Proliferation rate as a predictor on nasopharyngeal cancer radiation response

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Some of the authors of this publication are also working on these related projects:
- Nasopharyngeal Cancer
- Adaptive Radiotherapy
Results: The data confirmed that basal cells of normal buccal mucosa showed high levels of Class I, II, & EGFR expression. In OSCC a significant minority showed loss of class I antigens and this deficiency was more evident for the polymorphic antigens. Most OSCC cases showed overexpression of EGFR and >50% were positive for class II antigens. In all class II antigen positive cases there was a high degree of T cell infiltration.

Parallel studies in ~42 ameloblastomas demonstrated that, a) loss of class I antigens was equal or higher than in OSCC, b) the expression of class II antigens was equal or higher in OSCC than in ameloblastomas. The malignancy appeared to have the capacity to escape the immune detection mechanisms whilst at the same time gaining self perpetuating potential (as demonstrated by overexpression of EGFR). In conclusion the data suggested that the screening of cell surface molecules by Mabs could assist clinical management.

617 POSTER
Treatment outcome in patients (pts) with loco-regional relapse (LRR) of undifferentiated carcinoma of the nasopharyngeal type (UCNT)
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Between 03/87 and 12/95, 51 pts were treated for LRR of UCNT at IGR. Pts characteristics: M 37% 14, median age 51 years [12-72], nodal staging UICC T1N0M0 (100%), T1N1M0 13%, T2N0M0 16%, T2N1M0 16%, T3N2M0 23%, N3 23%, 100% M0. ID was treated by radiotherapy (RT) 16 pts, associated to cisplatin-epirubicin based chemotherapy (CT) 34 pts; median delay between LNT and ID: 22 months (mts) [7-120]; site of relapse: nasopharynx 21 pts, with nodal involvement 16 pts, nodal alone 14 pts. Treatment according to LRR stage included: RT alone (13 pts), CT alone (11 pts), RT + CT (27 pts) with the same epirubicin-cisplatin based CT. With a median follow-up of 39 mts [2-120], median survival is 25 mts at 2 yrs. There was 10% long term surviving pts (~36 mts). Site of relapse, delay between ID and LRR, and status of nodal ID did not influence prognosis. LRR of UCNT can be controlled by RT/CT with some success. Lack of control with metastatic involvement could explain the poor prognosis.

618 POSTER
Proliferation rate as a predictor on nasopharyngeal cancer radiation response
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Background: Irradiation is still the treatment of choice in NPC treatment. Up to now there is no accurate predictor on radiation response, since the different histo-morphological pattern, as a well known prognostic factor can reveal a wide range of treatment outcomes. Cellular tumor behaviour such as proliferation activity is proposed to influence the radiation response since that the G2 and M phases are the most radiosensitive cells.

Purpose: to find out the role of proliferation rate and other clinical factors in NPC as a predictor of radiation response.

Materials and Methods: Clinical stage and radiation response were collected from 116 patients. The proliferation rate from those patients were obtained flow-cytometrically (S-phase fraction). The radiation response were classified into complete, partial and no response.

Results: The range of the patients age is 15-70 year, and 70% of the patients consist of male. The SPF mean was 14.62 ± 10.18, and 65% of our patients had SPF > 10. SPF was related to the stage T1-N2, whereby the N2 group consist with 75% of them. Fourteen percents of the patients were Hsu type I, 48% were Hsu type II and the rest are belong to Hsu type III. There is a significant correlation between the proliferation value with the radiation response (p = 0.001). In conclusion the data confirmed that basal cells of normal buccal mucosa showed high levels of Class I, II, & EGFR expression. In OSCC a significant minority showed loss of class I antigens and this deficiency was more evident for the polymorphic antigens. Most OSCC cases showed overexpression of EGFR and >50% were positive for class II antigens. In all class II antigen positive cases there was a high degree of T cell infiltration.

619 POSTER
Influence of haemoglobin on radiotherapy of head and neck cancers
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Purpose: The role of haemoglobin (Hb) level prior to radiotherapy was examined in 3 groups of patients with head and neck cancers. The role of Hb with regard to response to therapy and survival was evaluated.

Patients and Methods: Patients with laryngeal cancer treated by conventionally fractioned radiotherapy (CF) from 1972-1990 (N = 327) were evaluated with regard to treatment response and survival in relation to their initial Hb level.

Results: The results indicate that Hb level influences both response rates and survival in patients treated by conventional fractionation (Larynx p = 0.02, CF arm (study) p = 0.03). Hb influences response rates after radiotherapy (CF-chemotherapy < 0.005), but not survival. After V-CHART the role of Hb is almost statistically significant at p = 0.07 for response and significant for survival (p = 0.016). In the trial arm V-CHART + MMC the influence of Hb was neither seen for response (p = 0.6) nor for survival (p = 0.7)

Conclusion: The role of Hb plays an important role in response and survival of patients undergoing radiotherapy as single modality therapy and radio-chemotherapy when radiotherapy is given as conventional fractionation. There is no influence of Hb when a very short fractionation schedule is applied together with MMC, a high-dose chemotherapy with preferential toxicity in hypoxic tumour cells. This underlines the importance of tumour hypoxia as a major factor for tumour recurrence and the necessity to find ways to improve tumour oxygenation and development of new agents to overcome the problem of hypoxic tumour cell survival.

620 POSTER
Poor prognosis was found in nasopharyngeal cancer patients with low glucose-6-phosphate-dehydrogenase

Nasopharyngeal carcinoma (NPC) is a tumor of endemic distribution among well-defined ethnic groups, prevalent in several world regions. Southeastern China and Taiwan have the highest incidence (about 30 per 100,000 persons per year). Glucose-6-phosphate-dehydrogenase (G6PD) deficiency, a sex-linked disorder, is one of the most common enzymopathies in Taiwan. The major role of G6PD is to generate NADPH to protect cells from oxidative damage and to reduce the risk of certain degenerative diseases, such as aging and cancer. With such a high coincidence of epidemic distribution of NPC and G6PD deficiency, as well as the house-keeping function of G6PD in cellular oxidative defense, we investigate the correlation of G6PD activity with NPC. The stage of NPC was classified by AJCC (1997) criteria. G6PD levels were determined in 117 consequent NPC male patients. The mean G6PD level was 7.53 U/gHb (with standard deviation of 2.32 U/gHb), that was much lower than normal individuals (normal range 5-18 U/gHb). In addition, 19.5% of NPC patients has low G6PD activity (<6.4 U/gHb); 11.1% of NPC patients has very low G6PD activity (<5 U/gHb), which was higher frequency than population in Taiwan (~4%). The level of G6PD activity had no correlation with tumor stage or lymph node metastasis, but was significantly correlated with treatment failure (recurrence and/or distant metastasis).