



<b>Title</b>	<b>De/remineralization from different commercial dentifrices: a pH-cycling study</b>
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**79** Distribution of Severe Periodontitis Destructive Condition in Urban and Rural Thailand. Y. SONGPAISAN\*, N. HONGPRASONG, V. BUATONGSRI, P. PHANTUMVANIT. (Mahidol Univ, Thammasat & Chulalongkorn Univ., Bangkok, Thailand).

The purpose of this report was to compare the periodontal status of rural and urban Thai population. The cross-sectional study for severe periodontal destructive condition was carried out in 35-55 years old Thai population, both males and females. All first and second molars and central incisors (12 teeth) of the total of 1,167 rural farmers from 4 villages in Payao province and 654 urban bank employee from Bangkok were examined using CPITN. The percentage of persons having at least one tooth with severe periodontal destructive condition, CPITN scored 4, was higher in rural (27.9%) than in urban (17.0%). Significant differences of the mean number of teeth in various CPITN scores were found among the 12 teeth examined, i.e. CPITN 4: rural = 4.3±1.92 v.s. urban = 3.3±1.86 (p<0.001) and CPITN 3: rural = 5.4±2.09 v.s. urban = 4.7±2.13 (p<0.001). The most common scored CPITN 4-teeth were the right second molars, i.e. #17 (54.1%) and #47 (52.0%) whereas the lower incisors, i.e. #31 (3.1%) and #41 (8.9%) were the least affected. The study showed that severe periodontitis destructive condition was higher in rural population than in urban population. This seems to be similar to the destructive periodontal condition between in the developing countries and the industrialised countries which has been reported. Supported by Chulalongkorn University Rajadapisek Sompaj Research Fund.

**80** Relation between Severe Periodontitis and Smoking Habits. P. PHANTUMVANIT\*, N. HONGPRASONG, V. BUATONGSRI, Y. SONGPAISAN & N. CLARKE. (Thammasat & Chulalongkorn Univ, Mahidol Univ, Bangkok, Thailand; Univ of Adelaide, Adelaide, Australia).

The purpose of this study was to examine the relationship between smoking and the occurrence of severe periodontal breakdown in rural and urban Thai population. The retrospective epidemiological study was carried in 200 rural (Payao) and 111 urban (Bangkok) severe periodontitis (CPITN=4) subjects, both males and females. A set of questionnaires relating to smoking habits and number of cigarette smoking per day was completed by subjects. The findings showed that there were more smokers in rural (50.8%) than urban (30.4%) subjects (p<0.001). But most of the urban subjects smoked 10-20 cigarette/day (75.0%) whereas most of the rural subjects smoked less than 10 cigarette/day (84.9%). There was no significance difference between the percentage of CPITN 4-person in smoking and non-smoking subjects in both the urban (27.8 v.s. 28.5) and rural (34.8 v.s. 36.5) groups. However, the prevalence of severe periodontitis was significantly different between urban and rural subjects (p<0.001). The data indicates that severe periodontitis may not relate only to smoking habits but other risk factors that should be considered concurrently. Supported by Chulalongkorn University Rajadapisek Sompaj Research Fund.

**81** Oral microbiological and physiopathological status of post irradiated nasopharyngeal carcinoma patients. W.K. LEUNG\*, L.J. JIN, L.P. SAMANARAYAKE & G.K.C. CHIU (Periodontology & Public Health and Oral Biology Unit, The University of Hong Kong)

**Objective.** To investigate the oral microbiological and physiopathological status of post-irradiated nasopharyngeal carcinoma (NPC) patients. **Study design.** 33 NPC patients (mean age 53±10 yr) who completed head and neck irradiation therapy (3.3±3.0 yr post-operation) were screened for oral mucosal lesions. 52% of the subjects had not received post-irradiation dental care. Stimulated whole saliva (SWS) flow rate, pH, buffer capacity, carriage rate of cariogenic micro-organisms, enterobacteria and yeasts were assessed. **Results.** All subjects had xerostomia (SWS flow rate: 0.04±0.04 ml/min) and 58% had candidiasis. Both SWS pH (6.4±0.6) and buffering capacity were low while *Streptococcus mutans* and *Lactobacillus* spp. carriage were extremely high (1.4x10<sup>7</sup>±2.0x10<sup>7</sup> and 2.4x10<sup>5</sup>±5.7x10<sup>6</sup>, respectively). 70% of the subjects were found to be harbouring at least one species of enterobacteria including *Actinobacter* spp., 15%; *Chryseomonas luteola*, 12%; *Citrobacter freundii*, 6%; *Enterobacter cloacae*, 18%; *Escherichia coli*, 3%; *Flavimonas oryziabilians*, 3%; and *Pseudomonas aeruginosa*, 12%. All subjects were carrying at least one species of yeast, namely *Candida albicans*, 73%; *C. tropicalis*, 27%; *C. famata*, 3%; and *C. parapsilosis*, 3%. **Conclusion.** The Hong Kong NPC patients constituted a high risk group for dental caries and oral fungal infection. The risk of developing such disease appears to be very high perhaps in part due to insufficient post-irradiation dental care. This project was supported by CRCG of Hong Kong.

**82** Comparative Study of Diabetic and Non-diabetic Saliva. E. Benjavongkulchai\*, C. Sreuwong and S. Ruksasin (Chulalongkorn Univ., BKK, Thailand).

Glucose and other components of saliva from diabetic and non-diabetic patients have been previously determined and compared. Yet, no conclusive results have been made. In this work, we analysed pH, flow rate, glucose and total protein concentrations in diabetic and non-diabetic saliva and also studied the corresponding amylase activity and protein pattern under SDS-PAGE. The stimulated whole saliva samples were collected from twenty non-diabetics and forty non-insulin dependent diabetics between 7.00-8.00 am. The results indicated no significant difference between the two types of saliva except for that glucose concentration of diabetics was significantly higher than non-diabetics. This work was supported by Dental Research Fund, Fac. of Dentistry, Chulalongkorn Univ.

**83** Histologic Finding of Embryonic Tooth Germ Caused by Fluoride in NaF. L.S. RADIOSUNU (Dept. of Pedodontics, Faculty of Dentistry, Gadjah Mada University, Yogyakarta, INDONESIA).

The aim of this study was to examine the role of fluoride in NaF to the growth and development of embryonic rat's tooth germ. Pregnant Albino Wistar rats at age 3 months divided in to 2 groups: CONTROL group (administered by isotonic solution); NaF group (administered by 0.02 mg/ml NaF in 0.02 ml deionized water). Intra-peritoneal injection was given by 1 cc, once in 2 days. On day 15 and 18, pregnant rats were killed and their embryonic tooth germ were subjected to LIGHT MICROSCOPIC. The fluoride content was analyzed by SPADN'S REACTION spectrophotometric method, using a UV-VIS spectrophotometer instrument. Histologic finding analyzed by LIGHT MICROSCOPE. The result of the study were as follows: fluoride content in embryonic tooth germ on day 15 and 18 control group < NaF group (p<0.01). This difference was significant (p<0.01) as tested by ANOVA. The result of histologic finding of embryonic tooth germ on day 15, was at the time on BELL STAGE, it is the time of enamel organ proliferation in oral epithelium. On day 18, the morphologic of tooth germ on bell stage has advanced and was at the time of COMPLETE BELL STAGE. It is concluded that no differences in histologic finding on control and NaF groups of embryonic tooth germ on day 15 and 18, although there was significant difference on fluoride content. This study was supported by Gadjah Mada University, Ministry of Education and Culture, Indonesia Government.

**84** An increment of acid resistance on pit and fissure in human dental enamel by laser irradiation. A. BAHAR. (Dept. of Preventive and Public Health Dentistry, Faculty of Dentistry, University of Indonesia, Jakarta, Indonesia).

The acid resistance of pit and fissure enamel in human dental enamel by using normal pulsed Nd-YAG laser was examined. Moreover, the pit and fissure of dental enamel were topically applied with a solution of acidulated phosphate fluoride (APF) after laser irradiation. The acid resistance of the pit and fissure enamel was evaluated by the amount of dissolved calcium per square millimeter of the surface area. The amount of dissolved calcium in acid solution was determined with an atomic absorption spectrophotometer. The areas of pit and fissure exposed to the laser and acid solution were calculated by a three dimensional computed image analyzer. The laser irradiation caused about 40% acid resistance to the pit and fissure enamel. The combination of laser irradiation and APF application revealed greater acid resistance to the pit and fissure than laser irradiation alone.

**85** De/ remineralization from different commercial dentifrices: a pH-cycling study A. ITTHAGARUN\*, S.H.Y. WEI, and J.S. WEFEL<sup>2</sup>. (Department of Children's Dentistry and Orthodontics, The University of Hong Kong, Hong Kong; <sup>2</sup>Dows Institute for Dental Research, The University of Iowa, USA).

In our previous study, F uptake of dentifrices manufactured locally in some developing countries have been evaluated and compared (JDR,1996;75:194). The objective of this study was to compare the de/ remineralization effects of those dentifrices such as Maxam Tartar Control<sup>®</sup>, Advanced Formula Crest<sup>®</sup>, Colgate MFP<sup>®</sup> and one non-fluoride dentifrice as control, by using a single section technique (Wefel et al., JDR,1987;66:1485-1489) with the pH cycling model (Heilman et al.,JDR;1991;70:493). Sound molars were painted, leaving the 1 mm wide 'window' on the buccal and/or lingual side, placed in the demineralization solution for 96 h to produce artificial caries, 100-120 µm deep. The teeth were then longitudinally sectioned, 100µm thick, and randomly divided into 4 groups (4 sections/group). The pH cycling model was utilized for 10 days. Polarized light microscopy and microradiography were used to evaluate the lesion depth, lesion area and mineral content of the lesion before and after treatment. The control group showed an increase in lesion depth of 51%, and was statistically different from all test groups which ranged from -7% to 18% (p<0.05 to p<0.01, ANOVA and t-test). No statistical difference was observed among the fluoride containing groups. The in vitro single section technique used with pH cycling in this study was able to successfully show lesion progression and mineral changes in the initial lesions. (Supported in part by CRC Grant: 345/251/0058, The University of Hong Kong)

**86** Antimicrobial Effect of Sereh to *Candida albicans*' Growth on Denture. E. WAHYUNINGTYAS (Gadjah Mada University, Yogyakarta, Indonesia).

This research determined the antimicrobial effect of Sereh to *Candida albicans*' growth and the transverse strength of denture. Denture smear from inflamed mucous was cultivated on Sabaroud's medium. Diffusion and well's methods were used for sensitivity test. Sixty samples were divided into 4 groups concentration. The radical zone on each well was observed by sliding caliper. The sixty specimens of transverse strength were divided into 3 groups concentration ( 5%, 10% and 15% ). Each group was divided into 2 soaking duration ( 10 minutes and 10 hours). The transverse strength test was done by Universal Testing Machine. There was significant difference among *Candida albicans*' growth in different concentrations (p<0.001). There was significant difference in transverse strength between concentrations and soaking duration (p<0.001) as tested by ANOVA. Sereh had antimicrobial effect to *Candida albicans*' growth and it affected the transverse strength of acrylic resin in clinical tolerance.