ABSTRACTS
FOR
ORAL
PRESENTATIONS

OP1

Comparison Of The Changes In The Oral Disease Burden And Oral Health Related Quality Of Life Between Overweight/Obese And Normal Weight Adolescents: A Longitudinal Study

Peh WY[1], Ong JY[1], Saub R[2], Shoaib LA[3]

1. Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia,

2. Department of Community Oral Health & Clinical Prevention, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia,

3. Department of Paediatric Dentistry & Orthodontics, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Objectives: This study was conducted to compare the changes of oral disease burden and Oral Health Related Quality of Life (OHRQoL) between overweight/obese (OW/OB) adolescents and normal weight (NW) adolescents in Malaysian population in a two-year follow-up.

Methods: Baseline study was done in 2015 with 398 adolescents aged 14. A two-year follow-up was carried out in July 2017. A self-administrated questionnaire containing the short version of the Malaysian Oral Health Impact Profile (OHIP[M]) was distributed to measure subjects OHRQoL. BMI was used for their anthropometric measurement. Clinical assessment included DMFT index, significant caries index (SiC), simplified basic periodontal examination (BPE), and gingival bleeding index (GBI). Data analysis was done using Statistical Package for Social Sciences (SPSS) Version 12.0.

Results: Higher dental caries prevalence was found in NW group in both baseline and two-year follow-up. However, there was an increase of dental caries prevalence in OW/OB group. Regardless of obesity status, the prevalence of gingivitis (BPE Code 1 and 2) in both baseline and two-year follow-up was high in both groups. However, in OW/OB group reduction of BPE code 2 can be seen. There was higher prevalence of OHRQoL impact in OW/OB group in both baseline and two-year follow up, which OW/OB group showed higher level of increment in prevalence of OHRQoL impact. No statistically significant results were found across the study.

Conclusions: Obesity status does not seem to have influence on the burden of oral disease and OHRQoL.

Key Words: Oral Health, Quality of Life, Obesity, Dental Caries, Periodontal Disease, Longitudinal Studies

OP2

The Influence Of Pre-drawn Mandala And Free Drawing On Dental Anxiety Among Special Paediatric Dental Patients With Learning Disability : A Pilot Study

Diong JH[1], Lee KW[1], Manan NM[2]

1. Faculty of Dentistry, University of Malaya, Kuala Lumpur.
2. Department of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, University of Malaya, Kuala Lumpur.

Objective: To examine the influence of visual art-making activities, namely pre-drawn mandala and free drawing in reducing dental anxiety among special paediatric patients with learning disability.

Methods: A convenience sample of 33 children (21 normal children and 12 children with learning disability), aged 4 to 12 years old, were selected as subjects. The subjects were assigned into two groups: control group (normal children) and experimental target group (children with learning disability). The participants were allowed to choose in between two visual art therapy techniques: pre-drawn mandala colouring and free drawing and received art therapy for 20 minutes before undergoing dental treatment. The anxiety level was assessed by using Malay-Modified Child Dental Anxiety Scale (Malay-MCDAS$_f$) to measure a child situational anxiety before and after dental treatment. The patients' behaviour towards dental treatment was assessed by using Frankl Behaviour Rating Scale. Chi-square test was used to determine the significance association in dental anxiety of two groups. The influence of visual art therapy in dental anxiety of learning disabilities children was analysed using Wilcoxon signed-ranked test.

Results: Children with learning disability experienced lower anxiety towards dental visit, dental check-up, mouth prophylaxis and dental restoration after receiving art therapy and it showed no change in dental anxiety to dental injection and extraction.

Conclusion: Art therapy is effective in reducing dental anxiety of children with learning disabilities towards non-invasive dental treatments like dental visit, dental check-up and mouth prophylaxis

Keywords: Dental anxiety, Art therapy, Mandala colouring, Free drawing, Children, Learning disability

OP3

Accuracy Of The Acrylonitrile-Butadiene-Styrene (ABS) Based 3D Printed Orthodontic Study Model

Teoh YC[1], Tham YY[1], Wan Hassan WN[2], Othman SA[2]
1. Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.
2. Department of Paediatric Dentistry and Orthodontics, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Objective: In this study we aimed to compare the accuracy of the 3D printed Acrylonitrile-Butadiene-Styrene (ABS) models fabricated using the UP Plus 2 3D printer with conventional orthodontic study models.

Methods: Calibration was done on 10 sets of models and checked using the reliability analysis. For linear measurement, 26 pairs of stone and 3D printed casts were measured on four different planes by using digital caliper. For volumetric measurement, the stone models and 3D printed models were scanned by 3D maestro scanner. Both digital images were then superimposed by using the 3D modeling software. The volumetric difference was recorded. Data were analyzed by repeated measures analysis of variance, Bland-Altman analysis and paired-t test.

Results: For linear measurement, there were statistically significance in the effect of time for measurement made in the clinical crown height. There was no significance statistically differences between methods and between operators. For volumetric measurement, paired-t test showed there was significance different between volumes of 3D printed and stone digital images. The volume ratio showed there was 0.96% decrease in volume of 3D printed models.

Conclusion: 3D printed ABS models were clinically comparable to the stone models as orthodontic study models.

Keywords: Acrylonitrile-Butadiene-Styrene (ABS), Linear measurement, Volumetric measurement, Superimposition.

OP4

The Effect of Different Solutions on Colour Stability and Surface Roughness of Denture Hard Reline Materials

Ngan WP[1], Ong YQ[1], Mahmood WAA[2]

1. Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.
2. Department of Restorative Dentistry, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Objectives: To investigate the effect of six solutions on the colour stability and surface roughness of two denture hard reline materials (chair side).

Methods: Sixty specimens (8.0mm diameter x 1.5mm height) from each test material, Tokuyama Rebase II fast (T) and Elite Hard Relining (E) were prepared. The specimens were randomly assigned and immersed in 6 solutions; tap water (control), Coca-Cola, Polident, tea, coffee and turmeric solution at 37^0C in an incubator. Colour change and surface roughness were measured on the 1st, 3rd, 7th, 14th, 21st and 28th days. Data were statistically analysed with Mann-Whitney U Test and Repeated Measure ANOVA (α= 0.05).

Results: Significant colour change occurred in both test materials immersed in turmeric solution since 1st day. The ΔE mean values and surface roughness (Ra) mean values of T was significantly lower compared to E ($p < 0.05$), irrespective of the test solutions and time.

Conclusions: Turmeric solution caused significant colour change for both test materials. T showed less colour changes and surface roughness compared to E.

Keywords: chairside, denture, hard reline, colour, surface roughness, solutions

OP5

Targeting Sphingosine-1-Phosphate Receptor 4 in Oral Squamous Cell Carcinoma

Mat Noor NA[1], Chemari SH[1], Lee HM[2], Yap LF[2]

1. Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.
2. Department of Oral and Craniofacial Sciences, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Objectives: To evaluate the role of sphingosine-1-phosphate receptor 4 (S1PR4) on the oral squamous cell carcinoma (OSCC) cell behaviour *in vitro*.

Methods: The expression levels of S1PR4 in a series of OSCC cell lines were determined using real time quantitative polymerase chain reaction (qPCR) analyses. The viability and migration of the OSCC cells following the treatment of a S1PR4 inhibitor, CYM50367, were determined using alamar blue and wound healing assays, respectively.

Results: The expression of S1PR4 was readily detected in all the OSCC cell lines examined in qPCR analyses. Two OSCC cell lines (H376 and H157) with relatively high levels of S1PR4 were treated with CYM50367. Alamar blue assays demonstrated that CYM50367 was not cytotoxic to the OSCC cells. Inhibition of S1PR4 using CYM50367 significantly reduced the S1P-induced migration of OSCC cells.

Conclusion: This study reported for the first time that S1P can stimulate the migration of OSCC cells through S1PR4. Our data suggest that targeting S1P/S1PR4 signalling is a potentially novel therapeutic approach for OSCC patients.

Keywords: Oral squamous cell carcinoma, sphingosine-1-phosphate receptor 4 (S1PR4), real time quantitative polymerase chain reaction (qPCR), CYM50367, migration.

OP6

Concordance Between Clinical And Histopathological Diagnosis Of Oral Lesions And Salivary Gland Diseases

Saifulazlan AA[1], Goh QY[1], Kallarakkal TG[2]

1. Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.
2. Department of Oral and Maxillofacial Clinical Sciences, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Objectives :
1. To determine the level of concordance between clinical and histopathological diagnosis of oral mucosal lesions.
2. To determine the level of concordance between clinical and histopathological diagnosis of jaw bone lesions.
3. To determine the level of concordance between clinical and histopathological diagnosis of salivary gland diseases.

Methods : Histopathology reports in the database of the Oral Pathology Diagnostic and Research Laboratory (OPDRL) at the Faculty of Dentistry, University of Malaya from the year 2012 to 2016 were reviewed. A working classification based on the latest WHO classification of tumours of the head and neck (2017) was used to subcategorize the lesions. The concordance between clinical and histopathological diagnoses for specific lesions within the subcategory was further analyzed using Kappa statistics.

Results : Results showed that oral mucosal lesions, jaw lesions and salivary gland diseases have a high concordance rate of 97.3%, 99.6% and 92.6% respectively. Malignant haematolymphoid tumours of the oral mucosa showed the least level of concordance (20%) among oral mucosal lesions. Among jaw lesions, malignant odontogenic tumours and benign mesenchymal odontogenic tumours exhibited the lowest level of level of concordance; 0.0% and 33.3% respectively. Obstructive salivary gland disorders (99.4%) and benign salivary gland tumours (91.3%) showed a high concordance rate among salivary gland diseases.

Conclusion : This study showed that there was a good concordance between clinical and histopathological diagnosis for oral lesions and salivary gland diseases. However, a clinical diagnosis cannot be considered as an alternative for a histopathological diagnosis.

Keywords: Concordance; oral mucosal lesions; histopathological diagnosis; salivary gland diseases

OP7

Accuracy Of Different Methods In Working Length Determination

Shi TK[1], Teng TP[1], Mohd Noor NS[2],

1. Faculty of Dentistry, University of Malaya, 50603 Kuala Lumpur, Malaysia.
2. Department of Restorative Dentistry, Faculty of Dentistry, University of Malaya, 50603 Kuala Lumpur, Malaysia

Objective: To compare the accuracy of working length determination using electronic apex locator and radiographic method to the true working length.

Materials and methods: Thirty extracted first upper premolar teeth were used for this study. A preoperative radiograph was taken and access cavity made. The radiographic working length was determined by using Ingle's radiographic method and for the electronic measurement all teeth were embedded in an alginate model to test with MORITA Denta Port ZX II. Actual working length was determined by placing an endodontic file into the root canal 0.5mm short of the apex. Data was analysed using the descriptive statistic and intraclass correlation coefficient.

Results: The percentage of accuracy of radiographic working length compared to true working length was 96.45% while 99.80% for electronic working length. The percentage of radiographic method within ±0.5mm to the apical constriction was 55% and 100% for electronic method within ±0.5mm of all cases compared with true working length.

Conclusion: Hence, it can be concluded that electronic method produces more reliable result for accurate working length determination compared with radiograph method.

Keywords: Endodontics; Working length determination; Electronic apex locator; Digital radiography; Apical constriction

OP8

Antiproliferative Effect of Orthosiphon Stamineuson on Oral Cancer Cells In Vitro

Sin KT, Supri ER, Abdul Razak F[1], Saeed AM[2]

1. Department of Oral & Craniofacial Sciences, Faculty of Dentistry, University of Malaya,
2. Oral Biology and Biomedical Sciences, Faculty of Dentistry, University of Malaya

Objectives: To investigate the antiproliferative effect of Orthosiphon Stamineuson on oral cancer cell lines in vitro

Methods: *Orthosiphon Stamineuson* was investigated for. MTT assay was performed to determine the inhibitory concentration giving a 50% effectiveness (IC_{50}). Morphological observation of the antiproliferative activity was examined using phase contrast microscopy technique. For comparative purposes, similar tests on a normal cell line was also performed.

Results: The IC_{50} of *O. stamineus* on H400 cancer cell line was determined at 15.2 µg/mL and this antiproliferative activity displayed a dose-dependent manner. A marked apoptotic morphological effect on H400 cells was observed under a phase contrast microscope. The antiproliferative effect of extract on normal cell line was determined minimal at $IC_{50} > 30$ µg/ml.

Conclusion: *O. stamineus* extract exhibited promising antiproliferative activity against H400 oral cancer cell line and apoptosis might be the mode of cell death. Hence, suggest its potential as an antiproliferative agent.

Keywords: *Orthosiphon Stamineuson*, H400, oral cancer cell line, phase contrast microscopy, apoptosis, cell proliferation

OP9

An Audit of Time Required and Quantity for Various Cases Output from The Prosthetic Laboratory, Faculty of Dentistry, University of Malaya.

Zubaidah ZA[1]; GS Lim[1]; CB Ong[2]; PS Ti[2]

1. Department of Restorative Dentistry, Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia
2. Faculty of Dentistry, University of Malaya, Kuala Lumpur, Malaysia.

Aim and objectives: This audit was done to study the time required by the laboratory technologists to produce any laboratory works and to quantify the various cases output from the Prosthetic Laboratory, Faculty of Dentistry, University of Malaya. This study also aimed to suggest methods for improving the laboratory work output from prosthetic laboratory.

Methods*:* All of the record of the cases, which were sent from 1st of February 2017 until 30th of April 2017 were collected. Cases were tabulated according to the inclusion criteria. This audit was carried out based on the Standard Operating Procedure (SOP) which was set by Faculty of Dentistry, University of Malaya as Gold Standard. This was used to compare the total days taken by a dental technologist to complete a case. The data were tabulated and a descriptive analysis was performed using statistical software SPSS.

Results: A total number of 103 cases were sent to the Prosthetic Laboratory in three months period of time. 55.3% (n=57) of the cases failed to follow the SOP guideline set by Faculty of Dentistry, University of Malaya. 7 out of 10 of the dental technologists could not finish more than half of their cases according to SOP guideline.

Conclusions: More than half of the cases are not completed following the Standard Operating Procedure (SOP) guideline. Most of the dental technologists were not able to complete more than half of their cases within the working day suggested by SOP.

Keywords: Time required, quantity, various cases output, prosthetic laboratory, Dental school, Malaysia

OP10

Surface Adaptation of Cobalt Chromium Maxillary Removable Partial Denture Framework manufactured using 3Dimensional Printing

Yunus N [2], Ghan JJ[1], Yeap JJ[1], Then JTY[1]

1. Faculty of Dentistry, University of Malaya, Kuala Lumpur
2. Department of Restorative Dentistry, Faculty of Dentistry, University of Malaya, Kuala Lumpur

Objectives: To compare the volumetric and linear discrepancies of maxillary cobalt-chromium (Co-Cr) removable partial denture (RPD) framework manufactured by 3D printing using selective laser manufacturing (SLM) and by conventional lost wax casting methods.

Methods: A stainless-steel master die simulating a maxillary Kennedy class III modification I partially dentate arch was scanned to obtain the digital image. Partial denture framework consisted of occlusal rests on 4 abutments, palatal strap major connector and saddle meshwork were virtually designed using Computer-Aided Design (CAD) software and exported to Standard Tessellation Language (STL) file for direct 3D manufacturing. Five framework specimens were simultaneously constructed layer-by-layer using the powder-pack and laser melting methods. The support structures were angled 30 degrees, along the posterior margin of the palatal strap. For casted specimens, 5 refractory casts were produced by duplicating the master die, and the waxed patterns laid, invested and casted using molten Co-Cr alloy. All 10 frameworks were scanned and images converted to STL format for superimposition on the digital master image, to determine surface adaptation using volumetric and linear discrepancy measurement between the master cast and frameworks. Data analyzed using independent t-test at $p < 0.05$.

Results: There were significant differences in the overall volumetric ($p = 0.022$) and maximal linear ($p = 0.002$) discrepancies between both methods of Co-Cr construction. 3D printing produced significantly greater discrepancies compared to casting methods. The smaller standard deviation of overall volumetric discrepancy was also demonstrated with 3D printing.

Conclusion: 3D printing by SLM method produced inferior surface adaptation compared to the conventional lost wax casting methods.

Keywords: Surface adaptation, Removable partial dentures, 3D printing, CAD-CAM

OP11

A CBCT Study on the Morphometry of the Mandibular Molars and Their Relative Root Lengths to the Mandibular Height

Redzuan NR[1], Mat Nawawi NNA[1], Ngeow WC[2]

1. Faculty of Dentistry, University of Malaya, Kuala Lumpur
2. Department of Oral & Maxillofacial Clinical Sciences, Faculty of Dentistry, University of Malaya, 50603 Kuala Lumpur, Malaysia.

Objectives : This study determined the tooth length and related root-to-crown ratio (RCR), and root morphology variations in M1 and M2. We also determined the root length relative to the mandibular height of these teeth.

Methods : Sixty one cone-beam computed tomography images of patients who had a good set of lower teeth with no sign of pathology or defect at the mandible were included. Relevant measurements were made along the axes of the mesial and distal roots of these mandibular molars. The measurements obtained were averaged and used to calculate RCR and root-to-mandible (R/M) ratio.

 Results : Altogether the crowns of 226 teeth and 465 roots were reviewed in 61 CBCTs of Malay patients. M1 and M2 were 19.41mm and 18.15mm long. The respective anatomical RCR and clinical RCR were 1.90 and 1.59 for M1, and 1.86 and 1.60 for M2. Thirteen teeth (5.4%) presented with 3 roots, with twice the number affecting M1 than M2. More M1 (4.3%) had C-shaped morphology than M2 (1.8%). The R/M ratio at M1 was 42.32% and, at M2 this was 43.94 %.

Conclusion : M1 and M2 of Malay are shorter than Caucasoid's. They do not have a high prevalence of supernumerary roots, but there is a high prevalence of C-shaped morphology in M1.

Keywords: Mandible, molar teeth, morphometry, morphology