VP-30 Reducing Pain on Needle Insertion: Proposal for an Alternative Technique. PHAN A. HUNG* (Faculty of Odonto-Stomatology, University of Medicine and Pharmacy at HCM City, Vietnam).

When delivering local anesthesia to children, reducing pain on needle insertion is of major concern to both patients and practitioners. The purpose of this investigation was to evaluate the efficacy of an alternative procedure as compared to the conventional one in reducing pain. A total of 134 children, aged between 3 and 12, underwent dental treatment in the pediatric dental clinic were assigned into two groups. In both groups, local anesthesia was given, using a lidocain 2% and 2.5% and 2% lidocaine. Eighty subjects received the alternative procedure and 54 the conventional one. The proposed procedure consisted in quickly and gently pulling the buccal mucosa, which is next to the mucosal-facial fold, into the tip of the needle to a depth of 1 to 1.5 mm, at the injection site. Topical anesthetic gel was used before injection in this procedure, while it was applied to the conventional one. Pain-related behavior on needle insertion was rated on video tapes by two independent evaluators, using the Sounds, Eyes and Motor scale. Inter-rater reliability was established at 98%. The results, as analyzed by Chi-square test, showed that the alternative procedure was able to reduce significantly pain-related behavior as compared to the conventional one, with a percentage of 95% and 59% pain-free insertion, respectively (p<0.001). It is, therefore, concluded that the alternative technique for needle insertion should be used for our use in order to reduce pain and fear related to local anesthesia in children.

VP-31 Salivary Soluble CD14 and Elocaine as Biomarkers for Periodontal Assessment. L.D. JUN, W.K. LEE, and E.F. COOLEYET (@ (Facility of Dentistry, The University of Hong Kong, Hong Kong).

Mixed salivary contains enzymes from gingival crevice or periodontal pockets, and thus it may be reflected as a marker of overall assessment of periodontal conditions. Our early studies showed that neopterin levels in gingival crevicular fluid were found to be a marker of bacterial infection or a marker of HIV-1 disease and that salivary soluble CD14 (sCD14) may be an indicator of oral and periodontal health. This study was to determine sCD14 and neopterin results in saliva and evaluate whether these two markers could be used for an overall periodontal assessment. The participants were 61 non-syndromic adults with untreated chronic periodontitis and periodontally healthy subjects as controls. Full-mouth probing depth (PD) and bleeding on probing (BOP) were recorded by the Florida Probe®. Stimulated whole saliva was collected by a standard splitting method immediately prior to clinical examination. The 14-kb (ng/ml) were determined by ELISA. Neopterin levels were determined. The levels of these two markers (n=61, p<0.0014 and BOP (r=0.36, p=0.015)). In contrast, MR-EA was reduced to levels below the cut-off (n=61, p<0.001). Increased MR-EA or reduced sCD14 levels in saliva elevate the relative risk of a subject presenting with periodontitis to 3.0, 2.1, respectively. This study suggests that salivary neopterin levels and sCD14 levels may serve as biomarkers for an overall periodontal assessment. Supported by the Hong Kong Research Grants Council (RGC, HKU-73/00009).

VP-32 Molecular Detection of Actinomyces Species in Root Canal Medications with Calcium Hydroxide and Sepratome. Gwan Jung Kang, Lakshman P. Samaranayake, K.Hung Yip(* Oral Bio-sciences, Faculty of Dentistry, The University of Hong Kong, Hong Kong).

Calcium hydroxide and Sepratome are common endodontic medications. However, their in vivo microbical efficacies have been questioned, as the constituents of the complex dental system may hamper or neutralize their action. Therefore, we evaluated the in vivo efficacy of calcium hydroxide (CalciumHydroxIde, SH) and Sepratome in eliminating anaerobic bacterial species, particularly Actinomyces spp., during endodontic treatment. A total of 31 single-rooted teeth with primary root canal infections were studied immediately after opening the canals and subsequently one week after medication with either Ca(OH)2, (23 specimens) or Sepratome (8 specimens). Whole bacterial genomic DNA was isolated directly from samples and, PCR performed to detect total bacteria. The variable regions of 16S rDNA of bacteria were amplified and labeled with digoxigenin for further hybridization and detection of Actinomyces spp. A total of seven oligonucleotide probes specific for A. naeslundii, A. rancens, A. viscosus, A. viscosus, A. viscosus, A. naeslundii, A. naeslundii, A. naeslundii and A. odontolyticus were used to detect Actinomyces spp. in 22 of 31 medicated root canals (Ca(OH)2; 17, Sepratome; 5). PCR revealed that in all medicated teeth, there was no significant difference between Ca(OH)2, and Sepratome in inhibiting oral anaerobic bacterial growth. The bacterial load in 23 of 31 examined canals was totally or partly eradicated either by Ca(OH)2 (18), or Sepratome (5). Thus, only six canals (Ca(OH)2; 5, Sepratome; 1) were sterile one week after medication and the other 25 canals remained positive. A. naeslundii was the most common bacteria detected in the 25 canals. Furthermore, as an inter-appointment medication in endodontic therapy may not effectively disinfected all root canals. However, further investigations with large clinical samples are needed to confirm or refute our observations. (Supported by the RGC (10326943) and CRCG 10305/01). We appreciate Drs. Fred C.S. Chu and Peter C.S. Tsang for their supply of clinical samples.

VP-33 Glass-ionomer-based containing materials: Effects of pH on surface texture. MA MOHAMED TAHIR* and AU YAP. (Faculty of Dentistry, National University of Singapore).

The objective of this study was to determine the effect of pH on the surface texture of commercially available glass-ionomer containing restorative materials. The materials were evaluated included a composite (Dystoplast AP), a ionomer (Branefil) and two highly viscous glass-ionomer cements (Fujix IX and Ketac Molar). A composite resin (Esthet-X) was used for comparison. Forty-two specimens (5 mm thick x 3 mm long x 2 mm deep) were made for each material and were stored at 37°C in steril water for 2 weeks. The materials were then completely post-cured of the materials. The specimens were divided into 6 groups and conditioned in the following solutions for 37°C for 1 week: Citric acid (pH 2.3, 2.5, 4, 5.6) and distilled water (pH 7). The latter (distilled water) was used as the control group. After conditioning, the surface roughness (Ra, μm) of each specimen was measured using a surface profilometer (Surftest, Mitutoyo Corp., Tokyo, Japan). Data was analyzed using one-way ANOVA and Scheffe's test at a significance level of 0.05. The effects of pH on the surface texture of glass-ionomer-based containing restorative materials were dependent. RU values ranged from 0.02 (0.01 μm) to 0.05 (0.03 μm) and 0.03 (0.01 μm) to 0.46 (0.23 μm) for pH 7 and 2 respectively. With the exception of the composite, the surface roughness of all materials evaluated was significantly affected by acids of low pH. Acidic pH affects the surface texture of glass-ionomer-based containing restorative materials. The surface texture of highly viscous glass-ionomer cements did significantly affect surface roughness which makes them more susceptible to clinical failure.

VP-34 Restoration of root-filled teeth by General Dental Practitioners in Klang Valley, Malaysia. L.L. ONO*, C.G. TOH, N.H.P. WILSON (Dept of Conservative Dentistry, University of Malaya, 2KGT Dental Institute, King's College London, UK).

Selecting an optimum restorative modality to restore root-filled teeth is often complicated by the many clinical techniques currently available. The aim of this study was to survey the use of these systems and techniques by general dental practitioners (GDPs) in the Klang Valley, Malaysia. A questionnaire regarding 19 methods of restoration involving 11 weeks was mailed in November 2002 to 605 GDPs in the Klang Valley area. The questionnaire sought details of the use of posts, types of posts and core materials used, the GDP’s understanding of the effects of posts and also preference for final restoration. 284(47%) of the practitioners responded to the survey. The restoration of root-filled teeth was normally undertaken within 1-2 weeks of root canal therapy by 46% of the practitioners. 52% of the GDPs used posts routinely in the restoration of root-filled anterior teeth and the corresponding figure for posterior teeth being 20%. While cast, non-precious metal posts and prefabricated posts were used in almost equal frequency to restore anterior teeth, the use of prefabricated posts predominated in the restoration of posterior teeth. Glass ionomer cement was the preferred cement to late posts; 45% of the practitioners were of the opinion that posts did not fit well and were endodontically treated teeth; an equal number of practitioners thought otherwise. Regarding core materials, composite resin was preferred in anterior teeth (66%) and amalgam in posterior teeth (50%). The majority of the practitioners restored root-filled teeth by means of porcelain-fused-to-metal crowns while one third of the practitioners used direct composite and amalgam in the anterior and posterior region respectively. It is concluded that, in general, the practitioners surveyed had a fair understanding of the principles involved in the restoration of root-filled teeth except possibly in relation to the need to establish a durable coronal seal as soon as possible after the placement of a root filling and the effects of posts on the restored tooth unit. This study was supported by University Malaya: F0738/2000a.

VP-35 A Study of Dental Arch Changes in Children from 3 to 5.5 years of age. NGO T.Q., L.A.N.*, HOANG T. HUNG (Faculty of Odonto-Stomatology, University of Medicine and Pharmacy at HC Mei, Vietnam).

The aim of this longitudinal study was to determine the dimensional changes and the growth pattern of the dental arches in the period from 3 to 5.5 years old and to clarify if these are significantly different between males and females. The sample consisted of Vietnamese children, free from facial anomalies and with sound dentition, (N=117, 54 males, 62 females, aged 3 years old at the starting of the study). Impressions were taken at ages 3; 3.5; 4; 4.5; 5 and 5.5 years. Study casts were used for dental arch width and length measurements by one examiner based on the method described by Chang et al. (1998). A total of 8 measurements were obtained from each dental arch, 14 for width and 4 for length, using a digital caliper. ANOVA test was used to test these total changes in dental arch dimensions from 3 to 5.5 years old. T-test was applied for annual changes measurement and comparison between sexes. The results showed that the dental arches of Vietnamese children were wide and short as compared to Caucasian ones (Moutrics, 1969; van der Linden, 1999). Measurements were larger in girls; in upper than in lower arches. From 3 to 5.5 years old, the increase in width of the dental arch was significant; 1.33mm and 1.35mm in upper arch; 1.33mm and 1.27mm in lower arch, in boys and girls respectively; p<0.05, but the annual increase was not. On the other hand, the changes in length, total and annual, were not significant. From 3.5 to 4.5 years old, the length increased slowly, then slightly reduced until 5.5 years old while the width showed a rapid increase during this same period. From 3 to 5.5 years old, the growth pattern of the dental arches of Vietnamese children could be described as follows: the width increased significantly and steadily while the length showed a slight decrease from 4.5 to 5.5 years of age, in both sexes and both upper and lower arch.