosis stage for each liver disease (CHC: r=0.72, CHB: r=0.46, PBC: r=0.43, NAFLD: r=0.45, P<0.001), when stratified by gender. ATX showed significant correlations with such established liver fibrosis markers as M2BPGi, FIB-4, and APRI (P<0.001).

Conclusion: ATX values appear to be useful for assessing disease stage in chronic liver disease. As gender and etiology differences exist, further studies are needed to clarify the clinical significance of ATX.

Keywords: Autotaxin, Chronic Hepatitis C, Chronic Hepatitis B, Primary Biliary Cholangitis, Non-Alcoholic Fatty Liver Disease

OE-0111 (PP-0335) The effect of prophylactic total parenteral nutrition and bowel rest on risk of perforation in patients with gastrointestinal lymphoma undergoing chemotherapy

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Background/Aims: Gastrointestinal tract (GIT) lymphoma is associated with risk of perforation while receiving chemotherapy. It is unknown if prophylactic total parenteral nutrition (TPN) and bowel rest will reduce perforation rate of GIT lymphoma during chemotherapy. We aim to study the clinical outcome of prophylactic TPN and bowel rest in GIT lymphoma patients receiving chemotherapy.

Methods: We reviewed all patients biopsy-proven GIT lymphoma in Singapore General Hospital between January 2009 and January 2017. We stratified patients into two groups, with and without prophylactic TPN and bowel rest during chemotherapy. The perforation rate, infection rate and survival between the two groups were compared.

Results: Total of 106 patients with GIT lymphoma were identified. Twenty-three patients were excluded from analysis because TPN was started for GIT perforation before chemotherapy (n=18), bleeding GIT (n=3), severe mucositis (n=1) and ileus (n=1). Among the remaining 83 patients who were included for study analysis, 56.6% (47/83) were started on prophylactic TPN patients were younger and have lower baseline serum albumin. Mean follow up duration was 34.6±31.5 months. Perforation significantly reduces overall survival of GIT lymphoma. Prophylactic TPN is not associated with lower perforation risk (8.5% vs 8.3%, p=0.648). Instead, TPN group has higher infection risk (HR=3.8, 95% CI=1.0-13.7) and longer length of stay. Overall survival was significantly better in TPN group (HR 5.3, 95% CI 2.1-13.9) even after adjusted to covariates. The unscheduled 30-days readmission were similar in both groups.

Conclusion: Prophylactic TPN did not reduce perforation risk. Instead, it was associated with higher infection risk and longer length of stay. Future randomized study is required to verify the survival outcome of prophylactic TPN in GIT lymphoma.

Keywords: Lymphoma, Perforation, Tpn
OE-0260 (PP-0336) Peroral endoscopic myotomy (POEM) for achalasia in children-single center experience

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Affiliation: [1]Department of Gastroenterology and Endoscopy, Shivanand Desai Center for Digestive Disorders and [2]Department of Internal Medicine, Sknmc, Pune, India

Background/Aims: Per oral endoscopic myotomy (POEM) is an emerging treatment modality for achalasia cardia (AC). Although efficacy of POEM in adult AC is well established, its role in pediatric AC is less clear. Technical parameters for POEM differ in pediatric patients as compared to adults. There is limited data about POEM for pediatric AC. This study reports outcomes of POEM for pediatric AC from a single-center. Methods: AC patients (<18 years) undergoing POEM identified from a prospectively maintained database. Pre-POEM evaluation – EGD, barium swallow and high resolution manometry (HRM) in all. Pre-POEM Eckardt score calculated in all. All patients received posterior POEM. Follow up – EGD and Eckardt scores at 6-weeks, 6 and 12-months. Clinical success defined as post-POEM Eckardt score < 3. Results: N = 15, median age = 15 years (3-18), males = 10. Mean duration of symptoms = 21.9 months (6-54). Previous endoscopic balloon dilatation (EBD) in 3 (20%). Median pre-POEM BMI = 14.9 kg/m². All patients had Type II AC. Mean pre POEM Eckardt score = 7.0 ± 1.7 and IRP = 41.82 ± 14.2 mm Hg respectively. Median length of myotomy = 8 cm (6-11). Mean procedure time = 85.3 ± 31 min. Adverse events – mucosotomy – 1 (6.7%), responded to conservative treatment. Mean hospital stay = 4.4 ± 2.5 days. Median follow-up = 79 weeks (6-208). 12 (80%) patients completed 12 months follow up. Mean post-POEM Eckardt score = 1.0 ± 1.1; significant improvement compared to pre-POEM (p = 0.0001). Post-POEM GERD – nil. Mean percent weight gain = 13.4 ± 8.2% of pre-POEM weight. Conclusion: POEM is safe and demonstrates excellent therapeutic response for pediatric AC, with superior post-POEM weight gain and low incidence of post-POEM GERD. The results appear sustained at one-year.
Keywords: Achalasia Cardia, Pediatric

OE-0356 (PP-0338) Spectrum of endocrinopathies (clinical/subclinical) in patients with treatment naïve celiac disease

Authors: VIPIN GUPTA[1]; ALKA KUMARI[2]; RAJESH KHADGAWAT[3]; PRADEEP CHATURVEDI[4]; VINEET AHUJA[1]; GOVIND MAKHARIA[1]; WAJIHA MEHTAB[5]

Background/Aims: Celiac disease (CeD) is an immune mediated enteropathy with strong association with autoimmune endocrinopathies e.g TIDM and thyroid. But other endocrine organs e.g pituitary-gonadal axis/parathyroid glands are seldom evaluated. Also, prevalence of subclinical endocrinopathies is not well established in CeD. Objective of this study was to evaluate treatment naïve patients of CeD for clinical and subclinical endocrinopathies. Methods: Treatment naïve CeD patients were recruited. All the clinical parameters were noted. Biochemical assessment of endocrine organ functions (Pancreas, thyroid, pituitary-gonadal axis and parathyroid glands) were done using relevant tests e.g Chemiluminescence assay etc. Growth hormone stimulation was done using T. Clonidine 4 mg/kg with measurement of growth hormone levels at baseline, 30 min, 60min, 90 min, 120 min, 150 min and 180 min. Appropriate clinical and biochemical definitions were used to define clinical and subclinical endocrinopathies. Results: Total of 74 patients were recruited. Thirty one (41.9%) patients were found to have at least one endocrinopathies (clinical/subclinical). Most common endocrinopathy was autoimmune hypothyroidism (clinical/subclinical) which was present in 18.9%. Nine (12.2%) patients were found to have multiple endocrinopathies. Interestingly, 8(10.8%) patients were found to have functional hypopituitarism and 7 (12.9%) patients were found to have isolated hypogonadotropic hypogonadism (Table) Conclusion: Endocrinopathies (clinical/subclinical) are very common in patients with celiac disease. They are asymptomatic in early stages and can only be diagnosed on screening. Identifying endocrinopathies early in patients with celiac disease can prevent their progression to advanced disease and end organ damage.
Keywords: Celiac Disease, Clinical Endocrinopathies, Subclinical Endocrinopathies, Pituitary-Gonadal Axis Dysfunction
OE-0403 (PP-0339) Is dysregulation of intestinal glucose transporters in the morbidly obese responsible for the development of diabetes mellitus?

Authors: NAM QUOC NGUYEN; JEEVINESH NAIDU; TAMARA DEBRICINI; JENNA BURGESS; ROMINA SAFAEIAN; RICHARD YOUNG; MICHAEL HOROWITZ

Affiliation: Department of Gastroenterology, Department of Gastroenterology and Hepatology, Royal Adelaide Hospital. Discipline of Medicine, University of Adelaide, Adelaide, Australia

Background/Aims: Expression of glucose transporters (GTs), either sodium dependent glucose co-transporter 1 (SGLT1) and glucose transporter-2 (GLUT2), is higher in morbidly obese and is associated with increased glucose absorption. Mechanisms underlying the pathogenesis of diabetes mellitus (DM2) in obesity remain unclear. To examine the differences in the expression of intestinal sweet taste receptors (STRs), GTs, glucose absorption and incretin responses in morbidly obese with and without DM2.

Methods: 12 non-diabetic obese, 10 diabetic obese and 12 lean subjects underwent endoscopic duodenal biopsies at baseline and 30 min after a glucose perfusion (30g glucose in 150ml water mixed with 3-O-methyl-D-glucopyranose (3g-OMG), at 4kcal/min). Blood glucose, gut hormones and 3-OMG were assessed over 240 min after duodenal glucose infusion. Transcripts of duodenal STRs and GTs were quantified by RT-PCR.

Results: During fasting, expressions of T1R2, SGLT1 or GLUT2 were similar between the groups. After glucose infusion, expression of GLUT2 and T1R2 were markedly increased in diabetic obese, but not in lean and non-DM2 obese subjects, and was associated with higher plasma 3 OMG levels (P<0.05; Fig 1). The diabetic obese had lower plasma GLP-1 (P<0.05) but similar GIP concentrations to the non-DM2 obese. In the obese, HOMA_IR scores were higher with persistently high insulin levels (P<0.05; Fig 1).

Conclusion: In morbidly obese with DM2, expression of intestinal GTs is higher, which is associated with increased glucose absorption, higher blood glucose and plasma insulin levels; suggesting that dysregulation of intestinal glucose transport can potentially contribute in pathogenesis of obesity induced DM2.

Keywords: Intestinal Glucose Transporters, Morbidly Obese, Diabetes Mellitus, Sweet Taste Receptors, Glucose Absorption
OE-0449 (PP-0340) Diet and Obesity Rather than Ethnicity are the Determinants of Gut Microbiota Composition of Primary School Children in Kota Bharu, Malaysia.

Authors: MUNG SEONG-WONG[1]; NOORIZAN HAB MAJID[1]; NUR AMALINA MUHAMMAD[1]; NAZRI MUSTAFFA[1]; YEONG YEH LEE[1]; MIN TZE LIONG[2]; THEVARAJAN JAYARAMAN[3]; WEI WEI THWE KHINE[4]; YUAN KUN LEE[4]

Affiliation: [1]Medical Department, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kota Bharu, Kelantan, [2]School Of Industrial Technology, Universiti Sains Malaysia, Penang, and [3]Department of Internal Medicine-GI/Hepatology, Gastroenterology Unit, Faculty Of Medicine, Universiti Teknologi Mara, Sungai Buloh, Kuala Lumpur, Malaysia; and [4]Department of Microbiology & Immunology, Yong Loo Lin School Of Medicine, National University Of Singapore, Singapore, Singapore

Background/Aims: Little is known about dominant gut enterotypes in Asia especially among primary school children in Malaysia. It is also of interest to investigate the influence of ethnicity, obesity and diet as determinants of gut enterotypes of this population. Methods: The composition of gut microbial community among primary school children in Kota Bharu was examined for association with ethnicity, diet and body mass index (BMI). In addition to food frequency questionnaire and measurement of BMI, fecal samples from this population were subjected to meta-genomic sequencing analysis. Results: The 16S Ribosomal Ribonucleic Acid (rRNA) sequencing of fecal samples from children aged 7-11 years old (n=81, Malays 44.4%, males 54.3%) revealed that the most abundant gut microbiota were the two enterotypes, Bacteroides (B-type) 23% and Prevotella (P-type) 22%. Both enterotypes were significantly associated with being overweight and obesity (all P < 0.01) but not with ethnicity (all P = 0.5). B-type enterotype was associated with increased intake of chicken and fish (all P < 0.04 respectively), whereas P-type enterotype was associated with increased intake of fruit, milk product, seafood, seasoning/flavourings and beverages (all P < 0.03). Conclusion: Rather than ethnicity (genetic ancestry), obesity and diet are the more important determinants of gut microbiota composition of a population.

Keywords: Gut Microbiota, Bacteroides (b-Type), Prevotella (p-Type)

OE-0477 (PP-0341) Effects of early enteral nutrition on sub-acute ischemic stroke via gut microbiota reconstruction: A Randomized Controlled trial

Authors: YINI DANG; GUOXIN ZHANG

Affiliation: Department of Department of Gastroenterology, The First Affiliated Hospital of Nanjing Medical University, Nanjing, China

Background/Aims: Digestive rehabilitation is a new field in which only few studies have been performed. It has been documented that 1 microbiota dysbiosis may have certain impact on post inflammation in ischemic stroke and the outcome of brain injury, 2 exercise training may lead to compositional and functional changes in human gut microbiota. This study was designed to verify how the EEN influences fecal microbiota in ischemic stroke rehabilitation. Methods: Eligible patients were enrolled and were randomly assigned into the control group and the EEN group. All the patients received stroke-specific rehabilitation intervention including physical training, occupational training and swallow training. Patients in the control group were treated with daily diet while patients in the EEN group received EEN. Follow-up evaluation was performed at baseline, two weeks and four weeks after intervention. Comprehensive Illumina Miseq microbiome measurement was applied to analysis microbiota construction of clinical samples. HPLC was used to detect short chain fatty acid. Plasma inflammatory cytokines were tested with Elisa. Results: Twenty-two patients with sub-acute ischemic stroke participated this study. It was found that the fecal microbiota in the 22 patients mainly composed by 4 taxonomic clusters. The diversity and abundance of flora was increased in the EEN group. No significant result was detected in one week while the EEN group showed significant better results of Modified Rankin Scale Score, activity of daily living and the function of swallow as compared to the control group. Specifically, the level of plasma short chain fatty acid was significantly higher in the EEN group than that of the control group. The change of microbiota metabolites alteration induced by EEN was consistent with the variation of SCFA-producing bacteria gene and taxonomic group. Conclusion: EEN induced immune response and metabolites regulation via reconstruction of gut microbiota, and in turn improved ischemic stroke through gut-microbiota-brain axis.

Keywords: Gut Microbiota, Digestive Rehabilitation, Acute Ischemic Stroke
OE-0636 (PP-0342) Male sex and body mass index are positively associated with perianal modifiers at diagnosis in pediatric Crohn’s disease patients
Authors: BEN KANG[1]; JEONG-EUN KIM[1]; MI JIN KIM[2]; YON HO CHOE[2]; HAE JEONG LEE[3]; SEUNG KIM[4]; HONG KOH[4]; YOO MIN LEE[5]; JEE HYUN LEE[6]; YOON LEE[7]; JI-HYUK LEE[8]; YOUJIN CHOI[9]; HYO-JEONG JANG[10]; BYUNG-HO CHOE[1]

Background/Aims: Perianal modifiers, namely perianal fistulas and/or abscesses, are a distinct complication of Crohn’s disease (CD). We aimed to investigate factors associated with the presence of perianal modifiers at diagnosis in pediatric CD patients. Methods: Korean children and adolescents who were newly diagnosed with CD before 18 years-old from 2013 to 2016 were included in this multicenter retrospective study. Medical charts of 263 patients were reviewed and disease phenotype at diagnosis was classified according to the Paris classification. Factors associated with the presence of perianal modifiers at diagnosis were analyzed by logistic regression analyses. Results: A total of 241 patients who had completed full workup of the entire GI tract were included. The median age at diagnosis was 14.7 years (range: 0.8-17.9), and M:F ratio was 1.9:1. Perianal modifiers were observed in 108 patients (44.8%). Comparison between patients with and without perianal modifiers showed that patients with perianal modifiers were constituted with a higher proportion of males (73.1% vs. 57.9%, P=0.02), had a higher Z-scores for weight (mean ± standard deviation: -0.7±1.3 vs. -1.1±1.3, P=0.036) and higher Z-scores for body mass index (BMI) (median -0.7 vs. -1.2, P=0.021), and a higher proportion of any L4a involvement (upper disease proximal to ligament of Treitz) (44.4% vs. 30.1%, P=0.03). According to multivariable logistic regression analysis, male sex (OR=1.93, 95% CI=1.10-3.43, P=0.022) and BMI Z-score (OR=1.23, 95% CI=1.01-1.52, P=0.04) were significantly associated with the presence of perianal modifiers at diagnosis. Conclusion: Male sex and BMI Z-score were positively associated with the presence of perianal fistulas and/or abscesses at diagnosis in pediatric CD patients.

Keywords: Crohn’s Disease, Perianal Fistula, Perianal Abscess, Pediatric

OE-0863 (PP-0343) Quality Of Life In Pediatric Celiac Disease And Effect Of Gluten Free Diet
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Background/Aims: Quality of life (QOL) in children with celiac disease (CD) has been sparsely studied. We aimed to study QOL in pediatric CD in a north Indian population and effect of gluten free diet (GFD). Methods: Sixty children (2-12 years) with pediatric CD were prospectively studied. CD was diagnosed as per modified ESPGHAN criteria. QOL was assessed at baseline and 6 mo after GFD by pediatric symptom checklist score (PSC), which contains 35 item-questionnaire. Effect of GFD was assessed using questionnaire devised on domains like dietary compliance, effects of celiac disease on children’s feeling, travel and eating out. Results: 60 CD children (age 6.03±0.42years, M:F 2:1) were enrolled of whom 13 were lost for follow up and 3 were excluded. Diarrhea was seen in 52%, failure to thrive in 68% and anemia in 91%. The mean PSC at baseline was 11.5 (2-35) which showed a significant improvement after GFD to 2.5 (0-34) (p < 0.001). Concerns regarding specific domains emerged: felt left out at activities at school or friend’s home 41.9%, felt different from other kids 41.8%, difficulty in maintaining GFD 26.2%, at school 14.3%, at parties 42.9%, poor taste 11.9%, special diet a burden 28.5%, felt embarrassed to bring GFD to parties 59.9%, felt angry about following a special diet 55.9%, felt that they can be healthy without following a special diet 37.3%, felt that they were not invited out for meals because of CD 14%, and problems with child’s marriage (85.7% parents having concerns) . Conclusion: The general health and quality of life is impaired in pediatric CD patients. There are major concerns in psychosocial domains of life in these children. Improvement after 6 months of GFD emphasises the importance of strict adherence to GFD

Keywords: Celiac Disease, Quality Of Life, Pediatric, Gluten Free Diet
OE-0868 (PP-0344) Epidemiology of Pediatric Inflammatory Bowel Disease in Korea over 10-year period: A Nationwide Population-Based Study

Authors: JU WHI KIM[1]; JIN SOO MOON[1]; HYE RAN YANG[2]; JU YOUNG JANG[3]; JAE SUNG KO[1]

Background/Aims: Although a rising trend in the incidence of pediatric-onset inflammatory bowel disease (IBD) worldwide, national-level, pediatric population based studies are lacking. In this study, we investigate the epidemiological features of pediatric IBD in Korea, including age and sex-specific incidence and its trends. Methods: We analyzed data of pediatric patients (aged 0–19 years) in the Health Insurance Review and Assessment Services claims database [MJS1], which include information on every patient with IBD diagnosed through uniform criteria from 2008 to 2016. The incidence was calculated per 100,000 population using the resident registration population each year. Annual percentage change (APC) in incidence was determined using Poisson regression analysis. Results: 7,542 incident cases were diagnosed during the study period, 5,113 Crohn’s disease (CD) and 2,429 ulcerative colitis (UC). Mean annual incidence in Korea for CD was 5.2 per 100,000 and for UC was 2.4 per 100,000. In Poisson regression analysis, incidence of CD increased over the study period significantly (APC: +5.4%; 95% CI 4.3% to +6.5%), however APC in incidence of UC did not so much [MJS1] changed (APC: +0.9%; 95% CI -0.6% to +2.5%). Korean Pediatric IBD patients showed a male predominance in both CD (7.3 vs 2.9 per 100,000, Odds ratio 2.7; p<0.001) and UC (2.9 vs 2.0 per 100,000, Odds ratio 1.6; p<0.001). Mean annual incidence of CD in Paris classification A1a (aged 0–10 years) was 2.0 per 100,000 and incidence of infantile onset IBD (≤<2year) was 1.2 per 100,000. Conclusion: Our results suggest that the incidence of pediatric IBD in Korea significantly increased over time, especially in Crohn’s disease. And the epidemiologic features differ in age and sex-specific population.

Keywords: Inflammatory Bowel Disease, Crohn’s Disease, Ulcerative Colitis, Children, Hira

OE-0799 (PP-0345) Early life intestinal colonization with Lactobacillus rhamnosus GG contributes to the intestinal development via inhibition of low grade inflammation in the offspring mice

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Affiliation: Department of Department of Gastroenterology and Hepatology, General Hospital of Tianjin Medical University, Tianjin, China

Background/Aims: Previous research has shown that Lactobacillus rhamnosus GG (LGG) could be successfully colonized only in early life, and demonstrated the effect of promoting neonatal intestinal development. However, the pathogenesis has not been completely elucidated. Meanwhile, probiotics have possessed a certain therapeutic effect in various intestinal inflammatory diseases which express intestinal dysplasia via inhibition of inflammation. We hypothesize that the long-term health effects of intestinal colonization with LGG in early life can alleviate low-grade intestinal mucosa inflammation to promote the intestinal development. Methods: Pregnant mice were gavaged with 10^8 cfu Live-LGG or Fix-LGG (Live-LGG group and Fix-LGG group) in gestational 18th day until delivery. Pups were fed with Live-LGG or Fix-LGG at first 5 days. Bodyweight of offspring mice was recorded at birth and weekly. We detected LGG colonization in first 3 weeks. Total RNA was isolated from intestinal tissues for Real-time PCR analysis of inflammatory cytokines and expression of tight junction gene expression. To evaluate the intestinal development, we used methods of hematoxylin and eosin staining, immunohistochemistry and immunofluorescence in 3rd week. Results: All the offspring mice only in Live-LGG group at 2 and 3-week old had LGG in feces. At the age of 2nd and 3rd weeks, the offspring in Live-LGG group were heavier. The relative expression levels of inflammatory cytokines were decreased in the Live-LGG group. In the Live-LGG group, the villus length and crypt depth were increased. The level of MUC-2 cell mRNA was increased in Live-LGG group. The numbers of MUC-2 positive cells and goblet cells significantly expressed in Live-LGG by immunohistochemistry. The expression of ZO-1 were significantly increased by immunofluorescence. Conclusion: The findings suggested that the exposure of LGG in early life could inhibit the low grade intestinal inflammation and promote intestinal development in neonatal mice, which might have a lasting positive impact of adult intestinal health.

Keywords: Lactobacillus Rhamnosus Gg, Early Life, Low Grade Inflammation, Intestinal Development