PROGRAM BOOK AND ABSTRACT

THEME:
“IMPROVING HOLISTIC HEALTH THROUGH THE NEW PARADIGM: DENTAL MEDICINE”

The 6th Scientific Meeting in Dentistry
Faculty of Dentistry Airlangga University
Celebrating The 85th Anniversary
of Dental Education in Indonesia

APRIL 26TH - 28TH 2013
Shangri-La Hotel Surabaya
# SHORT LECTURE SCHEDULE

## KALIMANTAN ROOM, Shangri-La Hotel Surabaya

<table>
<thead>
<tr>
<th>TIME</th>
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<th>LECTURE</th>
<th>MODERATOR</th>
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<tbody>
<tr>
<td>11.00</td>
<td>Tuti Kusumaningsih</td>
<td>Expression of beta-defensin 2 (BD-2) in gingival epithelium after induced by probiotic L. reuteri (Research in animals Wistar rats)</td>
<td>Noer Ulfah, drg., Sp.Perio(K)</td>
</tr>
<tr>
<td>11.15</td>
<td>Suhartono AW</td>
<td>Osteoporosis in postmenopausal Indonesian women: CYP1A1 (T6235C) Polymorphism as a risk factor</td>
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<tr>
<td>11.30</td>
<td>M. Chair Effendi</td>
<td>Dental treatment of children with general anesthesia for outpatient surgery</td>
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<tr>
<td>11.45</td>
<td></td>
<td><strong>Discussion</strong></td>
<td></td>
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<tr>
<td>13.55</td>
<td>Wigati Chandra</td>
<td>The application of various transverse maxillary expansion techniques</td>
<td></td>
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<tr>
<td>14.10</td>
<td>Roedy Budirahardjo</td>
<td>Respons jaringan lunak tongka mulut pemakaian alat ortodontik cekat pada anak</td>
<td></td>
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<tr>
<td>14.25</td>
<td></td>
<td><strong>Discussion</strong></td>
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**Sunday, April 28th 2013**

## MADURA ROOM, Shangri-La Hotel Surabaya

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<tr>
<td>11.00</td>
<td>Kimberly Clarissa Octomo</td>
<td>Pomegranate juice as an ideal mouthrinse for fixed orthodontic patients</td>
<td>Dr. IGA Wahyu Ardani, drg., Sp.Ort</td>
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<td>11.15</td>
<td>Setya Wardani</td>
<td>Psychologic as the predisposing factor of RAS in male patient</td>
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<tr>
<td>11.30</td>
<td>Novita Pratiwi</td>
<td>Periodontitis sebagai faktor predisposisi diabetes mellitus</td>
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<td>11.45</td>
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<td><strong>Discussion</strong></td>
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<tr>
<td>13.40</td>
<td>Widya Saraswati</td>
<td>Mini-implant for distalization management in orthodontic treatment</td>
<td>Febriastuti Cahyani, drg., Sp.KG</td>
</tr>
<tr>
<td>13.55</td>
<td>Asti Rosmala Dewi</td>
<td>The application of various transverse maxillary expansion techniques</td>
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<tr>
<td>14.10</td>
<td>Irma Josefina</td>
<td>Insoglidine maleate inhibits the enhancement of Toll-like receptor 2 mediated by Porphyromonas gingivalis via IL-8 in human gingival epithelial cells</td>
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<td><strong>Discussion</strong></td>
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ABSTRACT SHORT LECTURE

OSTEOPOROSIS IN POSTMENOPAUSAL INDONESIAN WOMEN: CYP1A1 (T623SC) POLYMORPHISM AS A RISK FACTOR

Suhartono AW, Auerkari Et14, Djamal NZ, Budhy LW, Verisqa F, Kasdhany LS13, Rahardjo TBW13, Hohervoet E5, Talbot C5

Dept. of Oral Biology, Faculty of Dentistry, University of Indonesia
Centre for Ageing Studies, University of Indonesia
Dept. of Prosthodontics, Faculty of Dentistry, University of Indonesia
Dept. of Human Life Sciences, Loughborough University, UK
Dept. of Human Genetics, Leicester University, UK

The increasingly common disease of osteoporosis results in reduced bone mineral density (BMD) and increased rate of bone fractures, particularly in postmenopausal women who carry additional risk factors including genetic predisposition. CYP1A1 is a candidate gene that has been suggested to be associated with the pathogenesis of osteoporosis. This study aimed to characterize the distribution of a selected polymorphism (T623SC) of CYP1A1 in comparison to the observed level of BMD in postmenopausal Indonesian women. The results demonstrate that as expected, osteoporosis is clearly associated with age and menopause, but not with the tested polymorphism in the sample population. It is suggested that other P450 cytochrome enzymes and their polymorphisms could provide more significant indicators of the expected skeletal condition and health of postmenopausal women.

Keywords: Menopause, osteoporosis, CYP1A1, gene, polymorphism

PERAWATAN GIGI PADA ANAK DENGAN ANASTESI UMUM UNTUK RAWAT JALAN (Dental treatment of children with general anesthesia for outpatient surgery)

M. Chair Effendi
Program Studi Pendidikan Dokter Gigi, Fakultas Kedokteran Universitas Brawijaya

The treatment of children with anxiety problem, mental handicapped and systemic disorders is general anesthesia for outpatient surgery. Four cases of general anesthesia for outpatient surgery in children were reported. The patients were all 4 to 5 year old female. The reasons for the treatment were: attention deficit (hyperactive) disorders, anxiety and congenital heart disease (VSD). The dental treatment that were done for those patients were: multiple extraction, dental restoration and space maintainer insertion. During anesthesia evaluation one complication occurred, that was: laryngospasm, but that problem could be resolved. Local anesthesia was only used on VSD case during extraction. The result of the dental treatment was satisfactory without any complication after 3 to 7 days post treatment. The recovery of the patient occurred 15 minutes after exaration and patient discharge one hour later. General anesthesia for outpatient surgery was very helpful for dental treatment in children.

Keywords: General anesthesia, children, dental treatment

MINI-IMPLANT FOR DISTALIZATION MANAGEMENT IN ORTHODONTIC TREATMENT

Angeline Julikadewi
Division of Orthodontics, Specialist Dental Clinic Dr. Saiful Anwar General Hospital, Malang - Indonesia

Background: Anchorage control played an important role in the effective management of orthodontic patients for obtaining structural and facial esthetics. Distalization appliances that eliminate the need for patient compliance were usually more favorable to those demanding cooperation. Therefore, to reinforce anchorage, an orthodontic mini-implant anchorage could be used. Purpose: To perform a systematic review of studies determining the effectiveness of mini-implant as an intra oral anchorage unit for distalization in orthodontic treatment. Review: A temporary anchorage device was defined as a device that was temporarily fixed in bone for reinforcement of orthodontic anchorage. Because it was stable, it provided absolute anchorage. Mini-implant anchorage was the most...
OSTEOPOROSIS IN POSTMENOPAUSAL INDONESIAN WOMEN: CYPIA1 (T6235C) POLYMORPHISM AS A RISK FACTOR

Suhartono AW¹, Auerkari EI², Djamal NZ³, Buddy LW¹, Kusdhany LS³,
Rahardjo TW², Hogervost E⁴

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¹Department of Oral Biology, Faculty of Dentistry, University of Indonesia, Jakarta, Indonesia
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Corresponding author

Introduction

Recent studies have suggested an association between the systemic bone diseases such as Osteoporosis. Osteoporosis is a silent disease of the bone that characterized by decreased Bone Mineral Density/BMD and bone tissue destruction that caused the bone easily broken. Women are five times more likely to get osteoporosis than men. There is no way to stop or cure it, but there are things you can do to slow it down.¹ In the U.S., about 8 million women and 2 million men have osteoporosis. Those over the age of 50 are at greatest risk of developing osteoporosis and suffering related fractures.² Whereas in Indonesia, 15.5 million women over the age of 50 have osteoporosis in 2005 that predicted will increase to 24 million in 2015.³

Many factors influence the risk of osteoporosis, including diet, physical activity, medication use, and co-existing disease; however, one of the most important clinic risk factors is a positive family history, emphasizing the importance of genetics in the pathogenesis of osteoporosis. Genetic factors have been recognized as playing an important role in the pathogenesis of osteoporosis.⁴-⁷ One of the primary candidate genes associated with osteoporosis is the CYPIA1 gene.⁸

The CYPIA1 genetic polymorphism is thought to play a role in estrogen metabolism. Estrogen is metabolized predominantly via two competing pathways, the 2-hydroxyl (nonestrogenic) and the 16alpha-hydroxyl (estrogenic) pathways. Studies have indicated that these pathways are important determinants of bone mineral density (BMD) in postmenopausal women. Women with predominant metabolism through the 2-hydroxyl pathway have accelerated postmenopausal bone loss and lower BMD compared to those with predominant 16alpha-hydroxylation who are protected from bone loss. Increased 2-hydroxylation has been observed in women with a positive family history of osteoporosis suggesting that the increased risk of osteoporosis in those with family history may, in part, be related to inherited differences in estrogen metabolism. Polymorphisms in the cytochrome P450 (CYP450) enzymes that metabolize estrogen are believed to result in alteration in the activity of these enzymes.
leading to differences in estrogen hydroxylation. It is the resulting "estrogen tone" generated from the variable accumulation of metabolic products with divergent estrogenic activity that has been hypothesized to modify the risks for hormone-dependent disorders associated with these polymorphisms, for example, osteoporosis.9-18 This work aimed to evaluate the distribution of selected polymorphisms of CYP1A1 gene (T→C) with respect to the Bone Mineral Density status in the Indonesian population, especially postmenopause woman.

Keywords: Osteoporosis, CYP1A1, genetic polymorphism.

Materials and methods

In total, 190 consenting postmenopause Indonesian woman were included in this study, with an age range of 40-70 years. The ethical clearance for the work was granted by the Ethical Committee of the Faculty of Dentistry, University of Indonesia. To survey the genotype-phenotype variations related to the gene locus polymorphisms of CYP1A1, the polymorphism status of these genes was determined from samples of peripheral blood. The DNA taken from the peripheral blood was isolated. The samples are stored in the freezer -20°C.

Analysis of CYP1A1 polymorphism

Polymorphism in the CYP1A1 gene known to be associated with hormone-related disorders were evaluated as described. There are T6235C in 3' UTR. The T6235C polymorphism was detected using the forward primer 5'-CAGTGAAGAGGTTAGCCGCCT-3' dan reverse primer 5'-TAGGAGTCTTGTCTCAGCCT-3' with the expected PCR product is 340 basepair. The PCR reaction was performed using standard 3 protocols with PCR condition:

- Initial denaturation : 94°C at 5 minutes (1 cycle),
- Denaturation : 94°C at seconds,
- Annealing : 53°C at 30 seconds, \( 35 \) cycles
- Extension : 72°C at 30 seconds,
- Final extension : 72°C at 7 minutes, and
- Final hold : 4°C.

Then the polymorphisms of CYP1A1 were analyzed with PCR-RFLP using the restriction enzymes MSPI (5'...CCGG...3' and 3'...GGCC...5'), respectively, for cutting at the sites of polymorphisms. Then incubated at 37°C for 6 hours and enzyme inactivated at 65°C for 20 minutes. Fragments were separated by electrophoresis on a 3% Agarose gel added 2 μL GelRed™ Nucleic Acid Gel Stain, 10,000X in water and
visualized with Gel Doc. There was an undigested 340 bp product for the TT, 200 and 140 bp fragments for the CC, and three bands (340,200,140 bp) for the TC genotypes.

Discussion and Results

In a study on 190 postmenopause Indonesian woman, we previously reported that T (thymine) to C (Cytosine) base change at position 6235 in 3'UTR of the CYP1A1 gene has been associated with increased transcript half-life and therecofer increased enzyme activity resulting elevated level of activated metabolites of estrogen.

Distribution of Osteoporosis

In case divided into two groups according to the bone mineral density status in postmenopause woman are control and osteoporosis group. Bone mineral density status in postmenopause women are secondary data. The data is used to determine the distribution of bone mineral density seen. Table 5.1 shows the frequency of bone mineral sendity in 190 samples.

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>60</td>
<td>31.6</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>130</td>
<td>68.4</td>
</tr>
<tr>
<td>Total</td>
<td>190</td>
<td>100</td>
</tr>
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</table>

Table 1 Frequency of Bone Mineral Density in Postmenopause Women

PCR Product

In the photos GelDoc PCR products, single band visible result of gene amplification CYP1A1 T6235C, rs4646903 at 340 bp. Markers used were 50 bp ladder. Figure 1 shows a single band of CYP1A1 gene is located on 340 bp.
The results of RFLP MSPI Products

PCR products CYP1A1 T6235C that have been cut with restriction enzyme MSPI can have 3 possible deductions. If found pieces of MSPI site, will appear double band located at 200 bp and 140 bp. If the heterozygous genotype, seemed triple band at 340 bp, 200 bp and 140 bp. If nothing is found pieces of MSPI site, it appears single band at 340 bp.
Figure 5.2 shows images of products elktroforesis RFLP results showing the homozygous wildtype TT genotype in the sample numbers 1 and 2 are indicated by a single band at 340 bp. Heterozygous genotype TC in samples number 3 are shown with a triple band at 340 bp, 200 bp and 140 bp. Whereas homozygot mutant CC genotype in the sample numbers 4 and 5 are indicated by a double band at 200 bp and 140 bp.

**Distribution of CYP1A1 Polymorphisms in Postmenopause Women with Osteoporosis**

Table 2 Frequency and Percentage of genotypes TT, TC, CC in Postmenopause Women

<table>
<thead>
<tr>
<th>Group</th>
<th>Genotype</th>
<th></th>
<th></th>
<th>F</th>
<th>%</th>
<th>F</th>
<th>%</th>
<th>F</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>4</td>
<td>6.67</td>
<td>37</td>
<td>61.67</td>
<td>19</td>
<td>31.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>14</td>
<td>10.77</td>
<td>77</td>
<td>59.23</td>
<td>39</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>18</td>
<td>9.47</td>
<td>114</td>
<td>62.11</td>
<td>58</td>
<td>28.42</td>
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</table>

Table 2 shows that the frequencies of genotypes are 6.67% genotype CC (homozygote mutant), 61.67% genotype TC (heterozygote), dan 31.66% genotype TT (wildtype) in the control group. Whereas in the osteoporosis group had 10.77% genotype CC (homozygote mutant), 59.23% genotype TC (heterozygote), dan 30% genotype TT (wildtype). TC and CC genotipes are polymorphism genotipe whereas TT genotipes are not polimorphism genotipe. There was distribution of CYP1A1 genetic polymorphism in control and osteoporosis groups in postmenopause Indonesian woman.
Table 3 Frequency Alotypes T and C in Postmenopause Women

<table>
<thead>
<tr>
<th>Groups</th>
<th>C</th>
<th>%</th>
<th>T</th>
<th>%</th>
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<tbody>
<tr>
<td>Normal</td>
<td>45</td>
<td>37.5</td>
<td>75</td>
<td>57.5</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>105</td>
<td>40.4</td>
<td>155</td>
<td>59.6</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>39.5</td>
<td>230</td>
<td>60.5</td>
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Table 3 shows that the frequency of allele T are 75 of 230 (57.5%) and allele C are 45 of 150 (37.5%) in control group. Whereas in osteoporosis group, frequency of allele T are 155 of 230 (59.6%) and allele C are 105 of 150 (40.4%).

The results show that osteoporosis assciated with age and menopause, as expected, but not with polymorphism of CYP1A1 gene in the tested Indonesian sample population. It is also supported by Chi-square testing p= 0.688 which means no meaningful relationship between CYP1A1 gene with osteoporosis. Although the results are shown to have negative, but there is a perception that the genetic polymorphism of CYP1A1 risk of osteoporosis.

Some previous studies have reported significant association between CYP1A1 polymorphisms and osteoporosis, but generally from larger samples than the one used in the present work. It is concluded that such individual associations are apparently relatively weak and not strong predictors of the risk to osteoporosis.

Reference

Judul karya ilmiah (paper): Osteoporosis in Postmenopausal Women: CYP1A1 (T6235C) Polymorphism as a Risk factor
Jumlah Penulis: 7 (tujuh) orang
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NIP : 195806251983022001
Unit kerja : FKG - UI

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