Tuesday, 29 August 2017

WDC 2017 – ABSTRACT BOOK

FREE COMMUNICATION SESSIONS 01–24

and POSTER SESSIONS 01–24

FREE COMMUNICATION SESSIONS 01–24

Free Communication Session 01 | 29.08.2017, 09:00–10:00 | Room A9.9

Theme: Oral Health and Systemic Health

FC001

Effect of Periodontitis Induction on Mucin Expression in Submandibular Gland

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Aim or purpose: To describe mucin expression pattern in submandibular gland during periodontitis induction.
Materials and methods: Thirty male Wistar rat were assigned into two groups, a sham periodontitis group (n = 16) that received daily injection of a placebo solution (n = 16), periodontitis experimental groups received daily 500 μL of Porphyromonas gingivalis 10^8 injection on mesial area of upper molar. Severity of experimentally induced periodontitis was monitored by using probe to ascertain pocket gingival manifestation and JE thickness. Expression of mucin in the submandibular gland was analyzed at 7, 14, 21 and 28 days after injection by using Periodic Acid Schiff staining.
Results: *It was found mild gingivitis occurred on 28 days after injection on periodontitis experiment group. Junctional epithelium thickness decreased gradually following days length of* Porphyromonas gingivalis injection ($p < 0.05$). However, mucin expression increased prominently at 7, 14, and 21 days after injection, and decreased at 28 after Porphyromonas gingivalis injection. In sham periodontitis groups, low level of mucin was expressed on the duct cell submandibular gland.
Conclusions: This study suggested duration of periodontitis modified different level of mucin expression in the submandibular gland.

FC002

Oral Health-Related Quality of Life in Patients with Temporomandibular Disorders

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Aim or purpose: To examine the effect of the severity of Temporomandibular Disorders (TMD) and pain intensity and chronicity on oral health-related quality of life.
Materials and methods: Case-Control study in 109 subjects. Participants were divided into two groups, based on the Helkimo's Clinical Dysfunction Index in order to categorize the patients based on the severity and not the type of the dysfunction. The first group comprised 59 TMD patients and the second group 50 subjects with various dental problems, without TMD. The study was approved by the Ethical Committee of the Dental School of National and Kapodistrian University of Athens.
All the participants were asked to fill: the Greek version of Graded Chronic Pain Scale (GCPS) to classify patients according to the intensity and chronicity of pain and the Greek version of Oral Health Impact Profile (OHIP-14).
The statistical analysis was performed by Mann-Whitney U-test and Kruskal-Wallis tests for independent samples.
Results: Statistically significant negative correlations were found between TMD and patients' quality of life ($p < 0.001$), between the intensity and chronicity of pain and oral health related quality of life ($p < 0.001$) and finally between severity of TMD and oral health-related quality of life ($p < 0.001$).
Conclusions: Under the limitations of the present study, TMD patients suffer from impaired quality of life compared to subjects with various dental problems. The more persistent and painful was the TMD condition the greater was the negative effect on patients' quality of life.

FC003

Post-Traumatic Stress Disorder and Psychological Distress in Temporomandibular Disorder Patients with Orofacial pain

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Aim or purpose: The purpose of this study was to evaluate how post-traumatic stress disorder (PTSD) and depression could affect

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the intensity and chronicity of orofacial pain (OP) in patients with Temporomandibular Disorders (TMD).

Materials and methods: Case-control study in 115 subjects. Participants were divided into two groups, according to "The Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) for Clinical and Research Applications". 64 of the participants were TMD patients (group I) while 51 were dental patients, without TMD symptoms, and served as control group.

All subjects administered prior to treatment: (i) Graded Chronic Pain Scale (**GCPS v2**), (ii) Post-traumatic Stress Disorder (**PTSD**) **Checklist Civilian Version** (**PCL-C**) and (iii) Patient Health Questionnaire-4 (**PHQ-4**). Data were analyzed using Chi-square test, Mann–Whitney *U*-test and Spearman's Rho ($p <= 0.05$).

This study was approved by the Ethical Committee of the Dental School of the National and Kapodistrian University of Athens.

Results: According to GCPS score, TMD patients reported OP of higher intensity and chronicity ($p < 0.001$) than the control group. They also reported statistically significant prevalence of PTSD ($p = 0.001$) and depression symptoms ($p < 0.05$), according to PCL-C and PHQ-4 scores.

A negative correlation was found between PTSD and orofacial pain's intensity ($r = -0.395$; $p = 0.000$) and chronicity ($r = -0.351$; $p = 0.000$), while a positive correlation existed between depressive symptoms and orofacial pain's intensity ($r = 0.320$; $p = 0.002$) and chronicity ($r = 0.234$; $p = 0.24$).

Conclusions: According to this study, PTSD and depression could significantly affect the intensity and chronicity of OP in TMD patients. Therefore, there is a need of multidimensional and multidisciplinary treatment approach in this subgroup of TMD patients with OP.

FC004

Modern Forms of Dental Profession in FDI-World Dental Federation ERO-Zone

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Aim or purpose: The increase of new forms of dental practice in Europe can be observed in recent times. Basic elements of liberal dental practice like free choice of therapy and dentist are essential for physician-patient relations. Some new forms of dental profession pose the risk of undermining principles of liberal independent self-responsible exercise of the profession. The aim of this study was to analyze the general framework of organization, training and professional form of dentists in the ERO-zone considering current trends and changes in oral health care in Europe.

Materials and methods: The ERO Working Group entitled 'Liberal Dental Practice' developed a questionnaire to analyze the different circumstances of the ERO member states considering modern forms of dental profession. A total of 33 ERO countries and member national dental associations responded. The response rate was 33/37 (89.19%).

Results: A summary of different forms of dental profession has been created. The most common form of dental profession is the independent self-reliant dental practice. An ascertainment of organization of dentists and regulations for dental practice was performed. Number of dental schools and graduates, course duration and gender ratio among dental students were analyzed.

Conclusions: The charter of the liberal professions must be respected and dentists are required to exercise the profession with special regard based on ethical principles. Optimal oral health care must be carried out without influence of interests of third parties. This is a crucial aspect to counteract commercialism of the liberal dental profession.

Free Communication Session 02 | 29.08.2017, 09:00–10:00 | Room A9.10

Theme: Epidemiology

FC005

Caries Prevalence between Shanghai 12-year-old Native and Migrant Students

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Aim or purpose: To compare the caries prevalence, unmet restoration needs and sealant prevalence between Shanghai 12-year-old native and migrant students during 2013 to 2015.

Materials and methods: During 2013–2015, a random cluster sample of 12-year-old native and migrant students was selected from each district in Shanghai. World Health Organization (WHO) indices were used to assess decayed-missing-filled teeth of permanent dentition (DMFT). The prevalence of caries and sealants, filling proportion, unmet dental restoration needs and the value of DMFT were analyzed using the Mann-Whitney U test, one-way analysis of variance and chi-squared test.

Results: A total of 2500 students were examined during 2013–2015, among which 36.8% were migrants. There was no significant difference in caries prevalence and DMFT value between native and migrant students from 2013 to 2015. Sealant prevalence of migrants was significantly lower than that of natives in 2013 (0.8% vs. 6.6%) and 2015 (3.0% vs. 9.9%). Unmet restoration needs of migrants were significantly higher than those of natives in 2015 (72.48% vs. 46.39%).

Conclusions: There was no significant difference in caries prevalence between 12-year-old native and migrant students in Shanghai during 2013 to 2015. But there were lower sealants and higher unmet restoration needs in 12-year-old migrant students than their native counterparts, even though free public dental health services were available to both groups.

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FC006

Association between self-Reported Oral Health and Clinical Examination Outcomes among Older Adults in Northeastern China

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Aim or purpose: The aim of this study is to examine the association between self-reported oral health status and clinical examination outcomes among older adults in three provinces, northeastern region of China.

Materials and methods: Data were drawn from an epidemiological study that include both clinical oral health examinations and survey questions. A total of 907 participants (age 65–75) were included in the analyses. Self-reported oral health status included the condition of teeth, gum, and oral hygiene status which was measured separately by a 3-point Likert scale (poor, fair, and good). Clinical status was measured as the number of decayed (DT), filled (FT), missing teeth (MT), bleeding on probing, attachment loss, and depth of pocket. Multinomial logistic regressions were used to examine the association adjusting for socioeconomic and behavioral factors.

Results: After adjusting for covariates, a higher number of DT and MT were significantly correlated with poorer self-reported tooth condition. Similarly, DT and MT were also associated with poorer gum status. Good oral hygiene status was associated with fewer number of DT and less bleeding on probing.

Conclusions: A significant association was found between self-reported oral health conditions and clinical outcomes from an examination. This study suggests that self-reported measures are good indicators for overall oral health status. It is possible that self-reported measures could be used as a screening measure of oral health status among Chinese older adults.

FC007

Prescription of Antibiotics for Endodontic Treatments in Cameroon

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Aim or purpose: The aim was to determine the prescription pattern of antibiotics by Cameroonian dentists during endodontic treatment.

Materials and methods: This is a cross-sectional study with structured questionnaires, approved by the Ethics Committee of the CNODS. It was carried out amongst dentists practicing throughout the national territory of Cameroon by using a convenient sampling technique.

Questionnaires were distributed to dentists. The questionnaire was used to collect data on the sociodemographic profile of the dentists, as well as on the type of antibiotic prescribed, the reasons for prescription, the frequency and duration of prescription, and the anticipated outcome.

Epi-info 7 was used to perform statistical analysis. P-value was fixed at 5%.

Results: A total of 100 questionnaires were distributed to the dentists. The response rate (questionnaire completion rate) reached 71%.

The first-line antibiotic treatment was 2 g amoxicillin per day, as it was prescribed by 77.5% of dentists, followed by amoxicillin/clavulanic acid (43.5%). The mean duration of antibiotic therapy was 6.3 ± 1.29 days. The prescription of antibiotics in the case of irreversible pulpitis with little or no symptoms was 29.6%, while results showed percentages of 56.3% for apical periodontitis, 50.7% in the case of pulp necrosis when it was associated to chronic apical periodontitis, 78.9% if a fistula was present and 84.5% if swelling was visible.

Conclusions: The prescription of antibiotics in endodontics is inappropriate in Cameroon and it results in the emergence of resistant germs in endodontic infections. No antibiotics were prescribed after culture and sensitivity.

FC008

Caries prevalence in 12-year-old Children from the Region of Plovdiv, Bulgaria

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Aim: The aim of the current study is to investigate the prevalence of dental caries in 12-year-old children from the region of Plovdiv, Bulgaria, identify the risk factors and compare the newfound results to previous studies and to WHO Global Goals for Oral Health in the year 2000.

Materials and methods: The target group of the study presents 228 children subdivided in 2 major groups – from the city proper – 125, and the surrounding villages – 103. A questionnaire is filled by the parents with an attached written consent for a clinical examination of each child with results being recorded in the WHO Oral Health Assessment Form for Children. A statistical analysis of the recorded data is used to determine the DMFT index for the two groups, the percentage of caries-free children and compare it with WHO global goals and previous studies.

Results: Statistical analysis of the recorded data allowed calculation of the DMFT index as follows – 1.568 for the city proper, 2.917 for the surrounding villages. The percentage of caries-free

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children for the first group was 38.4% and 17.5% for the second group.
Conclusions: There is statistically significant difference in caries prevalence between the city proper and the surrounding villages. The percentage of caries-free children has increased in comparison to similar studies in Bulgaria in the past. Both the city proper and the region are within the WHO Global Goals for Oral Health in the year 2000 for the age group.

Free Communication Session 03 | 29.08.2017, 09:00–10:00 | Room A9.11

Theme: Orthodontics

FC009
The Effect of Bite Raising on Root Integrity. Scanning Electron Microscopic and Light Microscopic Study
Mohammed Ellaithy, Safaa Ghobashy, Olfat Gab Allah, Basma Hagras
Faculty of Dentistry, Tanta University, Egypt

Aim or purpose: To evaluate the integrity of the root, qualitatively and quantitatively, after bite raising.
Materials and methods: Eighty maxillary and mandibular first premolars of 20 patients were divided into two groups according to the duration of bite raising. Each group was divided further to equally 2 subgroups comprising a control (n = 20) and an experimental (n = 20) subgroups. 3 mm composite resin was bonded into the occlusal surface of the mandibular first premolar.
Results: Root resorption began as a superficial multiple, discrete, small pits that merged and coalesced to form wide shallow bays in both control subgroups and experimental group I. In experimental group II, undermining resorption was noted. There were significant differences in the surface area of root resorption between the experimental and control subgroups ($p \leq 0.05$). There was significant difference between experimental subgroup I and subgroup II ($p \leq 0.05$). The apical third was the most common affected at both control subgroups with significant differences ($p \leq 0.05$). Non-significant difference existed between the apical and middle thirds of experimental group I, and between the three-thirds of the root in experimental group II ($p > 0.05$). Repair of resorbed areas occurred in 80% of the control, 57% of the experimental group I and increased to 83% for the control and 71% for the experimental group II.
Conclusions: Root resorption occurred concurrent with bite raising by 3 mm for one and two months and its severity increased with time. Repair of the resorbed area started early during force application and increased with time.

FC010
Effects of Fluoride and Calcium Phosphate on White Spot Lesions
Fahimeh Farzanegan[1], Hamideh Ameri[2], Seyed Morteza Saadat Mostafavi[3], Hossein Khaki[4]
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Aim or purpose: Development of white spot lesions around orthodontic fixed appliances is a common finding, especially in patients with poor oral hygiene. One of the conservative interventions for regression of these lesions is using chemical solutions. Current study aimed to comprise effectiveness of fluoride and amorphous calcium phosphate (ACP) on microhardness improvement of affected enamel.
Materials and methods: Forty-five intact human incisor teeth were selected and randomly divided into 3 groups of 15. Fluoride group, ACP group and artificial saliva group (control group). Inducing of white spot lesion is done by PH-cycling model. Samples of first and second group were put in 0.05% fluoride and 0.05% ACP solutions respectively for one minute a day. In other times, all specimens put into artificial saliva which incubated in 37 °c. Microhardness of specimens assessed by Vickers microhardness test in three times; before induction of white spot lesion (V0), after induction (V1), after chemical treatment (V2). SPSS 11.5 software used for Statistical Analysis and $p < 0.05$ were considered to be significant.
Results: Microhardness of specimens in fluoride and ACP groups were improved significantly after the treatment (between V1 and V2). In control group, no significant improvements were found. In V2, there was significant differences between ACP and control group but significant differences were found neither between fluoride and ACP nor Fluoride and control group.
Conclusions: According to current study, both 0.05% ACP and 0.05% fluoride solutions could enhance the microhardness of enamel in white spot lesions although ACP revealed better results.

FC011
Temporary Orthodontic Appliance Facilitating Translation in Class II Malocclusions
Bruce Oliver
Bruce Oliver Orthodontic Services Inc., Chateauguay, Canada

Aim or purpose: A non-invasive temporary orthodontic appliance which increases compliance and facilitates change to neutral occlusion in patients exhibiting distal malocclusion of dental etiology was evaluated.
Materials and methods: Twenty facilitator appliances placed in ten post pubertal Caucasian female patients exhibiting a distal occlusion of at least a half cusp were followed at 4 to 6 week intervals. Over a six-month period, lateral cephalometric x-rays, models, and image analysis were digitized and analyzed.
Results: Data examining change in molar long axial inclination and extrusion during distal movement demonstrate correction of Class II relationship via translation with minimal tipping of molars. Patients report the facilitator appliance is comfortable, no subjects experienced breakage of the device. Further research

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aimed at correcting: spring to interface design; shorter length of tubes; development of an instrument to assure reliable crimping of the two tubes upon insertion; and modification of the mesial tube to accommodate variability of archwire design is in progress.
Conclusions: Development of a temporary orthodontic appliance to direct or augment force to specific teeth via a low friction device not requiring large areas of reciprocal anchorage is desirable. Literature review of orthodontic treatment for Class II malocclusion suggest temporary appliances are bulky, cumbersome; often involve extra oral traction leading to noncompliance; or incorporation of temporary anchorage devices requiring surgical intervention. Benefits of this appliance include limited forces to adjacent teeth; no interference with masticatory forces, and clinician's options for extra oral traction or temporary anchorage devices are maintained.

FC012

Effect of Carbamide Peroxide Bleaching With and Without Topical Desensitizing Gels on Enamel Roughness, Microhardness, and Bond Strength to Orthodontic Brackets

Mohammed Ellaithy, Abeer Elhatery
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Aim or purpose: The objective of this study was to evaluate, *in vitro*, the influence of two concentrations of carbamide peroxide bleaching agents with and without topical desensitizing gels on enamel roughness, microhardness, and shear bond strength to orthodontic metal brackets.
Materials and methods: One hundred and twelve (112) human extracted premolars for orthodontic purpose were obtained and randomly divided into seven groups (n = 16): **Group 1**, control group (Neither bleaching nor desensitizing); **Group 2**, bleached with 22% carbamide peroxide; **Group 3**, bleached with 22% carbamide peroxide followed by Minerals desensitizing gel; **Group 4**, bleached with 22% carbamide peroxide followed by "D.M. Sense" desensitizing gel; **Group 5**, bleached with 35% carbamide peroxide; **Group 6**, bleached with 35% carbamide peroxide followed by Minerals desensitizing gel; **Group 7**, bleached with 35% carbamide peroxide followed by "D.M. Sense" desensitizing gel. All specimens stored 7 days in distilled water after treatments and before testing. Surface roughness was tested on (56 specimens) half number of specimens in all previously mentioned groups, while microhardness and brackets shear bond strength was tested on the other half. Roughness measurements were obtained using a roughness analyzer. Microhardness tests were performed using Vickers Diamond Microhardness Tester. Shear bond strength test was performed in Instron universal testing machine.
Results: There was a significant increase in roughness and decrease in hardness and shear bond strength in bleached groups. Application of desensitizing agents improved these effects.
Conclusions: Application of desensitizing agent after in-home bleaching is highly recommended to minimize deleterious effects of bleaching agents.

Free Communication Session 04 | 29.08.2017, 09:00–10:00 | Room A9.13

Theme: Implantology

FC013

Different Donor Sites for Harvesting Bone Ring, Advantages and Disadvantages

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Introduction: Bone ring technique is an effective method to repair 3-dimensional bone defect around dental implant with simultaneous implant insertion. Autogenous bone block was usually harvested from 2nd surgical site, which may cause complications such as paraesthesia, bleeding, root damages, et al. Several donor sites can be used to get bone ring graft.
Case Description: A total of 40 implants were placed in anterior maxilla area of 35 patients with vertical bone defect. Autogenous bone ring graft and HA particulate bone substitute originated from coral were used to reconstruct vertical bone defect. The bone ring grafts were harvested from chin, retromolar, palate or nasal floor. The final restorations were made after 6 months healing. Clinical and radiological examination was made regularly.
The average follow-up time was 24.5 ± 16.5 months after final restoration. 1 implant was failed during healing time because of inflammation after soft tissue dehiscence. All of the other implants healed uneventfully. The bone ring from different donor sites showed same healing sequence.
Discussion: Bone ring graft is an effective technique to reconstruct vertical bone defect. Several donor sites can be used to acquire bone ring. Different donor sites have different advantages and disadvantages. It's better for the patients to choose the same surgical site to get bone graft.
Conclusions/Clinical significance: Bone ring technique is a reliable technique to repair vertical bone defect. Several done sites in mouth are suitable for the acquirement of graft.

FC014

Modified Socket Shield with Immediate Implant Placement: A Case Report

Mahmoud Shalash
National Research Centre, Gizah, Egypt

Introduction: Following tooth extraction, the alveolar bone undergoes a remodeling process, which leads to vertical and horizontal bone loss. This sequence of events can complicate rehabilitation with dental implants. Guided bone regeneration procedures (GBR) using bone substitute materials and/or membranes to support the buccal plate and soft tissue have been utilized with variable degrees of success throughout the years. Recently, it has been suggested that resorption of the buccal bundle bone can be avoided by leaving a buccal root fragment in place. This is done in conjunction with immediate implant placement.
Case description: A 55 years old male patient presented with a fractured FPD (fixed partial denture) spanning teeth 23–25. Teeth

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were found to be non-restorable and patient was advised that these teeth need to be extracted and replaced with dental implants. CBCT (cone beam computed tomography) showed a very thin labial plate related to tooth 23. To preserve this thin labial plate, an immediate implant placement utilizing the SS principle was employed. following a 4 months healing period, new bone formation was evident between the shield and implant surface. The case has been restored and followed up for one year with excellent clinical and radiographical outcomes.

Conclusions/Clinical significance: It may be concluded that retaining the buccal aspect of the root in conjunction with immediate implant placement is a viable technique to achieve osseointegration with very promising results. Randomised control trials with longer follow up periods are still required to verify the outcomes of using this technique.

FC015

Challenges of Post Extractive Full Arch Implantation under General Anesthesia

Gurien Demiraqi, Eriola Noçka, Ervin Sulaj, Edlira Baruti
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Introduction: Patients now-days want to solve their edentulous problems as soon as possible leaving the doctor with the difficult decision of placing post extractive implants and often immediately provisory loading them directly after the surgery. These interventions are often difficult and need reconstruction of damaged and degenerated tissues with the need for intervention from donor situses. Patients with this bad condition are often overly-emotive and prefer to carry out interventions under general anesthesia.

Case description: We use general anesthesia which includes highlighting local anesthesia with anesthetic drugs with central action with different anesthetic effect and in certain cases the use of intubation and respiratory run and anesthetic gases. Several extraction methods were used and also different types of reconstructive method, in order to achieve primary stability and 3D bone consistency.

Discussion: Once the necessary conditions are fulfilled and even with very good preoperative programming there are always "surprises" which has to be solved *in situ*. In these cases, the benefits that general anesthesia provides are not a luxury any more, otherwise you might have to postpone surgery or even worst, improvise.

Conclusions/Clinical significance: The use of general anesthesia increases the cost of the treatment but this cost increases are not so high compared to the benefits and the predictability they provide. Has to be taken in consideration that the implant-surgical procedures are high cost ones and this increasing is not so dramatic.

FC016

Porous Silicon: Synthetic Mineral Bioresorbable Scaffold for Bone Tissue Engineering

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Aim: The aim of this research was to assess porous silicon microparticles (pSi-MP) as bioactive scaffold to enhance bone regeneration, clinically.

Materials and methods: PSi-MP (50–200 μm) were fabricated by electrochemical etching. PSi-MP degradation kinetics was studied *in vitro* and *in vivo*. Particle morphology and dental pulp stem cells (DPSC) adhesion were analyzed by scanning electron microscopy and silicic acid release by ICP-MS (inductively coupled plasma mass spectroscopy). DPSC with pSi-MP produced bone-like matrix *in vitro*; evaluated by histology and Raman spectroscopy. This process was followed *in vivo*, in rat's tail vertebrae; investigated by micro-CT and histology.

Results: SEM confirmed DPSC adhesion and spreading on pSi-MP. ICP-MS revealed sustained amount of silicic acid release from pSi-MP. *In vitro* osteodifferentiation assays, with DPSC and pSi-MP demonstrated microcalcifications and collagen fibers (Raman spectroscopy). Enhanced bone regeneration was confirmed *in vivo*, with higher bone volume and mineral density in rat's vertebrae treated by pSi-DPSC (μCT). Histological evaluation showed: pSi-MP were completely resorbed and replaced by newly formed bone, after 2 months.

Conclusion: This work provides positive clue for pSi-DPSC graft to regenerate bone, especially in case of sever alveolar ridge resorption or insufficient amount of bone, where dental rehabilitation or implant provision is inconceivable. Our *in vivo* results showed that pSi-MP, along with DPSC, is able regenerate bone and increase vertical height of resorbed alveolar ridges, allowing further dental treatment. In our experimental model of large bony defect, pSi-DPSC appeared to have efficient scope to regenerate bone tissue, even in inflammatory environment following bone injury.

Free Communication Session 05 | 29.08.2017, 10:15–11:15 | Room A9.9

Theme: Oral Health and Systemic Health

FC017

Oral Hygiene Practices and its Relation to Sociodemographic Factors in Pakistan

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Aim or purpose: The study was conducted to assess the awareness and practices on oral hygiene and its association with the sociodemographic factors among patients attending the general Outpatient Department (OPD).

Materials and methods: A cross-sectional study was conducted among 250 patients attending the general OPD of Ziauddin University for a period of 3 months. The study tool was a predesigned and pre-tested semi-structured questionnaire. Data was analyzed using SPSS version 16.0.

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Results: About 71% of the participants used a toothbrush with toothpaste as a method of cleaning their teeth; 20% brushed twice in a day; Only 6% used mouthwash. About 35% visited the dentist during the last six months; among them 73% attended because of pain. Almost three-fourth of the participants knew that tooth decay and bad breath were the effects of not cleaning the teeth. It was known to 65, 60, 45, and 78% of the respondents, respectively, that excess sweet, cold drink, alcohol, and smoking/pan chewing were bad for dental health. Television was the source of knowledge to 57% of the participants and 30% acquired their knowledge from a dentist. Females, literates, urban residents, users of mouthwash, and regular visitors to the dentist had good oral hygiene practices.
Conclusions: Oral health awareness and practices among the study population are poor and need to improve. Massive oral health campaigns are required to educate the patients so that they can prevent disease and remain healthy.

FC018

Theoretical Basis of Stabilometry Application in Dentistry

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Aim or purpose: To investigate the most valuable and informative methods and parameters of stabilometry for dentistry.
Materials and methods: In this research, the data of stabilometry in 251 patients (129 male, 122 female) were analyzed by means of cluster analysis. Four methods were applied: the European methods, Romberg's test (the European version), Romberg's test (the American version), Romberg's test (the American universal method).
Results: We described correlation between functional parameters dental and postural system. It allows to discover the influencing and relationship between dental system and postural balance. the results of the research demonstrate that the applied stabilometry methods have the same information value. the most important stabilometry parameters for clinical practice are absolute, and frequencies parameters. European methods of stabilometry is sufficient for clinical practice, as they provide valuable information about functional statement of the postural system.
Conclusions: Stabilometry is recommended for apply in dentistry as functional medical research for investigation dental system and its impact on the functional statement of the postural system. On the whole for the first time were find theoretical substantiation for apply stabilometry in dentistry and basis its practical usage.

FC019

Oral Health Related Quality of Life in Diabetic Patients

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Aim or purpose: Objective of this study is to assess the effect of diabetes mellitus on oral health and oral health related quality of life.
Materials and methods: A total of 125 patients with type II diabetes mellitus, referring to Medicine department of Fatima Memorial Hospital Shadman Lahore and Diabetic Institute of Pakistan, were selected and data was collected by using OHIP-14 and CPITN probe was used to assess periodontal health status of patients. Descriptive analysis, ANOVA[b] and linear regression were applied for statistical analysis.
Results: In this study, a significant relationship was found between DMFT and quality of life. While a week relationship was found between CPI and maximum loss of attachment on oral health related quality of life.
Conclusions: Diabetic patients did not show satisfactory periodontal status while oral problems affected oral health related quality of life.

FC020

Prevalence and Management of Occupational Health Issues by Dentists of Karachi

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Aim or purpose: To determine prevalence of occupational health issues and its management among dental practitioners of Karachi.
Materials and methods: A cross sectional study was conducted in which a close ended questionnaire was distributed to the dental professionals. A total 113 out of 130 dentists completed the questionnaire and the response rate was 86.9%. The questionnaire was divided in sections to record demographic variables, collect information about occupational health problems being encountered, and status of measures used for their prevention. Statistical analysis of the data was done on SPSS Version 23.0.
Results: Injury from sharp objects, needle prick injury being †he most common, was reported to be the most common occupational issue encountered (70%). Musculoskeletal problems (50%), job related stress (41%), and allergies (26%) from dental products were among the other commonly encountered health issues with the practitioners. Only (5%) of the dentists were disposing off excess amalgam correctly and (15%) of the dentists had regular measurements of radiation exposures in their clinic. A high percentage of dentists (80%) were immunized against hepatitis-B and were following proper infection control measures and waste disposal method. (52.2%) were satisfied with their current working hours and job.
Conclusions: Prevalence of occupational health issues was found to be high and certain preventive measures were not being followed properly. More educational programs should be conducted to improve the knowledge of dentists regarding management and prevention of these occupational health hazards.

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Free Communication Session 06 | 29.08.2017, 10:15–11:15 | Room A9.10

Theme: Epidemiology

FC021

Risk Factors for Chronic Orofacial Pain in Indonesian Population

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Aim or purpose: The poor management of orofacial pain in Indonesia has led to an increased orofacial pain incidence and decreased quality of life. One of the possible reasons for this particular matter is the lack of evaluation on the risk factors that might induce orofacial pain in some individuals. The aim of the current study was to evaluate the risk factors of chronic orofacial pain on productive age population in West java province, Indonesia.
Materials and methods: One thousand and fifty-six participants (523 male; 533 females, aged 18–45yo) were recruited. The participants were interviewed based on a questionnaire that contains demographical questions as well as twenty-six questions that evaluated the predicted risk factors for the occurrence of orofacial pain. Financial status, social activities, residential location, access to health facilities and parafunctional activities were evaluated.
Results: The result of the current study revealed that bruxism ($p = 0.004$) and clenching during daytime ($p = 0.003$), were significantly related to the incidence of orofacial pain. It was also found that those who does not brush their teeth twice a day is 1.8 times more likely to have orofacial pain compared to those who does. Participants who happen to do multitude of heavy liftings at work were also more prone to orofacial pain compared to those who do not.
Conclusions: There were several parafunctional as well as non-parafunctional activities that were found to be significantly related to the incidence of chronic orofacial pain. Therefore, further study evaluating the current matter is of importance.

FC023

Sociodemographic Factors and Oral Health Awareness' Correlation to Orofacial Pain

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Aim or purpose: The latest (2016) epidemiological survey about orofacial pain in West Java province, Indonesia revealed the high prevalence of orofacial pain. The aim of the current study was to evaluate the correlation between sociodemographic factors and oral health awareness to the occurrence of orofacial pain in an Indonesian sample.
Materials and methods: Three hundred (144 males; 156 females) participants were recruited to complete an orofacial pain questionnaire that consist of 15 questions. Out of the 15 questions, one question evaluated the occurrence of orofacial pain, 10 questions evaluated the sociodemographic factors, whilst four questions evaluated participants' oral health awareness. All gained data were analyzed by using Pearson's correlation in order to reveal the correlation between these factors to the occurrence of orofacial pain.
Results: The current study results revealed that there were positive and significant correlations found between the location of housing ($p = 0.017$), the density of the population ($p = 0.004$), occupation ($p = 0.038$), as well as participant's awareness to seek professional help once orofacial pain is experienced ($p = 0.038$), to the occurrence of orofacial pain. It was also revealed that those who lives in densely populated area have 8 times (OR = 8.3) the odds of experiencing orofacial pain compared to those who do not live in densely populated area.
Conclusions: Demographical factor as well as patient's awareness to seek professional helps might be considered as risk factors for the occurrence of orofacial pain, and may be used as baseline information for managing orofacial pain in Indonesia. Despite, further study is needed.

Free Communication Session 07 | 29.08.2017, 10:15–11:15 | Room A9.11

Theme: Orthodontics

FC025

Cephalometric Evaluation of Upper Airway in Different Classification of Jaws

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Aim or purpose: Dysfunction of the upper airway and breathing can cause malocclusions and skeletal deformations. Aim of current study was evaluating upper airway in different skeletal classification of jaws.
Materials and methods: Lateral cephalometric radiographs of 105 subjects, 72 females and 33 males with CVMS ranged 4–6 were examined. For each subject, Adenoid property (hypertrophic or normal) and three different aspects of jaws classifications assessed: 1) Anteroposterior proportions (class I, II, III) 2) types of skeletal disproportions (prognathism or retrognathism of jaws) 3) vertical proportions. Following these classifications, cephalometric airway analysis with twenty criteria were done. Independent t-test, ICC, ANOVA, and Chi-Square were used to compare groups statistically.

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Results: A significant difference in different skeletal classification of jaws for Depth of hypopharyngeal and nasopharyngeal airway space (V-LPW, PM-UPW) and Soft palate area ($p < 0.05$) were found. In facial height significant differences for PM-UPW, Position of vallecula in vertical plane, Position of hyoid bone, Length of tongue, Soft palate thickness ($p < 0.05$) obtained. In class III subjects, for V-LPW, PM-UPW Length and soft palate thickness, the Soft palate angle with the hard palate ($p < 0.05$), the narrowest sagittal airway space, Relationship between the tongue and oral area, combined tongue and soft palate areas and naso-oropharyngeal area significant differences were found ($p < 0.01$) and in Adenoid hypertrophy for PM-UPW ($p < 0.001$) significant difference was obtained.
Conclusions: Positive correlation exist between sagittal and vertical proportions of jaws and inferior and superior part of the upper pharyngeal airway.

FC026

Teeth Contacts and Mandibular Function Evaluation in Orthodontically Treated Subjects

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Aim or purpose: To evaluate the functional adaptation to the orthodontic treatment in a population of adult subjects, by means of dynamic occlusal analysis through the evaluation of the relationship between dental contacts, neuromuscular and articular function.
Materials and methods: Twenty-three selected adult subjects underwent surface Electromyographic examination to analyse the masseter and anterior temporalis muscles' activity, Kinesiographic examination was then performed, to dynamically analyse the mandibular function, and finally Digital Occlusal Analysis examination to analyse the occlusal contacts, intercuspation, centre and trajectory of the masticatory forces.
For data comparison, the sample was divided into a "No Ortho" group, which included subjects who had never undergone orthodontic treatment, and an "Ortho" group composed by subjects who were orthodontically treated; the sample was also divided into a "Normocclusion" and a "malocclusion" group, regardless of whether the patient's occlusion was natural or consequence of a treatment.
Results: Data representing not physiological conditions were observed in all groups, particularly regarding muscular symmetry of activation and mandibular opening path and velocity.
No statistically significant differences were found between the groups "No Ortho" and "Ortho" and between the groups "Normocclusion" and "Malocclusion".
Conclusions: Altered values and index of incorrect function were observed not to be directly related with the presence of a normocclusion or with orthodontic treatment. This suggests that the static parameters of the Angle's Class, used to define a "correct occlusion", are not the best indicators to ensure the correct occlusion functionality on its own.

FC027

Delivering Physiologic Force for Extrusion of Maxillary Impacted Canines

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Aim or purpose: To define a predictable system to apply physiologic forces for orthodontic extrusion of maxillary impacted canines.
Materials and methods: Specimens of a 0.9 mm transpalatal bar with a soldered stainless-steel cantilever in the shape of a helical torsion spring were prepared. The cantilever was modeled with either a 0.7 or 0.6 mm wire, having 3, 5, or 7 loops. An Instron testing machine was used to measure the force produced at 3 mm intervals up to 15 mm of deflection. One-way ANOVA was used to compare the force magnitude of different combinations of wire and loops at 15 mm of deflection, followed by a Tukey's HSD or a Games-Howell post-hoc test, depending on the results of Levene's test for assumption of equal error variance. After applying Bonferroni's correction, first-type error was set at $p > 0.008$.
Results: The forces measured at 15 mm of deflection ranged from 0.48 to 1.24 N. The cantilevers made of 0.6 mm wire with 5 and 7 loops produced forces under the recommended physiologic value of 0.6 N. The 0.7 mm wire with 7 loops and the 0.6 mm wire with 3 loops exerted similar forces around 0.7 N.
Conclusions: A stainless-steel cantilever with a helical torsion spring is a stiff and robust appliance, with the advantage of being economical and having a simple and easily manageable design. Varying the wire diameter and the number of loops allows to have different force magnitudes, and to reach physiologic levels in a simple and predictable way, thus reducing the risks of adverse effects.

FC028

Orthodontic Guidance for Impacted Teeth Eruption by Temporary Anchorage Device

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Aim or purpose: To determine the role of skeletal or bone anchorage on the guidance of impacted teeth for bringing them into the dental arch without full bracket bonding.
Materials and methods: Ovine mandibles were divided into several blocks.
Twenty-seven miniscrews were placed in the blocks and disported into two groups: single miniscrew and the innovated design "Seifi Twin Screw (STS)". Primary stability was assessed by Periotest device.
Results: Independent t-test represented a serious difference between 2 groups in periotest assessment ($p < 0.05$) STS indicated premier primary stability due to its mechanical form and design.
Conclusions: Temporary anchorage devices like innovative Seifi Twin Screw (STS) are capable for exerting adequate orthodontic forces for OTM without imposing force to the adjacent teeth in the dental arch.

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Free Communication Session 08 | 29.08.2017, 10:15–11:15 | Room A9.13

Theme: Implantology

FC029

Caffeine versus Codeine for Pain and Swelling Management after Implant Surgeries

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Aim: The purpose of this study was to determine a comparison of caffeine contained analgesics versus codeine contained ones in anti-inflammatory and analgesic abilities after implant surgeries, as NSAID might impair osseointegration.
Methods and material: Forty drugs packs which formulated and made by the consultant-pharmacist, each containing 10 capsules of Acetaminophen caffeine (300 mg of acetaminophen and 20 mg of caffeine) and another 40 packs, containing 10 capsules of Acetaminophen codeine (300 mg acetaminophen, 20 mg codeine). These drugs were applied randomly to 80 patients one hour before surgery and every 6 hours after wards until 48 hours. The pain amounts were measured in 30 minutes, 3rd, 6th, 12th hours, first and second days and 1 week periods, and swelling were checked in first, second and third days and 1 week later periods. The SPSS 11, t test, Mann Whitney, chi-square tests were used in order to statistical analysis.
Results: Eventually 76 patients including 38 males and 38 females with the mean age of 41.06 ± 5 and within the range of 35–53 were studied. The amounts of pain in the codeine group was significantly less than the caffeine one in 3rd, 6th and 12th hours post-op periods.($p < 001$) However, it was interesting that the pain even in caffeine group, were within the Moderate pain range (VAS=3–7).
The amounts of swelling were also represented that it was significantly less in the caffeine group in first, second and third days post-operatively ($p < 0.001$).
Conclusion: The caffeine-contained analgesics are effective and acceptable in reducing both post-operative pain and swelling.

FC030

Bioengineering Tooth as an Alternative to Dental Implants

Lia Karalashvili, Zurab Kakabadze
Tbilisi State Medical University, Tbilisi, Georgia

Aim or purpose: Growing new teeth has been a dream, which arose at the dawn of mankind that in recent years is gradually becoming a reality. The tissue engineering provides an opportunity for growing a new tooth, which can be the next generation of dentistry. We hypothesized that a three-dimensional scaffold of a tooth with preserved pulp may be used for the creation of a new tooth.
Materials and methods: In this study, 24 molar teeth that were obtained from domestic porcine, were exposed to decellularization by means of sodium dodecyl sulfate and 1% Triton X-100. Rat bone marrow mesenchymal cells were isolated by density gradient using Ficoll Paque Plus. Totally, 2.5 × 106 mesenchymal cells were seeded onto the decellularized pulp of three-dimensional scaffold of the porcine tooth and was implanted subcutaneously in an adult rat on the back and grown for 12 weeks. The Student T-tests of significance ($P < 0.05$) were conducted in Excel for the DNA content studies and SEM image analysis.
Results: Three-dimensional scaffold of a decellularized tooth with a preserved pulp is an ideal scaffold for the attachment, migration, and proliferation of the transplanted cells. Radiographic, histological, and immunohistochemical analyses showed that bioengineered teeth consisted of organized dentin, enamel, and pulp tissues. be used for the creation of a new tooth.
Conclusions: This study demonstrates that in the near future, the bioengineered tooth can be used for replacing previously lost and/or missing teeth.

FC031

Bone Augmentation: Comparison of Demineralized Bone Allograft & Alloplastic Materials

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Aim: Augmentation of the buccal bone defects is essential for desirable results. The study aimed to compare Demineralized Freeze-Dried Bone Allograft (DFDBA) and Alloplastic materials in the Augmentation of Buccal Defects during Implant Placement in the Anterior of the Maxilla.
Materials and Methods: In this prospective cohort study, subjects were studied in two groups: group 1 received alloplastic materials and group 2 underwent reconstruction with DFDBA. Marginal bone loss (MBL) and buccal bone thickness (BBT) was measured using cone beam computer tomography 4 months post-insertion. Age & sex were considered as variables and the type of bone graft was predictive factor of the study. The statistical analyses were performed using SPSS 19. Chi-square tests and Independent T-test was applied. An inter-examiner reliability analysis was performed using the Kappa statistic.
Results: Fifty-five subjects were studied in two groups (27 and 28 subjects respectively). Post-operation CBCT showed 14 subjects had 1 mm and more BBT and 20 subjects in group 2. Comparison of the number of subjects who had 1 mm and more BBT did not show a significant difference between two groups ($P = 0.17$). In group 1, 14 subjects and in group 2, 24 subjects had MBL less than 1 mm. Results revealed a significant difference between the two groups for the number of subjects with MBL less than 1 mm ($P = 0.009$).
Conclusions: It seems that both of alloplastic and allogenic materials are acceptable for reconstruction of buccal bone defects in fresh socket implant placement. Alloplastic materials may be associated with higher MBL than DFDBA.

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FC032

Efficacy of Calcium phosphosilicate Putty in Sinus Augmentation for Implant Placement

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Aim or purpose: Calciumphosphosilicate putty has shown successful bone regeneration in socket preservation and cystic cavity defects in the past and in this study, it has been used as a graft material for sinus augmentation in the compromised posterior maxilla. The aim of this study is to evaluate the efficacy and role of calciumphosphosilicate putty in enhancing and achieving adequate available bone height through sinus augmentation procedures making implant placement possible.

Materials and methods: Twenty patients (12 males and 8 females) with reduced residual bone height in the posterior maxillary region were included in this study. Depending upon the quantity of the available bone, these patients underwent either direct or indirect sinus augmentation procedures wherein calciumphosphosilicate putty was used as a graft material. All these patients were subjected to Cone Beam Computed Tomography scan pre-operatively and after a follow-up period of 6 months, to measure the increased bone height.

Results: Radiographic evaluation revealed that the average pre-operative bone height was 2.44 mm and had increased to 11.27 mm post-operatively. **These measurements were tabulated and analysed using paired sample *t* Test. The post-treatment bone height (11.27± 0.17) was significantly higher than pre-treatment bone height (2.44± 0.81) and the values ($t = 32.17$, $p < 0.005$) were of high statistical significance.**

Conclusions: The Clinical and radiographic findings have demonstrated that calciumphosphosilicate putty is an efficacious bone regenerative material in sinus augmentation procedures and has successfully increased the height of available bone facilitating implant placement.

Free Communication Session 09 | 29.08.2017, 11:30–12:30 | Room A9.9

Theme: Oral Health and Systemic Health

FC033

Cardiac Implantable Electrical Devices and Dental Equipment: Are They Compatible?

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Aim or purpose: Patients with cardiac implantable electrical devices must take precautions when exposed to electromagnetic fields. This study examines *in vitro* the capacity of dental equipment to cause electromagnetic interference in pacemakers and implantable cardioverter defibrillators, and the risks associated with different types/makes of cardiac devices and types of dental equipment.

Materials and methods: Six electronic dental instruments were tested on three implantable cardioverter defibrillators and three pacemakers from different manufacturers.

Results: The dental instruments differed significantly in their capacity to trigger electromagnetic interference ($p < 0.001$). Significant differences in interference were observed with respect to variables: manufacturer and type of cardiac implant, and application distance ($p < 0.001$), but not with respect to time of application ($p > 0.05$). Overall, the risk of interference with pacemakers was 37% lower than with implantable cardioverter defibrillators. Regarding types/makes of cardiac device, Boston Scientific devices had a five-fold greater risk of interference than Biotronik (PR = 5.58; 95% CI); there was no difference between Biotronik and Medtronic. Among the dental equipment, the electric pulp tester was most likely to induce interference and was used as benchmark. The electronic apex locator was least likely to induce interference (PR = 0.29; 95% CI), followed by Periotest M (PR = 0.47; 95% CI), and the ultrasonic dental scaler (PR = 0.59; 95% CI). Pacemakers presented a lower risk of light-to-moderate interference (PR = 0.63; 95% CI), but, the risk of severe electromagnetic interference was 3.5 times higher than with implantable cardioverter defibrillators (PR = 3.47; 95% CI).

Conclusions: Electronic dental equipment tested at a clinical application distance caused only slight interference in the pacemakers and implantable cardioverter defibrillators used, irrespective of manufacturer.

FC034

Measures to Improve the Marketing Strategy of a Medical Organization

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Aim or purpose: Measure the improvement of the marketing strategy of a medical organization.

As a rule, the patient's initial opinion can be stated immediately after receiving medical care, but the final decision, according to the patient, is formed within the first three days after receiving medical care.

Materials and methods: A total of 3,650 calls were made to clinics to obtain paid dental services and 3,198 patients were interviewed. The patient's initial opinion can be stated immediately after receiving medical care, but the final decision, according to the patient, is formed within the first 3 days after receiving medical care. A questionnaire has been developed that defines the consumer choice of a medical organization; collection and analysis of questionnaire data and interviews; estimation of the level of elasticity of demand for

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dental services relative to the price and income of the consumer; decorated with the results of statistical processing of materials.
Results: The maximum period during which the patient is uniquely determined with a subjective opinion on the quality of care should be considered a period of 5–6 days.
The majority of patients in a commercial dental clinic had higher education (68%) or incomplete higher education (16%), less often (12%) secondary specialized education.
Conclusions: This period is indicated by patients as the period of expectation of negative reactions or complications. After this period, the overwhelming number of patients (89 out of 100 respondents) form their idea of the level of quality of dental services provided.

FC035
Physiological Parameters Indexes of Students Working on Dental Simulators
Svetlana Razumova, Michail Saulin, Ella Kozaev, Natalia Karabushchenko, Vsevolod Bulgakov
Peoples Friendship University of Russia (RUDN University), Moscow, Russian Federation

Aim or purpose: Stress level and adaptation skills analysis of dental students working on the simulators. Preparing of high level trained stuff for the practical healthcare is and actual topic. Studying on the simulators provides the students an ability to be trained in the conditions close to clinical. Practicing on the simulator involves the consolidation of knowledge and acquisition of skills in the learning process.
Materials and methods: In duration of the learning process 96 students (average age 18 years old) were given several tasks- practicing already well-known manipulations and mastering new competencies. The following physiological parameters were measured: pulse oximetry, blood pressure, α and β wave activity in the brain, electromyography and measurement of temperature of the first phalanx of the index finger.
Results: Before the investigation indexes were the following – pulse oximetry – 94 ± 2; blood pressure 122/75 mmHg; electromyography 13.7 ± 0.7 μV. During practicing of the developed skills 69.79% (67) of student presented no growth of muscular tonus ($p < 0.05$); temperature of the first phalanx of the index finger was 93.8 ± 4 F; in case of implementing a new task general stress was growing in 100% of cases ($p < 0.05$). α wave brain activity was not detected in group practice; however, it was present and increased in individual work.
Conclusions: Work on the stimulators is a cause of stress for all the students 100% ($p < 0.001$); results of the investigation have shown objective advantages of individual approach in the pedagogical practice.

FC036
Prevalence of Dentine Hypersensitivity and Current Effective Ways of Treatment
Svetlana Razumova, Antonina Fomina, Sandor Farkasdi, Ruzanna Bragunova, Lamara Khaskhanova, Ashot Manvelyan
RUDN – Peoples' Friendship University of Russia, Moscow, Russian Federation

Aim or purpose: To evaluate prevalence and etiology of the disease and to estimate the knowledge of dentists in the modern treatment opportunities.
Materials and methods: A total of 376 patients (217 female and 159 male) underwent clinical examination and questioning, 51 doctors – questioning.
Results: Age of the participants varied from 18 to 65, mean age 37 ± 0.8. Prevalence of dentine hypersensitivity was estimated as 40.1% (151 patients), with a small prevailing in female (41.4%) in comparison to male (38.3%). Hypersensitivity mostly affects people of the socially active period: prevalence in the age groups 25–35 (48%) and 35–45 (46%) is the highest. Main complaints were associated with sensitivity to cold air (77.5%) and acidic tastes (80.8%), complaints are constant for 21.8%, often for 70.8%. Such comorbidities as gastritis (17.8%) and thyroid gland diseases (15.9%) were rather often detected. Only 33.8% of respondents addressed the dentist to have dentine hypersensitivity treatment. From 151 patients 63.6% presented sphenoid defects, 44.4% – gingival recessions, occlusal abrasion with accompanying erosions – 20.5%. The most common ways of dentine hypersensitivity treatment are applications of high concentration fluoride solutions (35.3%) and varnishes (45.1%), 7.1% – bonding systems.
Conclusions: Despite the development of dental science and improvement of treatment protocols, dentine hypersensitivity persists being a challenge to be solved. Not many dentists are aware of contemporary means of treatment and resent publications.

Free Communication Session 10 | 29.08.2017, 11:30–12:30 | Room A9.10

Theme: Epidemiology

FC037
The role of Coping Strategies in Quality of Life in Patients with Myofascial Pain
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Aim or purpose: Nowadays due to stressful conditions, number of patients suffering myofascial pain is increasing. Several coping strategies are used to reduce the detrimental effects of stress. Determining the coping strategies related with myofascial pain may avoid the progress of disorder to chronic state and increase patients' quality of life (QoL). However, in the literature there is no data regarding this issue. In this study, we aimed to evaluate

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the coping strategies of patients with myofascial pain and whether it has any relation with QoL. It was further investigated which demographic and clinical features were associated with QoL.
Materials and methods: A total of 100 patients receiving the diagnosis of myofascial pain according to Research Diagnostic Criteria for TMD were included in this study. Evaluation of patients were made on data obtained by 3-part questionnaire. Regression analyses were performed to assess the association between coping strategies, QoL and demographic and clinical characteristics.
Results: All patients used more than one coping strategy. The most frequently used coping strategies among the patients were positive reinterpretation and growth, religious coping and the use of emotional social support. Significant relation was found between coping strategies and gender, age, level of education, duration of pain.
Conclusions: QoL has been found to be affected not only by the duration of the disorder and severity of pain, but also by the use of particular coping attitudes in patients with myofascial pain. Therefore, coping attitudes should be taken into consideration especially in patients with severe and/or chronic pain.

FC039

Relation of Demographic Factors with Unstimulated Salivary Flow Rate in Children and Adolescent

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Aim or purpose: This composite biofluid plays vital role in safeguarding oral health. There is a scarcity of studies to analyze SFR variations in children and young adults. That is why the aim of this research was to measure the salivary flow variations in the adolescents and correlate this data with gender, age, and socioeconomic status.
Materials and methods: The study samples were collected from randomly selected public and private schools of Karachi. The sample included 350 boys and girls with the mean age of 11.19 ± 3.16 yrs. Passive Drool Method was employed for the collection of resting whole saliva. Analysis was presented in terms of mean and standard deviations for all quantitative variables. Frequencies and percentages were calculated for all qualitative variables. The comparison between different study groups was performed using Mann Whitney U test.
Results: The mean value for salivary flow rate for overall study sample was observed to be 0.34 ± 0.88 ml/min with 0.14 ml/min is the lowest value while 0.70 ml/min is the highest value.
Conclusions: Within the limitation of this study the mean salivary flow rate values varies greatly in different groups of gender, age, and socioeconomic status.

Free Communication Session 11 | 29.08.2017, 11:30–12:30 | Room A9.11

Theme: Orthodontics

FC041

Effect of 3 Weekly Application of Low-Level-Laser on Orthodontic Tooth Movement and Pain

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Aim or purpose: To evaluate the effects of LLLT on OTM and pain associated with OTM using conventional ligating brackets.
Materials and methods: Twenty orthodontic patients were recruited having Angle's class II div 1 malocclusion, requiring extractions of upper first premolars bilaterally. After initial stage of treatment, canines were retracted bilaterally using NiTi coil from upper first molars. LLLT was applied around the canines buccally and palatally on experimental side while other side served as placebo. Laser was repeated after every 3 weeks and questionnaire was given to the patients to record their pain for one week. Impressions were made at each visit and models were scanned and measures with CADCAM scanner. Independent t test was applied to compare the rate of canine retraction between experimental and placebo side, whereas pain was compared using Mann–Whitney *U* test.
Results: Canine retraction was greater on the experimental side ($p < 0.05$). Pain was significantly lesser on the experimental side only on 1st day after the application of LLLT at T1 and T2 ($p < 0.05$).
Conclusions: Application of LLLT at 3 weeks intervals can accelerate OTM and can reduce the pain associated with OTM, without disturbing the regular orthodontic visits.
Acknowledgment: This study was supported by USM RUI Grant 1001/PPSG/812154.

FC042

3D Virtual Planning on Combined CT/Stereophotogrammetry Data

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Aim or purpose: 3D computer-assisted orthognathic surgery has been applied to improve planning and outcome. The purpose of the study is to evaluate the capability of PROPLAN CMF in improving surgical outcome in orthognathic surgery by matching

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3D virtual planning to combined CT and 3D stereophotogrammetry data.
Materials and methods: The study included 20 subjects with dentofacial deformity who underwent orthognathic surgery with BSSO of the lower jaw, associated to a maxillary LeFort I osteotomy between 2014 and 2016.
All patients have been studied with a presurgical CBCT scans and 3D stereophotogrammetry that were loaded onto ProPlan CMF to perform virtual osteotomies and soft tissue predictions.
The 3D stereophotogrammetry acquisitions were assessed 6 months after surgery.
The predicted 3D soft tissue image was compared to the postoperative soft tissue one.
The reliability of the program was evaluated by comparing the three-dimensional post-operative photos with the simulation of soft tissue obtained with PROPLAN.
Results: In our experience, the use of the 3D photo in the virtual planning in orthognathic surgery has significantly implemented the outcomes of surgery.
Conclusions: The software can be considered a useful method that provides a precise and reliable prediction of facial profile after orthognathic surgery.

FC043

An Evaluation of the Effectiveness between Stainless Steel Micro-Implants and Titanium-Alloy Micro-Implant during En-Masse Retraction

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Aim and purpose: The application of temporary anchorage devices such as micro-implants or miniscrews and miniplates are readily accepted in orthodontic treatment as a method to reinforce anchorage. Titanium alloy (TiA) micro-implants is well-known due to its biocompatible advantage as compared to stainless steel (SS). The purpose of this study was to measure and compare the rate of anchorage loss between SS micro-implants and TiA micro-implants.
Methods: The study sample comprised of twenty-four patients (9 male: 15 females; mean age 23.8 + 5.38 years) were gathered from orthodontic clinic. All subjects required extraction of upper first premolars and maximum anchorage reinforcement. Subjects were randomized equally into two groups, TiA group and SS group. Following alignment and levelling, 1.6 mm in diameter and 8 mm in length micro-implants were inserted between first molar and the second premolar in the maxilla and loaded with 150 gm retraction force with Nickel-Titanium closed coil spring after 4 weeks of insertion. Study casts were taken prior to retraction (T0), at 1 month (T1), 3 months (T2) and 6 months (T3). The casts then were digitized using Viewbox version 4.0.
Results: Anchorage loss was measured by the mesial movement of first maxillary molar. Mean for anchorage loss was found to be 0.13 mm with TiA micro-implants retraction and 0.18 mm with SS micro-implants retraction.
Conclusions: There was no statistically significance difference ($P > 0.05$) between SS and TiA micro-implants for anchorage loss. Both types of micro-implants were found to be clinically effective for anchorage reinforcement in orthodontic treatment.

FC044

Clinical and Genetic Predictors of Orthodontic-Induced External Apical Root Resorption

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Aim or purpose: To identify clinical and genetic variables that interfere in the susceptibility to external apical root resorption (EARR) and may assist in the personalization of treatment.
Materials and methods: This retrospective study included 195 patients, 72 males and 123 females, with an average age of 17.24 years old (SD ± 6.8) and obtained approval from the Ethics Committee at the presenter's institution. Six teeth, the four maxillary incisors and the two maxillary canines, were evaluated. The average treatment time was of 36 months (± 10 months). EARR was evaluated by panoramic radiographs using a software prototype specifically developed for this work. Using a multiple linear regression model, where the dependent variable was the maximum % of root resorption for each patient, we evaluated the contribution of nine clinical variables and 4 polymorphisms of genes involved in bone and tooth root remodeling (rs1718119 from P2RX7, rs1143634 from IL-1B, rs3102735 from TNFRSF11B, encoding OPG, and rs1805034 from TNFRSF11A, encoding RANK). Genotyping was performed by RFLPs and real time TaqMan assays.
Results: The most frequently affected teeth were maxillary incisors. Five clinical and genetic variables explained 27% of the EARR variability. The variables with more significant unique contribution to the model were: gender, treatment duration, premolar extractions, Hyrax appliance and GG genotype of rs1718119 from P2RX7 gene.
Conclusions: The five variables identified explained about 30% of phenotype variability, confirming to multifactorial nature of EARR. An effort is being made to update this model with some other clinical and genetic variables.

Free Communication Session 12 | 29.08.2017, 11:30–12:30 | Room A9.13

Theme: Implantology

FC045

Influence of the Crown-Implant-Ratio on Crestal Bone and Implant Stability

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Aim: When the era of dental implantology began, clinicians started using certain guidelines associated with natural teeth for the implant supported fixed crowns. It was taken for granted, that the length of implant in alveolar bone (root-equivalent) should exceed the length of the superstructure. The aim was to determine if implant length and the crown-to-implant(c/i) ratio influences the implant stability and the marginal bone level loss(MBL).
Materials and methods: The research group was n = 30 patients who had single tooth implant placed in maxilla, two implants types were used: short (L6Ø4 mm) and regular (L11Ø4 mm). The evaluation, was based on patient's clinical (Periotest) and radiological examination (CBCT, periapical radiograph). Radiographs were taken initially and after 36-months to assess the crown-implant ratio and to measure MBL. Secondary implant stability was measured with Periotest after 36 month. Statistical analysis with GraphPad 6. All data are given as means ±standard deviation(SD). $p < 0.05$ was considered statistically significant.
Results: The evaluation of implant stability after 36-months showed good result of secondary stability in both groups (0.93 ± 3.39PTV and 1.0 ± 2.7PTV for short and regular implants). The MBL loss was low (0.22 ± 0.46 mm and 0.34 ± 0.24 mm short and regular implants) and similar in both groups. No statistically significant correlation between c/i ratio and the secondary stability was found. No significant correlation was observed for the c/i and MBL.
Conclusions: Short implants can be successfully used to support single crowns. Clinical performance of short implants is comparable to regular implants. No negative influence of the lowered c/i ratio on the MBL and implant stability was found.
Supported by AstraTechGrant-nr.D-2010-34.

FC046

Evaluation of Immediate Loading of Single Implant Cases at Lagos

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Aim or purpose: To clinically and radiographically evaluate the short-term survival and marginal bone levels of immediately loaded single implants.
Materials and methods: A prospective, longitudinal (non-randomized) clinical study. Participants were included based on inclusion criteria and were followed up for a period of one (1) year. Data was collected at each appointment to assess the outcome clinically and radiographically using designed proforma with items on sociodemographic data, location of implants and clinical/radiographical findings. Data was analyzed using SPSS version 20 with Chi-square, Log rank and Fisher's Exact tests used to test statistically significant associations.
Results: A total of 35 participants; 23 females, 12 males, age ranged 21–60 years. There was an association between the periotest values and implant survival ($p < 0.05$) as well as between the mean periotest scores of implants placed in the mandible and implants placed in the maxilla ($p < 0.05$). However, there was no association in the mean periotest scores of implants placed in the anterior aspect of both jaws compared with those placed in the posterior aspect of both jaws. There was no association between failure of implant and the location of the implant. Implants placed in the anterior region had a survival rate of 73.7% while those placed in the posterior region had a survival rate of 85.7%. The survival rate in the maxilla in this study was 72% and 100% in the mandible, this was not significant.
Conclusions: This study obtained an 80% survival outcome from the thirty-five (35) immediately loaded implants.

FC047

Connective Tissue Flap for Soft Tissue Management in Esthetic Zone

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Introduction: The invent of recent clinical techniques and biomaterials, which have made surgical treatments easier and possible in a shorter period, has introduced 'immediate implant placement' more than 30 years ago. In this technique, Deficiency of the hard and soft tissues may affect the esthetic outcome unfavorably especially in the esthetic zone so that some techniques such as connective tissue flap (CTF) can compensate this problem.
Case description: A new technique for the management of soft tissues in the esthetic zone in 8 patients is described to increase the soft tissue volume. CTF prepare with anterior base and rotate to the labial part of the implant and secure with horizontal mattress suture then healing abutment insert through the CTF in the implant.
Discussion: Soft tissue augmentation is required in some situations of implant treatment. Variants techniques such as connective tissue flap/graft were described to achieve an esthetic result in the anterior zone. Application of connective tissue flap as biological membrane has a better prognosis because these are connecting to the circulatory system and have good socket sealing. In addition, better esthetic results, lower cost, no need for membrane and less probability of contamination are another advantage of CTF than CTG.
Conclusions/Clinical significance: Bone material coverage and augmentation of peri-implant soft tissue by connective tissue flap may be beneficial to increase the width and thickness of keratinized tissue and to enhance esthetic outcomes of implant therapy.

FC048

Factors Affecting Implant Placement in Maxillary Anterior Region

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Introduction: Replacement of anterior teeth with implant prosthesis can be challenging for clinicians as it is difficult to obtain

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optimal aesthetics and function. preoperative diagnosis and treatment plan is mandatory to achieve successful treatment outcomes. factors that can affect the implant placement in thin ridge are evaluated in this presentation.
Case description: 30 years old patient presented with complain of missing teeth in anterior maxilla. He lost his teeth due to trauma and wanted fixed prosthesis. thorough clinical and radiographic examination (cbct)) was done which revealed missing central incisors and, thin anterior ridge with poor bone quantity in width. diagnostic wax up done to evaluate the aesthetic outcomes. guided bone regeneration was done with freeze dried bone allograft covered with resorbable collagen membrane to improve the bone quality and quantity in first visit and implant placement done after 4 months.
Discussion: Aesthetic demands make implant placement challenging in anterior region. requirements for successful and predictable results include comprehensive medical and dental history. assessment of soft tissue, probing depth, attachment level, bone quality and quantity should be done for predictable results. study models, diagnostic wax up, conventional radiographic and cbct also needed for proper diagnosis and treatment plan.
Conclusions/Clinical significance: The aim of this presentation is to describe the protocol of treatment planning, bone augmentation, implant placement and prosthetic rehabilitation needed to achieve success in treating maxillary anterior region.

Free Communication Session 13 | 29.08.2017, 12:45–13:45 | Room A9.11

Theme: Orthodontics

FC049
A Study of Associated Dental Anomalies
Blanca Loscertales[1], Daniel Torres[1], Eliseo Plasencia[2]
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Aim or purpose: To identify the association patterns of different dental anomalies.
Materials and methods: We have reviewed the medical records in three private offices, in search of cases that meet the following criteria: (1) Having at least one panoramic radiograph before the beginning of the orthodontic treatment. (2) Absence of prior dental loss associated with trauma, caries, periodontal disease, or extractions. (3) Absence of facial fissures and other craniofacial malformations, and of any systemic syndromes and/or systemic diseases. (4) Being Caucasian.
In this sample (1904 patients), we calculated the dental age, identified the presence of dental anomalies, and looked for any associative patterns.
Results: 35.5% of the patients presented at least one dental anomaly.
10.4% of patients presented two or more anomalies. Five groups have been identified in the analysis of the associative patterns of dental anomalies.
Conclusions: The hypodontia of upper lateral incisors and the palatal impaction of upper canines were the more prevalent dental anomalies.
There was association of hypodontia of upper lateral incisors and palatal impaction of upper canines.
The different type of ageneses were associated.
There was association of the blockage of the upper canines with the impaction of the second permanent lower molars.
The data provided about associative patterns of dental anomalies can contribute to further research into their possible genetic origin.

FC050
The Effect of Herbal Ointment in the Treatment of Mechanical Injuries of the Oral Mucosa of Orthodontic Patients
Anna Nevdah, Alla Shakaryants, Elena Ergesheva, Vitaly Borisov, Andrew Sevbitov
I.M. Sechenov First Moscow State Medical University, Moscow, Russian Federation

Aim or purpose: Determination of the possibility of use phytoointments in the treatment of traumatic injuries of the oral mucosa of orthodontic patients.
Materials and methods: The clinical study was performed on 38 orthodontic patients suffering from traumatic injuries. The group I was treated using standard means – by application of an oral gel containing cholin salicylas. The group II was treated with the new medication based on phytoecdysteroids. Before applying these drugs to patients in both groups were elimination of the etiologic factor, professional hygiene. Check-up examinations of the patients were carried out periodically every 2–3 days and included a visual estimation of the traumatic lesion state and a photoplanimetric dimensioning of the pathology center.
Results: The index of hyperemia intensity testified the loss of its signs in group I by the 8 day of observation, in group II by the 6 day. A complete loss of swelling accordingly was stated as follows: in group I at the 10 day, in group II at the 8 day. The results photoplanimetry studies in group I, 6 days after the start of treatment, there are residual inflammation, equal to 8.4% of the original size. In group II after 6 days the size of erosion was equal to 4.1% of the original.
Conclusions: The use of new phytoointment for treatment of the traumatic lesions is very promising and can lead to a significant reduction of the duration of patient's discomfort.

FC051
Gingival and Osseous Incisors Thickness in Thin and Thick Biotypes
Joan Rossell, Andreu Puigdollers, Javier Fernández-Bozal, Neus Garriga, Nuria Clusellas
Universitat Internacional de Catalunya, Barcelona, Spain

Aim or purpose: Upper and lower gingival biotypes may differ within the same patient. Visual association is not a reliable method for assessing biotypes as it may differ between clinicians. Ultrasonic measurements have been demonstrated reliable for measuring gingival thickness. The purpose of this study is to verify if

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there is a relationship between upper and lower biotypes, and to study the gingiva and bone plate thickness correlation between upper and lower biotypes in the central incisors area.
Materials and methods: 30 subjects (16 female and 14 male), were selected and divided into 3 categories according to their gingival biotype (thick flat, thick scalloped and thin scalloped). Ultrasonic and radiographic measurements were made on the upper and lower central incisor area. Gingival thickness was measured on the central point of the keratinized tissues with an ultrasonic device and radiographs. Labial alveolar bone thickness was measured on the same point with radiographs. Measurements were compared and analyzed between upper and lower biotypes.
Results: Male showed more upper bone thickness than female ($p < 0.005$). No bone or gingiva correlation was found between upper and lower biotypes. Thicker biotypes showed higher values of bone thickness only in the upper incisors area ($p < 0.005$). Upper gingival and bone measurements were significantly thicker in the upper than lower area.
Conclusions: No possible association can be made between upper and lower biotypes. There is no correlation between upper and lower gingival and bone thickness in all biotypes. Upper biotypes showed thicker bone and gingiva than the inferior biotypes.

FC052
Photobiomodulation Effect in Orthodontic Pain
Montserrat Artés, Angela Mayoral, Javier Moyano, Teresa Flores, Nuria Clusellas
Department of Orthodontics, Dental School, International University of Catalunya, Sant Cugat del Valles – Barcelona, Spain

Aim or purpose: The aim of this study was to evaluate the pain sensation that orthodontic patients experience when elastic separators are placed between molars and premolars, and to determinate the degree of analgesic efficacy of photobiomodulation with an 830-nm and 660-nm laser compared to a placebo treatment.
Materials and methods: The study was conducted with two groups of 20 volunteers, who were fitted with elastics separators between the maxillary molars and premolars. First group: One quadrant was randomly chosen to be irradiated with an 830 nm aluminum-gallium-arsenic (Ga-Ar-Al) laser, 100 mW, beam diameter of 7 mm, 250 mW/cm^2, applied for 20 s per point (5 J/cm^2). Second group: Was irradiated with a 660 nm Indium-aluminum-gallium-phosphorus (In-Ga-Al-P) laser, 20 mW, beam diameter of 7 mm, 50 mW/cm^2, applied for 20 s per point (1J/cm^2). Three points were irradiated in the buccal face and three were irradiated in the palate. The same procedure was applied in the contralateral quadrant with a placebo light. A visual analog scale was used to assess pain 5 min, 6 h, 24 h, 48 h, and 72 h after placement of the elastic separators.
Results: Maximum pain occurred 6–24 h after placement of the elastic separators. First group: Pain intensity was significantly lower in the laser treated quadrant (mean 7.7 mm) than in the placebo-treated quadrant (mean, 14.14 mm; $p = 0.0001$). Second group: Pain intensity was significantly lower in the laser treated quadrant (mean 8.11 mm) than in the placebo-treated quadrant (mean, 9.54 mm; $p = 0.0001$).
Conclusions: Photobiomodulation at these parameters can reduce pain in patients following placement of orthodontic rubber separators.

Free Communication Session 14 | 29.08.2017, 12:45–13:45 | Room A9.13

Theme: Implantology

FC053
Performance of Ceramic Inlays for Sealing Implant Screw Access Holes
Sorin Mihali
Victor Babes University of Medicine and Pharmacy, Timisoara, Romania

Aim or purpose: The aim of this study was to assess the esthetic and functional clinical performance of ceramic inlays used for covering the screw access hole in single monolithic lithium disilicate full-contour crowns in order to eliminate the drawbacks of alternative restorative methods.
Materials and methods: Thirty-two screw-retained implant restorations where composite fillings were used for sealing the access hole represented the control group while other 32 restorations represented the ceramic inlay (test) group. In order to determine the wear in all cases impressions were obtained after the restorations were finalized, at 1 year and at 2 years follow-up. The casts were scanned with a 3D Scanner Design System recording the anatomical surfaces of the white model replicates. Wear amounts (μm) were calculated as the maximum loss in height of the occlusal surface. The clinical evaluation was carried out using the evaluation kit specifically designed for assessing the FDI criteria. Statistics were performed using analysis of variance (ANOVA).
Results: After two years of follow-up the wear values were 232.46 ± 54.70 μm in case of composite fillings and 65.65 ± 7.28 μm for the ceramic inlay group. One-way ANOVA shows significant differences among the vertical loss between these two groups ($p < 0.001$). Clinical outcomes according to the FDI score for assessing dental restorations revealed substantial deterioration within 2 years of follow-up period.
Conclusions: Using ceramic inlays appears to be a predictable, esthetic and successful method of sealing the screw holes for the screw-retained implant restorations.

FC054
Efficiency of Antibiotic Prophylaxis in Alveolar Bone Augmentation
Vladimir Chuvilkin, Andrey Panin, Ekaterina Chuvilkina, Victor Tsarev
Moscow State University of Medicine and Dentistry, Moscow, Russian Federation

Aim or purpose: Was comparative evaluation of ceftibuten and amoxicillin efficiency in prevention of inflammatory complications of bone augmentation for following implant surgery based on clinical and bacteriological evaluation.

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Materials and methods: Ceftibuten was prescribed in dose of 400 mg one hour before surgery and 10 days after in dose of 800 mg a day (13 patients). In control group (12 patients) 1000 mg of amoxicillin was prescribed before and 1000 mg twice a day for 10 days. Efficiency of antibiotics was determined based on clinical examination and evaluation of dynamics of bacterial load in the surgical site. Samples for bacterial testing were taken from surgical site on day 1, 3, 10 postop. Mann–Whitney *U*-test was used for independent observations for statistics. Test was reliable if $p \leq 0.05$.
Results: In ceftibuten group quantity index of *Prevotella intermedia* was identified with the quantity index of 3.2 ± 0.19 on the 1st day and on the 3rd day its quantity was increased to 3.9 ± 0.19, on the 10th day it was not identified. Quantity index of *Fusobacterium spp*. on the 1st day was 4.7 ± 0.20, on the 3rd this characteristic slightly increased (4.8 ± 0.19), on day 10 this microorganism was not observed (in amoxicillin group these microorganisms were still identified). Wound infection in control group was found in 2 patients (16.7%), in ceftibuten group – wasn't observed.
Conclusions: In ceftibuten group none of the aggressive bacteria – *P. intremedia* or *Fusobacterium* spp. were identified in comparison to control group. The rate of inflammatory complications was also lower in ceftibuten group.

Free Communication Session 15 | 29.08.2017, 14:00–15:00 | Room A9.11

Theme: Orthodontics

FC057
Evaluation of Maxillary Alveolar Bone Changes after Incisor Intrusion
Ezgi Atik, Hande Gorucu-Coskuner, Bengisu Akarsu-Guven, Tulin Taner
Hacettepe University, Ankara, Turkey

Aim: To investigate the changes in alveolar bone after maxillary incisor intrusion and determine the related factors in deep-bite patients.
Materials and methods: The Ethics Committee approval number of the study was GO17/13-11. Fifty maxillary central incisors from 25 patients were evaluated. The incisors in Group I (n = 12 patients, mean age: 16.51 ± 1.32) were intruded with base-arch, while in Group II (n = 13 patients, mean age: 17.47 ± 2.71) with mini-screw. Changes in alveolar envelope were assessed using pre-intrusion (T0) and post-intrusion (T1) cone-beam computed tomography images. Labial (LBT), palatal and total bone thicknesses were evaluated at the crestal (3 mm), midroot (6 mm) and apical (9 mm) levels. Buccal and lingual alveolar crestal height, buccal bone height and the prevalence of the dehiscence were also evaluated. Two-way repeated measure ANOVA and Pearson correlation coefficient analysis were used respectively to determine the significance of the changes and the correlation between dental and alveolar bone measurement changes.
Results: The incisor inclination and intrusion changes were significantly greater in Group II, and the prevalence of dehiscence was 20.8% in Group I and 92.3% in Group II at T1. With the treatment, the alveolar bone thickness at the LBT (3 mm and 6 mm) was decreased significantly in Group II ($p < 0.001$) when compared to Group I. LBT change at 3 mm was strongly and positively correlated with upper incisor intrusion amount ($r = 0.539$; $p = 0.005$).
Conclusions: The degree of inclination and intrusion amount should be taken into account during upper incisor intrusion as these factors enhance the risk of alveolar bone loss.

FC058
Pain Experience with Round and Rectangular Cross-Sectional Heat-Activated Nickel-Titanium Initial Archwires
Berza Yilmaz
Bezmialen Vakif University Faculty of Dentistry, Orthodontics Department, Turkey

Aim or purpose: Pain control has always been of great importance for orthodontists, thus light round wires are often used to reduce the discomfort. On the other hand, inspired by the historical Ribbon Arch technique, the rectangular cross sectional thermoelastic leveling archwire may provide torque control from the initial stages of the treatment and simultaneously offer light leveling forces. The aim of our study was to compare the pain experience with the rectangular heat-activated NiTi(HANT) compared with round HANT NiTi leveling wires.
Materials and methods: 21 patients with similar amount of crowding were randomly allocated into two groups with computer assistance. The treatment of the first group was initiated with 0.016" round HANT wires (Group A), and 0.016"×0.014" rectangular levelling archwires were used for the second group (Group B). Subjects were given the "Horizontal Visual Analogue Scale (VAS)" to fill out during the first 10 days following each visit for the first three months (VAS1, VAS2, VAS3). Pain sensations were recorded four times a day.
Results: Statistically significant difference was found in pain experience for VAS1 and VAS2 between the groups. The mean VAS1 score in Group A indicates higher pain than the mean VAS1 score in Group B. Similarly, the mean VAS2 score in Group A was found to be higher than that of Group B. There was no significant correlation between gender and VAS scores for both groups.
Conclusions: It has been demonstrated that rectangular 0.016" × 0.014" wires cause less pain compared with 0.016" round wires.

FC059
Investigation of Self-Reported Oral-Behaviour Habits in Posterior Cross-Bite Orthodontic Subjects
Ahmet Karaman, Yasin Yasa, Suleyman Kutalmış Buyuk, Huseyin Simsek, Esra Genc
Ordu University, Ordu, Turkey

Aim or purpose: Posterior cross-bites are commonly known as a condition that can be observed in orthodontic anomalies. Posterior

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cross-bites have been reported to occur in approximately seven per cent of children. The aim of this present study was compare oral behaviours and habits of orthodontic subjects with posterior cross-bite.

Materials and methods: The study sample consisted of 75 patients divided into three groups as unilateral cross-bite (25 subjects; mean age: 15.56 ± 1.77 years), bilateral cross-bite (25 subjects; mean age: 14.39 ± 1.64 years), and normal occlusion (25 subjects; mean age: 15.05 ± 1.27 years) groups. Habitual oral activity was evaluated using the Oral Behaviour Checklist (OBC) based on subjects′ experiences in the past 4 weeks. The data were performed using conventional statistical descriptive methods.

Results: The study sample had a mean age of 15.00 years (12−18 years old), and was predominantly female (62.7%). The prevalence of reporting one or more frequently performed habitual muscular behaviour in study groups was over 88% ($p > 0.05$). There was no difference in total OBC score among the groups (unilateral cross-bite: 27.36; SD, 8.45; bilateral cross-bite: 27.36; SD, 12.68; normal occlusion: 29.08; SD, 8.49). Moreover, there were no differences in the mean score for prevalence of oral behaviours among the three groups.

Conclusions: The results obtained from this study indicated that no differences in self-reported oral behaviour habits among groups (unilateral cross-bite, bilateral cross-bite, and normal occlusion). This study results do not support a relationship between posterior cross-bite and habitual orofacial muscular behaviour.

FC060

Is RME-Reverse Headgear Treatment a Risk for Canine Eruption?

Fatma Deniz Uzuner, Duygu Ozturk, Selin Kale Varlik
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Aim or purpose: To evaluate whether combined rapid maxillary expansion (RME) and reverse headgear (RHG) application in mixed dentition causes space problem for maxillary permanent canines.

Materials and methods: The pre-and posttreatment models and lateral cephalograms of 41 skeletal Class 3 patients (22 girls, 19 boys) between 8–12 years old in mixed dentition, treated with bonded RME-RHG were evaluated. The study was approved by the Ethics Committee of Gazi University. Two groups were constructed in accordance to the presence (Group 1; $n = 21$) and absence (Group 2; $n = 20$) of deciduous canines. RME appliance was activated once a day. Patients were instructed to wear the RHG for at least 16 hours each day. Protraction hooks were placed between the deciduous canine and first premolar, and a protraction force of 400 to 600 g per side was used. The mean duration for RME-RHG application was 7 months. Changes in arch width, length and depth, maxillary incisor and molar sagittal movements were determined. Statistical evaluation was done with Shapiro Wilk's, Mann–Whitney *U* and Wilcoxon Tests.

Results: There were an increase in dental arch width and length, a decrease in arch depth, additionally maxillary molar mesialization and incisor protrusion in both groups. Regardless of the existence or absence of the deciduous canines no significant differences were found in all parameters between the groups ($p > 0.05$ for each).

Conclusions: The resultant effect of RME-RHG therapy is an increase in arch length despite first molar mesialization. This therapy does not cause any space problem for permanent canines.

Free Communication Session 16 | 29.08.2017, 14:00–15:00 | Room A9.13

Theme: Implantology

FC061

Flapless Crestal Approach Sinus Lift

Alvaro Bastida
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Introduction: My idea was to develop a new sinus lift technique that brings together the best of lateral and crestal approaches: great bone increase even in very atrophied bone —as lateral approach— trough the less aggressive and better post-operatory crestal approach. And, taking one more step in minimally invasive direction, doing it by flapless surgery.

Case Description:

• Clinical Assessment: Male 45-year-old with no clinical history of interest. Temporomandibular Joints, Occlusion, Periodontal, Teeth Decay: WNL. Absence of upper right molars.

• Radiographic Assessment: OPG shows right maxillary highly pneumatisated and atrophied; CBCT show bone height varies from 0.7 to 3.5 mm.

• Treatment Sequence:

1. Flapless Sinus Lift Crestal Approach: Transgingival drilling until bone & Membrane lifting injecting saline solution.
2. Six months healing. CBCT showed bone augmentation from 3.5 to 19.1 mm height and from 0.7 to 12.6 mm height.
3. Placing one-piece compressive threads implants on regenerated area and cutting threads implant on pterygoid area.
4. Two months healing with temporary prosthesis.
5. Placing final prosthesis.

Discussion: After four years experience and more than 80 clinical cases the success rate is 93%. Post-operatory is better than usual sinus lift techniques: there are not swelling nor hematoma. Pain is rare and moderate.

Conclusions: Flapless Crestal Approach Sinus Lift is a good alternative to lateral and crestal flap techniques.

FC062

Do Fluoroquinolones Prevent Sinusitis in Maxillary Antroplasty for Implant Surgery?

Ekaterina Chuvilkina, Anna Zueva, Vladimir Chuvilkin, Andrey Panin, Victor Tsarev
Moscow State University of Medicine and Dentistry, Moscow, Russian Federation

Aim or purpose: Evaluation of levofloxacin-750 efficiency for inflammatory complications prophylaxis after maxillary antroplasty for implant surgery.

Materials and methods: 27 patients of both genders with indications for maxillary antroplasty were selected for this study. 14

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patients were in control group and 13-in the main. Depending on the bone volume of the residual ridge dental implants were placed simultaneously with antroplasty or 4 month postop. All of the main group patients were prescribed 750 mg of levofloxacin 45 minutes before the surgery and 750 mg once a day 10 days postop. Control group was given 875 mg of amoxicillin-clavulanate 45 minutes before the surgery and 875 mg twice a day, 10 days postop. Microbiological material for evaluation was taken from wound surface on the day 1,3,7 (first day from the Schneiderian membrane). The nonparametric Mann-Whitney U-test was used for independent observations. Test was reliable in case of $p \leq 0.05$.

Results: In main group – *Actinomyces* spp. and *Haemophilus influenza* were identified only on the 1st day in quantity of 3.7 ± 0.21 and 3.8 ± 0.20 respectively. *Corynebacterium* spp. and *Neisseria* spp. were present on all of the observation periods. Such aggressive bacteria as *Porphyromonas gingivalis* were eradicated on the 3rd day and *Prevotella intermedia* – on the 10th. In control group – *P. intermedia* (3.7 ± 0.21), *P. gingivalis* (3.5 ± 0.21) were still observed on day 7.

Conclusions: The use of levofloxacin-750 during antroplasty surgery allows to considerably reduce the risk of sinusitis which is the result of eradication of aggressive microorganisms such as *P. intermedia, P. gingivalis, E. faecalis, H. influenza.*

FC063

Socket Shield Technique with Immediate Prosthesis: A Clinical Case

Marc Mascaró Pons, Adela Díaz Daza, Daniel Robles Cantero, Laura San Martín Galindo, Francisco Teixeira Barbosa
Universidad Europea Miguel de Cervantes, Valladolid, Spain

Introduction: The socket shield technique is a new implantation method in which the physical reabsorption of the buccal plate of cortical bone is avoided as a result of tooth extraction.

Case description: A 34-year-old patient with a horizontal fracture of the 1.5. A mesial-distal hemisection was performed to remove the palatal part of the root and prepare the socket. An Aurea (Phibo®) implant measuring 4.3×13 mm was inserted (3 mm from the gingival margin, 2 mm from the adjacent teeth).

An ISQ measurement was carried out with Osstell® ISQ (Integration Diagnostics AB®) which drew a positive result of 62. Following this, the Aurea abutment (Phibo®) and PMMA provisional prosthesis (72 hours) were positioned at a 2 mm infra-occlusion. After 4 months, a zirconium abutment model was created from a digital impression, and a definitive restoration was manufactured with CAD/CAM technology.

Discussion: For this case, this technique was chosen due to the improbability of creating a prosthetic rehabilitation as a long-term solution, and the suitability of the socket (type 1) according to the classification proposed by Elian (2007).

Immediate restoration approach was selected in this case as the torque was more than 35 N·cm and the Osstell® value was 62 ISQ. This is supported by the articles published by Ostman (2005).

Conclusions/Clinical significance: For this clinical case, the effectiveness of the technique has been confirmed, and a maintained level of zenith and a good pink/white aesthetic has been achieved.

FC064

Short Implants in Atrophic Posterior Parts of the Jaws

Anastasia Lukyanova, Igor Cherkesov, Pavel Petruk, Kirill Polyakov, Lyudmila Shamanaeva, Sergey Ivanov
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Aim: To report the 5-, 10 years survival rates of short 6 mm dental implants placed in posterior areas of the jaws.

Materials and methods: This retrospective cohort study included 1401 short 6 mm dental implants (1000 operations). All patients, aged between 32 and 55 years (41.27 ± 8.77), had a lack of bone height in posterior part of the jaws for long implants. Bone height ranging from 2.36 mm – 7.12 mm (4.65 ± 1.58 mm). Clinical examinations were conducted during the follow-up period in 7 days, 1 month, 3 months, 6 months and every year after the implantation procedure. Patients were visually inspected for periimplantitis, the primary stability of implants and bone loss, CT/panoramic radiographs were made.

For measure of research results and complications we used χ^2 test.

Results: Five episodes of bones loss (0.5%) in the maxillary molar and in the premolar sites were reported. In these patients, reimplantation was conducted in 3 months following the initial procedure. Fifteen implants (1.5%) showed signs of marginal bone resorption, but all of them had implant stability. Registered 15 perforations (1.5%) of Schneider's membrane, which closed on its own. 5-years survival rate was – 100%, 10-years – 98.5% respectively. Each of the implants had stability, no complications related to nerve damage were observed.

Conclusion: Within the limitations of this study, we conclude that short implants have high survival rates over the observation period of 10 years.

Free Communication Session 17 | 29.08.2017, 15:15–16:15 | Room A9.9

Theme: Oral Health and Systemic Health

FC065

Salivary Modification in Patients Treated with Orthodontic Appliance

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Aim or purpose: Several studies have shown that orthodontic treatment affects oral flora. The aim of this study was to evaluate the effect of the orthodontic treatment on the oral environment.

Materials and methods: The sample included 101 healthy subjects divided into two groups: the control group consisted on 51 subjects and the test group included 50 subjects. The microbiological analysis of saliva and bacterial plaque were performed for the two groups.

Results: The results showed that the fixed orthodontic appliance alter the oral microbial flora. Indeed, Staphylococcus multiply actively, at the expense of Streptococcus that dominates the salivary bacterial composition.

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Conclusions: These results have significant clinical importance. In fact, staphylococcus aureus are a type of opportunistic pathogenic bacterium and may be involved in focal infections including endocarditis.

FC066

The Effect of Menstrual Cycle on Periodontal Status and IL-6 and TNF-Alfa Levels in Gingival Crevicular Fluid

Hacer Sahin Aydinyurt[1], Yusuf Ziya Yuncu[1], Yasin Tekin[2], Abdullah Seckin Ertugrul[3]
[1]Yuzuncu Yil University, Van, Turkey, [2]Trakya University, Edirne, Turkey, [3]Katip Celebi University, Izmir, Turkey

Aim or purpose: Women's menstrual cycle is controlled by the secretion of sex hormones. Sex steroid hormones are thought to be affect to periodontal tissues, wound healing, periodontal disease progression and bone turn over. The aim of this study is to evaluate clinical periodontal parameters and IL-6 and TNF a levels in gingival crevicular fluid.
Materials and methods: Twenty-five patients were included in this study age 21–27. All patients were gingivitis in terms of periodontal classification. Clinical periodontal parameters and levels of IL-6 and TNF alfa in gingival crevicular fluid were evaluated at three periods of menstrual cycle (menstruation (M)-ovulation (OV)-premenstruation (PM)). Levels of IL-6 and TNF alfa in gingival crevicular fluid were determined by ELISA.
Results: There was no statistically significant change in PI and PD during menstrual cycle. There was a statistically significant difference in terms of TNF alpha and IL 6 levels in the gingival crevicular fluid (PM> OV >M). In terms of GI, only the difference between OV and PM was significant (OV >M).
Conclusions: Generally, the periodontal tissues do not show evident changes but increasing of gingival bleeding and gingival exudate was reported in the literature during the menstrual cycle. This study showed that menstrual cycle effects the periodontium and induces inflammatory situation during the menstrual cycle. However, more investigations are still needed to establish the effects of menstrual cycle and inflammation levels in the periodontium.

FC067

Dentofacial Alterations in Childhood with Obstructive Sleep Apneas

Andreu Puigdollers, Montserrat Artés, Angela Mayoral, Joan Rossell, Eduard Esteller
Universitat Internacional de Catalunya, Barcelona, Spain

Aim or purpose: To compare dentofacial features in Obstructive Sleep Apnea (OSA) children with matched control children, and to compare the development of these variables prospectively 1 year after adeno-tonsillectomy.
Materials and methods: 135 children age 3 to 10 years were diagnosed with OSA syndrome. The treatment for the OSA group was adeno-tonsillectomy (AT). The control group comprised 63 age and gender matched children without breathing problems. Lateral cephalograms and model casts were taken for both groups at baseline (T0) and then after 1 year (T1). For the comparison between the experimental and control group at T0 and between T0 and T1, "t"-test for quantitative variables were used ($p < 0.05$).
Results: At T0 the comparison between OSA and control children, exhibited longer faces (p 0.020), more Class II (p 0.037), and narrower maxilla (p 0.0000) and mandible (p 0.00001).
At T1 there were no statistically significant differences between the OSA group and Control group regarding mandibular plane, ANB angle and intercanine width. However, still remained a significant difference between both groups regarding intercanine (p 0.00034) and intermolar maxillary and mandibular width (p 0.0026).
Conclusions: OSA in young children has an unfavorable effect on the development of dentofacial components. AT treatment helps to normalize dentofacial morphology to OSA patients, however, certain amount of maxillary compressión is still present so orthodontic-orthopedic treatment would be necessary.

FC068

Procedure to Manage Patients Treated by Medication Related to Osteonecrosis

Alvaro Limones Burgos
University Foundation San Pablo CEU, Madrid, Spain

Aim or purpose: The purpose of this speech is to let the scientific community know how much we have progressed in dealing with these patients, in order to come close to establishing a standard procedure in the best possible way, reducing the risk of osteonecrosis of the jaws to the minimum. Once it appears, the treatment is not easy to do. Because of this, we believe It is essential for both, the oral surgeon and the general dentist, to be updated on this subject and the multidisciplinary approach.
Materials and methods: We have done research on databases such as EBSCO Discovery Service and Cochrane, from 2003 onwards, focusing on the years 2015, 2016 and 2017.
Results: As those who are going to go through radiotherapic and chemotherapic treatment must be checked previously by a dentist, those treated by antiresortive and antiangiogenic medication must also do so. In our procedure, we describe three periods of time during a MROJ treatment: before treatment (*to heal, to rehabilitate, to prevent*), during treatment (maintenance), after treatment (to do a final rehabilitation). Each period will have clear instructions about what to do and what not to do, and which are the moments of maximum risk.
Conclusions: Pharmacodynamic and Pharmacokinetic properties of these drugs and the intake duration determine the management periods of this patients. Thus, we can understand the pathology and reduce it with convenient prophylactic techniques. All of the above, allow us to come close to establishing a standard procedure for the scientific community.

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Free Communication Session 18 | 29.08.2017, 15:15–16:15 | Room A9.10

Theme: Prevention and Periodontal diseases

FC069

Relationship between Periodontal Disease and Systemic Inflammation in CHD Patients

Muhammad Umair Dastgir Bhatti, Nida Khawaja
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Aim or purpose: This study tried to observe association of periodontal disease, inflammatory markers and Coronary Heart Disease (CHD) in smoker-diabetic males.
Materials and methods: A cross-sectional study of eligible CHD males with periodontitis was conducted from April to November 2016. Study subjects were divided into four groups: smoker-diabetic (group A), smoker non-diabetic (group B), non-smoker-diabetic (group C) and non-smoker non-diabetic (group D) for a comparison in status of periodontal and inflammatory parameters. Bleeding on probing, periodontal pocket depth and clinical attachment loss were noted as measures of periodontal status. Serum levels of CRP, WBC and Fibrinogen were measured. Differences of periodontal and inflammatory parameters between groups A, B, C and D were analyzed using K-test of proportions and one-way ANOVA.
Results: Fifty-two CHD males were observed. There was no statistically significant difference between groups A, B, C and D with respect to demographic parameters of age, socioeconomic status and BMI. Levels of BOP, PPD, CAL, CRP, WBCs and fibrinogen were comparatively higher in group A. Mean levels of BOP, PPD, CAL and WBC were significant ($p \leq 0.050$) however levels of CRP and fibrinogen were insignificant between groups. Thirty eight percent subjects with ≥4mm PPD and ≥3 mm CAL at >30% of sites showed CRP levels of >3 mg/l. Subjects with CRP levels of >3 mg/l were significantly higher in group A ($p = 0.015$).
Conclusions: This study showed that periodontal disease is significantly associated with CHD risk factors of systemic inflammation. Levels of periodontal and inflammatory parameters were higher in smoker-diabetic patients.

FC070

Green Tea Mouthrinse Effect on Oral Health of Schoolchildren

Preeti Vishnani[1], Anup Nagaraj[2]
[1]*Hamburg University of Applied Sciences, Hamburg, Germany,* [2]*Jaipur Dental College, Jaipur, Rajasthan, India*

Aim or purpose: To evaluate the effectiveness of different green tea mouthrinse on plaque and gingival status, pH and fluoride content of saliva, and to correlate their effectiveness with their pH and fluoride content.
Materials and methods: A double blind, randomized controlled clinical trial was carried out in 2 phases (In-vitro and In-vivo phases). A total of 48 government school students between 12–15 years were randomly allocated into 4 groups. Each group consisted of 12 subjects who were asked to rinse their oral cavity under the supervision of investigator with Green Tea A, B, C or D. The in-vivo phase was conducted over a period of 3 weeks and subjects were clinically examined and plaque and gingival indices were recorded on day 0, 14 and 21. Resting saliva samples were collected in sterile vials during morning hours for pH and fluoride analysis. Ethical approval from the study institution and informed consent of the parents were obtained.
Results: For all the groups, there was a statistically significant reduction ($p < 0.05$) in plaque and gingival indices scores. Amongst the four green tea, three had increased the salivary pH, whereas all four had similar effect of increase in the salivary fluoride.
Conclusions: All the four commercially available green tea had inhibitory effect on plaque accumulation and gingivitis. Green tea helps in maintaining the salivary pH and increases the fluoride content which in turn prevents dental caries. Further randomized controlled trials are warranted to prove or refute the long-term effects.

FC071

Prevalence and Pattern of Tobacco Use in Lagos Nigeria

Omolara Uti, Oyinkan Sofola, Lanre Adeyemo, Oladunni Ogundana
College of Medicine, University of Lagos, Lagos, Nigeria

Aim or purpose: To determine prevalence and pattern of tobacco use and abnormal mucosal findings among community dwelling adults and adolescents in Lagos State Nigeria.
Materials and methods: A population based cross-sectional descriptive study. The sample was selected based on a multistage sampling technique. Trained interviewers administered the questionnaire and visual oral examination was conducted. The examination included oral cancer screening with ORALID device and smoking status validated with a Bedfont Pico smokerlyzer.
Results: A total of 2429 subjects whose ages ranged from 10 – 86 years were recruited and 58.3% were males. Prevalence of ever smoking was 23.48% while prevalence of current smoking was 9.2% of total and 32.25% of ever smoked. 73.60% were daily smokers and 62.2% smoked 10 sticks of cigarette or less daily. Fagerstrom test for nicotine dependence (FTND) scores ranged from 0 to 9, with 13.6% being highly dependent on tobacco while majority showed moderate to low dependence. Brand loyalty was found in 78.1% of the smokers and they had been smoking the brands for 1 – 33 years with a mean of 9.37 ± 7.7 years. While 84.6% claimed they inhale deeply only 15.4% claimed shallow inhalation. Abnormal OralID was found in 3.8% of the population and was significantly higher among those who inhaled deeply (21.3%) compared with shallow inhalers (5.7%) $P = 0.03$.
Conclusions: This study shows that the prevalence of current smokers was higher than the national prevalence of 5.6%. Most participants were light smokers. There is a need for larger national surveys in Nigeria.

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Free Communication Session 19 | 29.08.2017, 15:15–16:15 | Room A9.11

Theme: Orthodontics

FC073

Does Cleft Lip and Palate Affect Craniofacial Structures and Sella?

Fatma Tekin Kaymaz, Nehi̇ Canigur Bavbek
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Aim or purpose: To test the hypothesis that unilateral cleft lip and palate (UCLP) negatively effects craniofacial and sella turcica morphology when compared to class 3 (CL3) and class 1 (CL1) groups.

Materials and methods: The study was conducted on lateral cephalograms of 14 UCLP (9 girls, 5 boys; mean age 12.06 years), 15 CL3 (10 girls, 5 boys; mean age 11.73 years) and 15 CL1 (10 girls, 5 boys; mean age 13.11 years) patients. Linear and angular measurements were made to evaluate craniofacial morphology. Morphologic variations of sella turcica were also assessed. Kruskal-Wallis and Pearson correlation analysis were used for statistical analysis.

Results: Total (Ba-N) and anterior (S-N) cranial lengths were smaller in CL3 than UCLP and CL1, respectively. Cranial base angle (N-S-AR) and ramus length (Ar-Go) was decreased in CL3 than UCLP and CL1. Mandible was more protruded (SNB, FH-NPg) in CL3 than UCLP. Length of maxilla (Co-A) was smaller in UCLP and CL3 than CL1. The cranial base lengths (Ba-N, S-Ba-N, S-N) were positively correlated with dimensions and sagittal position of maxilla (ANS-PNS, SNA). Positive correlations were found between dimensions of maxilla (ANS-PNS, Co-A) and mandible (Co-Gn, SNB). 71.4% of UCLP, 33.3% of CL3 and 26.7% of CL1 patients had morphologic variations in sella turcica. 80% of sella turcica bridging was seen in UCLP ($p < 0.05$).

Conclusions: The positive changes in cranial base came in view as improvements in the dimensions and sagittal positions of maxilla and mandible. UCLP did not follow cranial base changes characteristic to CL3 anomalies. Morphologic variations of sella turcica were more common in UCLP.

FC074

Evaluation of Cortical and Mental Index in Obese Orthodontic Patients

Esra Genc, S. Kutalmış Buyuk, Yasin Yasa
Ordu University, Ordu, Turkey

Aim or purpose: Obesity and overweight are an increasing problem worldwide. The purpose of this study was to evaluate the mandibular cortical index (MCI) and mental index (MI) of a group of orthodontic adolescent patients in different body mass index (BMI) percentile.

Materials and methods: The study sample comprised of 90 adolescent orthodontic patients (24 male and 66 female) divided into three groups according to their BMI percentile: Healthy (61 subjects; mean age, 14.93 ± 2.03 years), overweight (15 subjects; mean age, 15.48 ± 2.22 years) and obese (14 subjects; mean age, 14.68 ± 1.84 years) groups. MCI and MI were analyzed on both right and left sides on panoramic radiographs using modified technique of Wical and Swoope. The data were analyzed using one way analysis of variance and post-hoc LSD tests.

Results: There was a significant difference in both sides of mandible among the groups in MCI ($P < 0.05$), while there was no significant difference in MI ($P > 0.05$). Also, significant differences were found in left MCI between healthy and overweight, overweight and obese groups ($P < 0.05$). Moreover, significant differences were found in right MCI between healthy and overweight groups ($P < 0.05$).

Conclusions: We found that mandibular cortex was thicker in obese and overweight patients than healthy orthodontic patients. Patients with thinner mandibular cortex are at increased risk for dental orthodontic relapse. According to this finding, we can suggest that it can be take in consideration in orthodontic treatment planning since relapse risk is low in obese and overweight patients.

FC075

Investigation of TGF-β Gene Mutations and Polymorphisms in Mandibular Retrognathism

Duygu Ozturk[1], Selin Kale Varlık[1], Serdar Ceylaner[2]
[1]*Gazi University Faculty of Dentistry Department of Orthodontics, Ankara, Turkey,* [2]*Intergen Genetic Diagnosis Center, Ankara, Turkey*

Aim or purpose: The aim of this study is to determine and evaluate TGF-β gene mutations and polymorphisms in subjects with mandibular retrognathism.

Materials and methods: The sample consisted of 100 healthy subjects who have Class 2 skeletal pattern resulting from mandibular retrognathism. ANB angle used to determine Class 2 skeletal pattern. To distinguish mandibular retrognathism caused by distally positioned mandible from small sized mandible, age-appropriate norms for maxillary length, mandibular length, ramus length and mandibular corpus length was used. 2 cc of peripheral blood took from subjects. All coding and flanking regions of the gene sequenced with next generation sequence analysis method to detect all mutations and polymorphisms. Data obtained from previous 200 exome sequencing studies was used as control data. Statistical evaluation was done with Chi-square test and Odds Ratio.

Results: On the first exon of TGF-β, we detected heterozygous P10L polymorphism in 54 of the subjects and homozygous P10L polymorphism in 20 of them which was statistically significant ($p < 0.001$). We found heterozygous T116T mutation in 4 subjects and heterozygous R25P polymorphism in 10 subjects. In one subject, we described heterozygous L11Q variation on the first exon, which was never described before and it's evaluated as Variant of Unknown Significance due to *in silico* analysis data.

Conclusions: The final size of the mandible is not determined just by one gene. P10L polymorphism is a risk factor for mandibular retrognathism but exome sequencing data and complex statistical analysis will be needed to detect the exact effects on the mandible size.

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FC076

The Evaluation of Follicle Width and Descriptive Features of Maxillary Impacted Canines Using Cone Beam Computed Tomography

Fatih Kahraman, Ibrahim Sevki Bayrakdar, Ridvan Oksayan, Ilhan Metin Dagsuyu, Mehmet Aydin, Mehmet Bulbul
Eskisehir Osmangazi University, Eskisehir, Turkey

Aim or purpose: The aim of this study was to evaluate the relationship between follicle width and descriptive features of maxillary impacted canines with cone-beam computed tomography (CBCT).
Materials and methods: This retrospective study included CBCT scans of 140 maxillary impacted canines of 102 (43 male, 59 female; mean age 16.25 + /- 6.31) patients. Following impacted maxillary canine follicle size related variables were analyzed in CBCT images; impaction side, localization (buccal, central and palatal) and gender. Student-t test was applied to statistical analysis.
Results: 72 (32 male, 40 female) maxillary impacted canines were placed in the right part and 68 (27 male, 41 female) canines were placed in left part. The mean follicle width (mm) was larger in male (3.27± 1.21) than female (3.08 ± 1.20) subjects. According to impaction side, width of the dental follicle (mm) around the maxillary impacted canine in right side (3.17 ± 1.15) was larger than left side (3.08 ± 1.25).
Conclusions: Follicle width in females were found smaller than males. Maxillary impacted canines showed larger follicle width in right side than left side. CBCT assessment of impacted maxillary canines provides accurate measurements in follicle size.

Free Communication Session 20 | 29.08.2017, 15:15–16:15 | Room A9.13

Theme: Implantology

FC077

Protocol of Immediate Implant with Socket Shield Using Digital Tools

Adela Díaz Daza, Marc Mascaró Pons, Daniel Robles Cantero, Laura San Martín Galindo, Francisco Teixeira Barbosa
Universidad Europea Miguel de Cervantes, Valladolid, Spain

Aim or purpose: Description protocol of an immediate implant with Socket Shield using digital tools.
Materials and methods: To check the efficacy of this technique we measured the recession at the zenith level, the vestibule-palatal volumetric change and the global volumetric change and compares with existing literature to date on immediate implants.
Immediate implants were performed using a socket shield technique with a digital pathway:
1) Immediate implant leaving a fragment buccally using Emdogain® between the fragment and the implant.
2) Digital impression with Trios® scanner (3Shape).
3) Design of a provisional with CAD technology to avoid contact between the fragment and the provisional restoration (1–2 mm distance).
4) Definitive digital impression after 4 months with the Trios@ digital Scanner.
5) The resulting.stl files from the digital scanning are compared and the variations were measured.
Results: With the data obtained, it was observed an improvement in the maintenance of the peri-implant tissue compared with the results observed in the scientific literature.
Conclusions: The digital contribution to the analogical protocol by the need to contribute the highest precision and the best materials to the cases, as well as to provide the less post-surgically invasive printing methods.

FC078

5 Year s Follow Up of New Laser Technique in Second Surgery in Dental Implants

Josep Arnabat-Dominguez, Cristina Arnabat-Artes, Antonio Jesus España- Tost, Dunia Espanya -Grifoll
Barcelona University Dental School, Barcelona, Spain

Aim or purpose: The Aim of our retrospective 5-year follow-up study is to preserve keratinized gingiva attached around implants while performing second stage implant surgery by new laser technique.
Materials and methods: 30 patients were studied (a total of 42 implants) who had second stage implant surgery with laser during January 2009 to April 2012,20 patients with a total 30 implants were treated with Er,Cr:YSGG laser (MD Waterlase Biolase) 2.780 nm, 1–1.5 W, 20 Hz. The other 10 patients with a total of 12 implants were treated with Er:YAG laser (Lite Touch Syneron) 2.940 nm, 1–1.5 W, 20 Hz. All placed implants were either Branemark system o Replace, with a titanium tiunite surface. All cases were performed by the same surgeon and using the same technique.
Results: There were no implant failures or complications of any kind during a 5 years minimum follow-up. Two cases of Mucositis were observed in the Er,Cr:YSGG laser group and only one in the Er:YAG group. There were no differences between the two lasers.
Conclusions: The results obtained in our study showed that the Er, Cr: YSGG laser, and Er:YAG laser can be used with the above specifications in second-stage implant surgery for the contouring of peri- implant tissue in areas adjacent to the implant.

FC079

Alveolar Preservation. Filling and Sealing with Saddle Connective Tissue Graft

Marc Mascaró Pons, Adela Díaz Daza, Francisco Teixeira Barbosa, Laura San Martin Galindo, Daniel Robles Cantero
Universidad Europea Miguel de Cervantes, Valladolid, Spain

Introduction: After an extraction, alveolar bone loss occurs, placing filler material inside the alveolus can preserve the natural contours of the tissues that are susceptible to possible reconstruction with an implant-supported prosthesis.
Case description: A 24-year-old, non-smoker, with dental trauma presents intrusion and pain during percussion test. In the image

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CBCT an endodontic and cervical fracture in the 21st are observed.
Alveolar preservation was performed through a xenograft of bone filling and saddle connective tissue graft. It was replaced with a Maryland type bridge.
At 4 months a 3.5 × 10 Nobel Biocare® Active Np implant was performed and a provisional prosthesis was inserted for 3 months.
The frontal zone was restored with veneers and zirconium crown on zirconium abutment in the implant.
Discussion: The main advantages of alveolar preservation are:
A smaller loss of vertical and horizontal dimension of the alveolar crest, Barone (2013).
The need for a subsequent graft is reduced, optimizing the success of the implants in terms of aesthetics and function, Mezzomo (2011).
Materials used as bone filler after extraction provide mechanical support preventing the collapse of the buccal and lingual tables which delays residual reabsorption of the crest, Serino (2008).
Conclusions/Clinical significance: Alveolar preservation is recommended for alveoli type 2 and 3 (Elian 2007) instead of an immediate implant. It achieves a lower bone loss and helps to preserve soft tissue, on which the final aesthetic of the case will depend.

FC080
Full Mouth Reconstruction- From Simple to Complex
Forna Norina Consuela, Agop Doriana
"GR.T.POPA"University of Medicine and Pharmacy, IASI, Romania

Aim or purpose: Essential elements underlying the long term success in approaching the edentulous patient consist in finding the right balance between the morphological and functional elements of the stomatognathic system. The aim of the study is to emphasise the key role of full mouth rehabilitation in achieving long term stable prosthodontic results.
Materials and methods: For a number of 127 patients full mouth reconstruction was planned according to the general health status, TMJ and local diagnosis. From these number of patients only 87 benefited in the end from the complex full mouth reconstruction for the other 40 patients only limited and simple rehabilitation was possible. For all the patients the complete rehabilitation was simulated, final evaluation after treatment was made, and data analysis was applied after the final solution.
Results: Statistical analysis using Chi-squared tests was made for the complete and partial rehabilitation, results were that for all the patients with complete rehabilitation full restoration of functions was obtained, and for those with partial restoration different levels of restoration were achieved, depending on the affected areas of the stomatognathic system. For those with the affected general status (21% from the ones with partial rehabilitation) and 11% for the TMJ disorders and 8% for those with local complications, we obtained a range of 32%-71% of function rehabilitation.
Conclusions: Always full mouth rehabilitation is an optimal solution when we discuss about different oral pathologies according with particularity of clinical case. Partially restoring only one of the functions will never offer long term success.

Free Communication Session 21 | 29.08.2017, 16:30–17:30 | Room A9.9

Theme: Gerodontology.

FC081
Alteration of Memory and Depression in Elderly with Full Overdenture
Bahruddin Thalib, Brilyanti Horas, Edy Machmud, Asmawati Amin, Rafikah Hasyim
Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

Aim or purpose: To identify and analyze alteration of memory status and depression level in elderly after using full overdenture.
Materials and methods: This was an experimental design using non-randomized clinical pre-test and post-test. Six people with two abutments remaining in the upper jaw and lower jaw became subjects in this study. Examination of memory power using the Mini-Mental State Exam (MMSE) and to check the level of depression used Geriatric Depression Scale (GDS). Measurement of MMSE and GDS were done before treatment and 1 and 3 months after insertion time.
Results: The results showed that there was an increase in the initial mean MMSE score 26 after 1 month increased to 27.33 and 28.17 after 3 months. Results of paired t analysis were significant with $p = 0.002$ ($p < 0.05$) showed that there were significant differences strength of memory in the elderly before using overdenture, after 1 month and 3 months. The GDS value decreased from initial mean score of GDS 3.5 to 2.67 after 1 month and 2.17 after 3 months. Paired t test also showed significant differences levels of depression before using overdenture, after 1 month and 3 months with $p = 0.005$ ($p < 0.05$).
Conclusions: There were significant differences in the elderly memory before and after use overdenture. Similarly, there was a significant decrease in the level of depression in the elderly after using overdenture.

FC082
The Influence of Taste on Swallowing Function in Elderly
Dewi Agustina, Lisdrianto Hanindriyo, Elastria Widita, Rini Widyaningrum, Fimma Naritasari
Gadjah Mada University, Yogyakarta, Indonesia

Aim or purpose: To study the influence of taste perception on swallowing function in elderly.
Materials and methods: This cross-sectional study involved 62 elders (F: 41, M : 21) aged ≥60 years in Yogyakarta Indonesia. The taste perception was measured using four chemical solutions i.e. sucrose, sodium chloride, citric acid and quinine sulfate for sweet, salty, sour and bitter tastes, respectively. Each chemical solution consisted of four concentrations and each concentration was dropped thrice on the middle area of the dorsal surface of the tongue. The perception was scored from 0 (tasteless) up to 4 (most sensitive) for each chemical solution. The maximum total score was 16. Swallowing function was obtained using repetitive saliva swallowing test (RSST). The subjects were instructed to repeatedly swallow air after the inside of the

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mouth was wetted with water. The number of swallows in 30 seconds was counted by palpating the movement of laryngeal elevation (≥3 dry swallows is considered normal). The data then were analyzed statistically using Simple Regression Analysis.
Results: Thirty-two subjects were suspected of having dysphagia. Statistical analysis showed that taste perception could be used to predict the swallowing function with the equation of y = 0.29x-1.227 (y = swallowing function, x = taste perception) with r (Pearson Correlation) = 0.415 (Sig = 0.001).
Conclusions: It appears that taste perception significantly affects swallowing function in elderly.

FC083

In vitro Evaluation of Inhibitory Activity of Thymoquinone Against _Candida albicans_ for Denture Stomatitis Prevention

Khalifa Al-Khalifa[1], Ahmed Al-Thobity[1], Mohammed Gad[1], Mohammed Al-Hariri[1], Aiman Ali[2]
[1]*University of Dammam, Dammam, Saudi Arabia,* [2]*University of Toronto, Toronto, Canada*

Aim or purpose: The aim of this study was to evaluate inhibitory effect of Thymoquinone incorporated in polymethyl methacrylate denture base material against *Candida albicans*.
Materials and methods: Eighty acrylic resin specimens were fabricated and divided into 8 groups (n = 10) according to Thymoquinone (TQ) concentrations 0.5%, 1% 1.5%, 2%, 2.5%, 3%, 5 wt.% of acrylic powder. Two methods were used to evaluate the effect of TQ on *Candida albicans*: slide count and serial dilution test. Difference in the number of live *Candida* was compared in different concentrations of TQ. Multivariate analysis of variance (MANOVA) and Post-hoc Tukey's HSD test was performed to compare the difference of means between the observations taken on various intervals with baseline. *P-value* was ≤0.05 statistically significant.
Results: While the mean number of adhered *Candida* in control group was 5436.9 ± 266 and 4691.4 ± 176.8 according to slide count and serial dilution test respectively, however, this number was decreased dramatically to become 0 ± 0 and 32.4 ± 1.7 in group 8 (concentration 5%). These statistical differences were significant $p < 0.05$.
Conclusion: Incorporation of TQ into acrylic resin denture base material might be effective in preventing *Candida albicans* adhesion.

FC084

Concierge Dental Services for India's Elderly: A Unique Model

Kadambari Rawal[1], Diksha Tahilramani[2]
[1]*Boston University, Boston, MA, USA,* [2]*Angel Dentist Network, Mumbai, India*

Aim or purpose: To discuss the need and latest efforts to bring Geriatric Dentistry to the forefront in a growing economy like India.
Materials and methods: Outreach efforts, Geriatric dentistry education and concierge dentistry models were tried and tested. Patient and provider feedback was evaluated.
Results: Geriatric population in India is clearly underserved, providers are not only not confident about treating the elderly, the education need is high as well.
Conclusions: Geriatric Oral health is often ignored even in developed nations, its growing challenge in developing and growing economies has not been given its due attention until now. The results of this project show that not only is there a growing need, there is a skewed perception among the masses and providers about the importance of Geriatric dentistry. Things need to change and the young dentists in India can be the face of this change.

Free Communication Session 22 | 29.08.2017, 16:30–17:30 | Room A9.10

Theme: Prevention and Periodontal diseases

FC085

Dental Awareness Affecting the Periodontal Health in Karachi, Pakistan

Hira Sarfaraz Khan, Hamza Syed Muhammad, Raheema Farooq
Dow University of Health Sciences, Karachi, Pakistan

Aim or purpose: To assess level of awareness and practices regarding oral hygiene and establish a relation to the periodontal status in Karachi, Pakistan.
Materials and methods: A cross sectional study was carried out to collect data from 156 patients presenting in Dow University of Health Sciences. Data was collected using a questionnaire based on personal information, education & practices related to lifestyle and oral health and clinical examination using CPITN probe. Data was analyzed using SPSS version 16.0.
Results: 36% of patients were males whereas 64% were females. The mean age of the participants was 33.45 ± 12.82. 94% of patients reported using toothbrush and paste of which 48% reported to brush twice a day. 41% of the patients reported to change their brush every 3 months. 68% of patients used no mouthwash. 52% of the patients used no other secondary method for plaque control. 60% of the patients only presented to the dentist when they experienced pain. 65% of the patients had never gotten scaling and polishing done. Only 12% had an understanding of the actual purpose of scaling. 69% of the patients consider finances to be the major reason for postponement of dental treatments. 51% of the patients had increased pocket depths on clinical examination.
Conclusions: Significant association exists between oral health awareness and periodontal health of the individual. We can conclude that the education of the individual and unawareness about the oral health needs to be given attention as they act as a barrier in accessing oral health care.

FC087

Interactions between Periodontal Disease and Chronic Kidney Disease

Maria Alexandra Martu-Stefanache, Adriana Balan, Sorina Solomon, Liliana Foia
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Aim or purpose: The incidence of chronic kidney disease is increasing, and patients receiving treatment in nephrology wards including hemodialysis, peritoneal dialysis and renal transplant will be directed to dental specialists.
The purpose of this study was to examine the odonto – periodontal changes in patients with chronic kidney disease and the manner in which it influences periodontal pathology.
Materials and methods: The study was conducted on a group of 42 patients with chronic renal failure, of which 28 are undergoing hemodialysis, 8 – continuous ambulatory peritoneal dialysis, and 6 – continuous cycler-assisted peritoneal dialysis and control group of 88 patients without a renal pathology. A set of standard peridontal parameters (probing pocket depths, recession and clinical attachment level) were recorded for all participants.
Results: A statistically significant association was observed between the number of teeth covered by dental plaque and calculus and the number of elements bleeding on probing.
Conclusions: Patients with chronic kidney disease show a higher prevalence and more severe periodontal disease than those not suffering from renal impairment. Since periodontal clinical examination is not part of the standard set of investigations in these patients, severe periodontitis may be an overlooked source of systemic inflammation which can worsen chronic inflammatory status.

Free Communication Session 23 | 29.08.2017, 16:30–17:30 | Room A9.11

Theme: Prosthodontics

FC089
Surface Roughness and Hardness of PMMA with ZrO_2 Nanoparticles Addition
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Aim or purpose: The aim of this study was to evaluate surface roughness and hardness of heat-cured PMMA reinforced with 5%, 10% and 20% tetragonal zirconium oxide-yttria stabilized (ZrO_2) nanoparticles (nano- ZrO_2) after aging by thermocycling.
Materials and methods: A total of 160 specimens were fabricated from heat-cured PMMA for two different test parameters. The specimens were divided into four groups according to the ratio of nano- ZrO_2 added to heat-cured PMMA; Group 1: 5% nano-ZrO_2; Group 2: 10% nano-ZrO_2; Group 3: 20% nano-ZrO_2 and Group 4: heat-cured PMMA without nano-ZrO_2 (control group). Then the all test specimens were divided into two subgroups (thermocycle and water storage). They were subjected to the tests of surface roughness and hardness. Two test specimens selected from each hardness test groups were examined with SEM. XRD analysis was used to examine the crystal structure of the nanoparticles. The all test data were analyzed with Kruskal–Wallis test.
Results: The surface roughness of Group 3 was found to be statistically significant higher than the other groups ($p < 0.001$), but it was within the clinically acceptable limits. When the surface hardness test results were evaluated, Group 1 and 2 showed statistically significant higher values than Groups 3 and 4 ($p < 0.01$). Generally, the thermocycling did not showed statistically significant effect on the test parameters compared to water storage groups.
Conclusions: On the whole, the nano-ZrO_2 addition with various ratio into the heat-cured PMMA increased the surface roughness and hardness values.

FC090
Decision Making for Successful Restorations Begin with Right Treatment Planning
Asha Samant
Rutgers School of Dental Medicine, Newark New Jersey, USA

Introduction: Times are changing and so are needs and demands of patients. Society is media dominate. Social stigma plays a major role in how people learn to improve their appearance and self esteem. The partially edentulous patients are frequently the most challenging prosthodontic patients in the clinical practice. There is a myriad of treatment alternatives based upon such factors as number and location of remaining teeth, esthetics, function, comfort and vertical dimension of occlusion and limited interarch space. All too often the dentist will acknowledge what remains and attempt to restore patient's dentition while accepting the limitations inherent to this compromised dentition. On the other hand, a comprehensive diagnosis and astute treatment planning will provide the opportunity to deliver prosthesis of the highest quality and attain the goals of esthetics, function and comfort.
Case description: Two clinical cases will be presented where there was limited interarch spaces, financial was not available. One patient was older and did not want surgical management or extraction teeth or alveoplasty. There were missing teeth opposing arches and lost vertical dimension.
Discussion: In Patient presenting with limited interarch spaces an alternative treatment with removable modalities is possible care. Case based treatment planning is the best way to make patient comfortable and happy, which provides quality of life to patient and pleasant success to Dentist.
Conclusions/Clinical significance: Patient comfort and esthetic is the key to alternate treatment care which contribute Self esteem and Quality of life.

FC091
Translational Multidimensional Model Redefining Disability Functioning and Health In Dentistry
Oscar Suarez-Sanchez[1], Elebia Slayton[2], Paul Longo[1], Chester Douglass[3]
[1]*American College of Prosthodontists, Ramstein, USA,* [2]*University of Maryland, Ramstein, Germany,* [3]*Harvard School of Dental Medicine, Boston, USA*

Aim or purpose: To propose a meaningful model, operational definition and standardized diagnostic criteria, for clinical application

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redefining disability, functioning and health when characterizing edentulism. Edentulism fulfills the world health organization (WHO) definition for Noncommunicable diseases (NCDs). Its pathognomonic properties as NCDs, irreversible and generally slow progression pattern, shares key epidemiological properties and is commonly comorbid to 4 main types of NCDs; they are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes. NCDs already disproportionately affect low- and middle-income countries where nearly 75% of NCD deaths – 28 million per year – reported world-wide.
Materials and methods: This study tested and observed the properties of an index. 3 calibrated groups of clinicians, from different sites, backgrounds and demographics were tested with the Prosthodontic Diagnostic Index for complete edentulism (PDI-CE) instrument. The groups applied this tool to a set of 11 standardized vignettes displaying a broad selection of clinical presentations of edentulism ranging from class I, the mildest form, to class IV the most debilitating and advanced expression.
Results: Kaiser-Meyer-Olkin measure of sampling adequacy (MAS), Inter-rater reliability Kappa statistic analysis, Factor analysis (FA) and the Principal Component Analysis (PCA) found index reliably measuring recognizable patterns and diagnostic criteria.
Conclusions: New technology could be reached at the lab bench, redefining disability, functioning and health when identifying, characterizing, diagnosing, modulating, protecting and reaching all affected population and sectors of society at risk or suffering the burden when redefining/modeling this common multidimensional condition.

FC092

Effect of Different Color CAD/CAM-Ceramics and Resin-Cements on Final Color

Nermin Demirkol[1], Derya Surmelioglu[2], Funda Ozen[1]
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Aim or purpose: Glass ceramics (GC) are used as a popular restorative treatment of unaesthetically anterior teeth. Resin cements are generally used for the cementation of glass ceramic restorations due to adequate esthetics properties, low solubility in oral environment, high bond strength to tooth structures, superior mechanical properties and support for ceramics. The aim of this *in vitro* study was to compare the effect of aging coffee or without coffee.
Materials and methods: Within the scope of this study eighty specimens with 1 mm thickness from A1 and A2 color GC cemented with 5 different color of an adhesive resin cement (bleach XL, white A1, yellow A3 and transparent) (n = 5) were evaluated for color change due to thermocycling in coffee and without coffee for 5000 cycles. CIE L*a*b* and DE values were measured by a spectrophotometer before and after mechanical cycling with coffee and without. General Linear Model (Univariate), Fisher's Least Significant Difference (LSD) and Bonferroni were used to analyzed color differences among the groups.
Results: There was no statistically significant differences between the groups bleach XL and yellow A3 however statistically significant differences were found in DE_1 and DE_2 values in the groups.
Conclusions: The color of the specimens was influenced by cyclic loading ($p < 0.05$). All resin cemented GC showed varying degrees of discoloration after accelerated aging however actual color change of white A1 and transparent resin cement was partially masked by the ceramic.

Free Communication Session 24 | 29.08.2017, 16:30–17:30 | Room A9.13

Theme: Implantology

FC093

MMP-8, TIMP-1, LTB_4 Levels between Platform Switch and Traditional Implants

Necla Asli Kocak[1], Gamze Zeynep Adem Siyli[2], Funda Yalcin[1]
[1]*Istanbul University Department of Periodontology, Istanbul, Turkey,* [2]*Okmeydani Oral and Dental Health Hospital, Istanbul, Turkey*

Aim or purpose: This study aimed to compare clinical peri-implant parameters, marginal bone level (MBL) changes and the levels of peri-implant crevicular fluid (PICF) matrix metalloproteinases-8 (MMP-8), tissue inhibitor matrix metalloproteinases-1 (TIMP-1) and leukotriene B4 (LTB_4) between platform switch (PS) and non-platform switch (NPS) abutments 12 months after loading.
Materials and methods: 94 implants in 27 subjects which at least two implants in the posterior region were included in this study. Implants were divided equally into test group (Platform switch) and control group (Non-platform switch). PICF samples were taken and peri-implant health status was evaluated by modified plaque index (mPI), bleeding on probing (BOP) and probing pocket depth (PPD) at the time of loading (T_1) and 1 year after loading (T_2). MMP-8, TIMP-1 and LTB_4 levels were analyzed with enzyme-linked immunosorbent assay (ELISA). Statistic analyzes were performed by an expert with SPSS and significance level was set at $p < 0.05$.
Results: The mean MBL change was statistically higher in NPS group (0.73 ± 0.29 mm) than PS group (0.51 ± 0.31 mm) in 12 months ($p < 0.001$). PICF LTB_4 concentrations were significantly higher in PS group than NPS group ($p < 0.001$) at T_2 while no significant difference was found MMP-8, TIMP-1 and MMP-8/TIMP-1 ratio between groups at anytime.
Conclusions: Within the limitations of present study while there was group superiority for platform switching according to marginal bone levels and clinical, biochemical analyses except of LTB_4 didn't show significant difference.

FC094

Surgical Complications of Maxillary Sinus Floor Augmentation in Dental Implantology

Ahmet Ferhat Misir
Bulent Ecevit University Faculty of Dentistry, Zonguldak, Turkey

Aim or purpose: The sinus augmentation procedure is a successful and predictable approach for augmentation of the posterior

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maxilla with deficient crestal bone. The surgical procedure was first described by Tatum and subsequently, Boyne and James in 1980. There are two main techniques: the transalveolar (crestal), and the lateral window. The complications of this surgical procedure are reported in the literature to be low, and can include acute maxillary sinusitis, scattering of the grafting material into the sinus cavity, wound dehiscence and Schneiderian membrane perforations. We aimed to evaluate the rate of complications of both surgical techniques after sinus lift procedures and the appropriate management strategies.

Materials and methods: Between 2013 and 2016, 191 dental implants were placed in 68 patients (36 males and 32 females) with concomitant bone augmentation of the maxillary sinus floor. The sinus lifting procedure was transalveolar in 43 patients and lateral window in 25 patients (a total of 98 sinuses). Comparisons were performed with the independent-samples *t* test and the Mann–Whitney *U* test.

Results: Surgical complications such as maxillary sinusitis, headache, locoregional pain, was occurred in 10.18 and 22 patients respectively. However only 3 implants in three patients were removed. Other signs of surgical complications disappeared within 5 to 7 days and normal sinüs function and drainage were restored.

Conclusions: It's concluded from the current evidence that maxillary sinüs augmentation is a successful preprosthetic technique for augmentation of the edentulous posterior maxilla. Preoperative assessment of the anatomy of the sinus reduces the rate of complications considerably.

FC095

Stress Analysis at Bone-Implant Interface of the Single-Implant-Supported-Mandibular Overdenture: (3D-FEA)

Mesut Tuzlali[1], Esma Basak Gul Aygun[2], Mustafa Zortuk[1], Huseyin Berkay Belgin[1]

[1]*Mustafa Kemal University, Hatay, Turkey,* [2]*Inonu University, Malatya, Turkey*

Aim or purpose: Dental implants eliminate the embarrassing unstable and discomfort of sliding dentures, as well as holding securely in place. Generally, implant-retained dentures are made for the mandibular because conventional dentures tend to be less stable. Hence, at least using two implants to support mandibular overdenture has been the standard care for completely edentulous mandible.

Using a minimal number of implants which is sufficient for prosthodontic support and retention can be cost effective option help to the patient. Therefore, mandibular single-implant overdenture has become more popular over mandibular two-implant overdenture.

The purpose of this research was to analyze the peri-implant region (Bone-implant interface) stress distribution of the single implant supported mandibular overdenture (opposing complete maxillary dentures).

Materials and methods: Single implant supported mandibular overdenture, lower jaw (D2 bone), cylindrical implant (4.3 mm diameter and 12 mm long) was created according to individual Young's modulus and Poisson's ratio. A single oblique load 100N was applied unilaterally to central incisors. Also, 300N oblique load was applied to the first mandibular molar teeth bilaterally to the simulate biting force.

The stresses in lower jaw were investigated by using 3D-FEA software program.

Results: The pattern of stress distribution was evaluated by according to a stress map with various color coding. Using these color coding system, stress distribution patterns may be analyzed in models. It had been seen that no high damaging stress concentration occurred in surrounding tissues.

Conclusions: Within the limitations of the study, single-implant-retained-mandibular overdenture can be promising option for prosthodontics aspects.

FC096

Planning Systems in Contemporary Dental Medicine- Guarantee of Success

Forna Norina Consuela, Feier Ramona Diana, Agop Doriana

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Aim or purpose: The aim of the study is to point out the practical accuracy of the robotized systems in choosing the optimal situs of implantation and implantation axis according with the particularity of the clinical case.

Materials and methods: On a sample of 315 patients we used robotized planning systems for implant treatment, preceded by classical and modern evaluation for choosing the optimal implantation situs and the implantation axis. The practical way of evaluation was materialized through examining charts adapted to the practical approach and a number of 315 paraclinical evaluations represented by 70 Orthopantomography, 161 CT and 84 Cone Beam CT. We used Chi squared test for statistical quantification which pointed out correlated aspects between anatomical bone parameters, the surgical intervention and the architecture and direction of the chosen implant.

Results: Robotized techniques offered at a rate of 80% accuracy in choosing the optimal bone position correlated with evaluation by CT and Cone Beam CT, in comparison to the classical evaluation of only 58% accuracy by using orthopantomography and surgical guide. The precision in finding the ideal position for an optimum implantation axis reduces the angulation of the implant abutment and therefore gets a correct occlusion ensuring the long term success of the prosthetic restauration.

Conclusions: Navigation in implantology as any other type of navigation, in the medical field, gives an accurate picture in real time execution avoiding any future risks and failures. Planning will track the implants and will create a treatment plan according with the needs of rehabilitation.

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POSTER SESSIONS 01–24

Poster Session 01 | 29.08.2017, 09:30–10:30 | Poster Display 1

Theme: Oral Health and Systemic Health

P001

Management of Permanent Teeth with Lateral Luxation

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Introduction: Dental trauma is an important public health problem due to high prevalence and associated limitations. The external impact accounting for trauma may result in different injury types to teeth and supporting structures.
Case description: Lateral luxation is defined as the displacement of the tooth in a direction other than axially, which is accompanied by comminution or fracture of the alveolar socket, resulting in a decent percentage of all dental wounds.
The aim of this work is to present and discuss through three clinical cases the management of dental lateral luxation.
Discussion: It will also reveal the efficiency of the same therapeutic approach based on dental splints in a twofold purpose: the correction of tooth displacement due to lateral luxation as well as the supporting-tissue injury (alveolar bone fracture).
This work also highlights the importance of a continuous clinical and radiographic follow-up to ensure the best treatment outcome even in cases of critical management decision being whether to treat these teeth endodontically immediately upon suspicion of the pulpal obliteration or to wait until symptoms or signs of pulpal vitality occur.
Conclusions/Clinical significance: It can be concluded that although lateral luxation associated with alveolar fracture of young permanent teeth initially compromises patient's esthetics, function, and well-being, the immediate treatment can results in good prognosis, with minor complications.

P002

Vitamin-D in Dental Treatment on the Basis of Own Research

Maciej Krawiec, Marzena Dominiak
Dental Surgery Department Medical University, Wrocław, Poland

Aim or purpose: Vitamin D plays a significant role in the stomatognathic system, where its impact on caries development, on the modification of periodontal disease, and on the risk of loss of implants. The aim of the study was to determine the level of vitamin D and parathormon in 65 patients and to show their impact on periodontal disease.
Materials and methods: The study involved 65 patients who came to the dental clinic for various reasons. They have volunteered their consent. Each patient underwent a thorough medical history of the general condition of the patient, an intraoral clinical study was performed, paying attention to the symptoms of periodontitis. Also 2 ml of blood were taken to investigate vitamin D and parathormon levels.
Results: 35 patients were diagnosed with periodontal disease at 54%, mean age at 48 years, including those with periodontal disease at 56 years. In 57 subjects, the level of vitamin D was reduced to an average of 22.8 ng/ml, including 13 in the extreme deficiency of less than 15 ng/ml. In 35 patients with advanced generalized periodontal disease, 31 had a reduced level of vitamin D. In this group, there was also a higher mean PTH score than in the healthy group.
Conclusions: Based on the above analysis and available literature, it can be said that vitamin D modifies the course of periodontal disease. This is done through 3 basic mechanisms: maintenance of normal bone metabolism, antimicrobial and anti-inflammatory activity.

P003

Association of Academic Stress with Oral Hygiene Habits – A Prospective Study

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[1]Dow University of Health Sciences, Karachi, Pakistan, [2]Ziauddin University, Karachi, Pakistan

Aim or purpose: A study to establish relationship between stress and oral health is very rare. Thus, the present study aims to assess the effects of academic stress on oral health behaviors as well as TMJ.
Materials and methods: This research is a prospective study in which data is collected from 250 students who study in Dow University of Health Sciences, Karachi, aged between 20 to 25 years. The data was collected at two points within 6 months of study from the same participants. Once, at the start of the semester when there was no stress and second, near exams, when everyone was under academic stress. A pre-designed questionnaire was used to assess factors. The level of stress was assessed using Dass21 questionnaire. The frequencies were analyzed using the Chi-square test through SPSS version 16.0.
Results: There is a positive relationship between academic stress and teeth brushing frequency, intake of sugary food, teeth clenching, intake of tea/coffee, smoking, and TMJ pain ($p =< 0.00$). There is no direct effect of stress on dryness of mouth and toothache ($p => 0.00$).
Conclusions: According to our research, the results suggest that as stress increases, the oral health behaviors become much more prominent. The results are highly significant for teeth brushing frequency, intake of sugary food, teeth clenching, intake of tea/coffee, smoking, and TMJ pain whereas insignificant for dryness of mouth and toothache.

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P004

Oral Health Attitudes and Behavior of Adults from Bucharest and New York

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Aim or purpose: To identify similarities and differences in self-reported oral health attitudes and behavior of adults from Bucharest and New York.
Materials and methods: This cross-sectional study was conducted on a convenience sample of 164 adults subjects, 85 from Bucharest (51.8% females) and 79 from New York (48.1% males), aged 20–55 years old. Data were collected by a self-administered questionnaire regarding oral health attitudes, self-care practices and utilization of dental services. The SPSS 17.0 statistical program was used for data analysis. A p-value <0.05 was considered statistically significant.
Results: Tooth brushing twice per day was significantly higher for the American adults (79.7% vs. 60%, $p < 0.04$), although they tended to spend less time (1 min.) on brushing (30.4% vs. 18.8%). The majority of the Romanian adults used a manual toothbrush, while the American adults used electric and sonic toothbrushes (91.8% vs. 30.4%, $p < 0.001$). Daily flossing before tooth brushing was significantly higher for the American adults (12.7% vs. 3.5%, $p < 0.001$), by rolling method on fingers and respectively, floss-holder (67.1% vs. 36.5% and respectively, 19% vs. 5.9%, $p < 0.001$). The American adults choose the toothbrush/toothpaste by price (35.4% vs. 3.5%, $p < 0.001$), while Romanian adults are influenced by TV commercials (18.8% vs. 7.6%, $p < 0.001$). Professional cleaning every 6 months was significantly higher for the American adults (38% vs. 15.3%, $p < 0.001$), performed mostly by the dental hygienist (64.6% vs. 3.5%, $p < 0.001$).
Conclusions: The differences identified in adults self-reported oral health attitudes and behavior between the two countries reflected different cultures and health systems.

P005

The Splints in the Management of Temporomandibular Disorders – Case Report

Ioanna Tsamali, Vasilios Psarras, Mihail Tzakis
Orofacial Pain Clinic-Dental School-National & Kapodistrian University of Athens, Athens, Greece

Introduction: Many types of splints are used for the management of Temporomandibular Disorders (TMD) in the everyday clinical practice. The clinician should be aware for the indications, the advantages and the potential risks that each contain.
Case description: A 29-year-old male presented to the Orofacial Pain Clinic of the Dental School of the National and Kapodistrian University of Athens (OPC), complaining for persistent orofacial pain, developed acutely during prosthetic rehabilitation treatment. His dentist provided him with a soft "splint", to use it for 24 hours a day. He used it for 2 months with his symptoms being aggravated. The patient was treated according to the Clinic's protocol, where a full arch heat resin stabilization splint (FASS) and kinesiotherapy included, with very positive results.
Discussion: One of the most popular treatment modalities for the management of TMD is FASS. It's intended among others, to relax the stomatognathic system and to restore its function and the position of the mandible. Many types of "splints" used in the clinical practice, which differ significantly in the material, in the method of fabrication and their shape. Silicon or a combination of silicon and acrylic type of splints seem to have no positive effect as treatment means of TMDs.
Conclusions/Clinical significance: Heat resin stabilization splints fabricated and adjusted properly are one of the essential means for the successful management of TMDs. If it is not the case, they could even worsen patient's TMD problems.

Poster Session 02 | 29.08.2017, 09:30–10:30 | Poster Display 2

Theme: Digital Dentistry

P006

Intraoral Scanner – Clinical Application in the Dental Surgery

Simona Halamova[1], Tatjana Dostalova[2]
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Aim or purpose: Precise documentation of the oral cavity and proportions in the face area is crucial not only in many specializations of stomatology, e.g. prosthetics, orthodontics or orthognathic surgery planning, but also in forensic science and anthropology.
Materials and methods: Current imaging methods together with dental impressions enable a satisfactory imaging of tissues, which is required for a given purpose. Mainly dental impressions and study models are used for reproduction of the situation in the oral cavity. Usage of an intraoral scanner 3Shape Trios (Copenhagen, Denmark) is one of the new possibilities how to document and preserve 3D data about patients. Intraoral scanning is a non-invasive method, well tolerated by patients and more time effective compared to traditional dental impressions with dental impression trays and appropriate impression material. A record from the intraoral scanner consists of single pictures and video-sequences. The scanner can take more than one thousand pictures during scanning of one jaw.
Results: The intraoral scanner together with a computer program enables to process a complex analysis of upper and lower jaw, analysis of bite and its occlusal field. The final virtual model can be measured, printed using a 3D printer or used for creating dental crowns and bridges. Clinical case reports demonstrated the treatment options for adolescents and young adults.

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Conclusions: TRIOS intraoral scanner reduces chair-time, and 3D print prepares new treatment opportunities.

P007

Patients' Use of Online Sources for Medical Information

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Aim or purpose: To observe parameters of use of online sources for medical information by patients, i.e. reason and type of sources.
Materials and methods: A cross-sectional study was conducted on a convenience sample of Romanian nationality. There were excluded subjects with professional activities related to medical field. Data was collected by a questionnaire administered from November 2015 to June 2016.
Results: Sixty-two participants were included, from which 4 stated that they do not use internet at all. From the remaining 58 participants, 36 were females, 22 males, with a mean age of 35 years (ranging from 18 to 64 years). The majority of participants (n = 49) previously used the internet for searching medical information, mainly for finding out more on diseases and their treatment (n = 53), for knowing more on the physician that was treating them (n = 37), or for searching a physician to go to (n = 34). Main sources of information were physicians' interviews, encyclopedias (e.g., Wikipedia), demonstration videos on YouTube, and forums between patients. Most of them used only sources in mother tongue (n = 32), and considered that they most easily understand when presentation consists of text and figures/photos (n = 47) or videos (n = 24).
Conclusions: Within the limitations of this study, it is suggested that Romanian patients use the online sources for medical information, therefore these could be more largely used for patient information and education.

P008

Comparison of Digital Radiography (DR) to Digital Subtraction Radiography (DSR) in Detecting Tooth Density Changes

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Aim or purpose: The aim of the study was to compare the performance of Digital Radiography (DR) to Digital Subtraction Radiography (DSR) for investigating *in vitro* tooth density changes. These changes were designed to simulate post-traumatic complications (external root resorption) and healing events (continuing apical development, formation of an apical barrier) on permanent maxillary incisor teeth.
Materials and methods: A chemical method was used to produce increasingly demineralised lesions of the dental tissue of incisor teeth. The teeth were then placed on a skull and digital radiographs were taken before and after each demineralisation step. Pairs of digital images were obtained under the same standardised conditions. During the image acquisition stage, a cephalostat headset device was used to record the relationship between the x-ray source and skull (*a priori* -mechanical- registration). A software was then used for image processing (*a posteriori* registration) which led to adjustment of both geometry and contrast of the images. Finally, DSR was applied on each pair of digital images. Radiographic assessment of pairs of digital radiographs and their subtraction image that represented small, large or no tooth density change was carried out by three observers.
Results: For each observer, the sensitivity, specificity and Youden's J of each radiographic method was calculated. The sensitivity and specificity of DR and DSR methods were compared by Pearson chi-square test.
Conclusions: The demineralised areas were difficult to detect visually when DR was used. However, their identification was aided by DSR which was more sensitive, specific and reproducible than DR.

P009

A Differentiation between Conventional and Digital Radiography in Evaluate the Working Length of Root Canal

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Aim or purpose: The importance of determining working length in root canal therapy is clear for each dentist and specialist, and conventional radiography has been the technique of choice so far. But developing computerized technology in radiology and its show up devices in the market, having several advantages, makes the tendency to use such technology more and more. Despite the many studies in this field, the accuracy of these devices is still unclear. The purpose of this study was to compare the accuracy of conventional radiography and digital radiography in order to estimate the working length of root canal.
Materials and methods: For this in experimental vitro study 17 root canals of maxillary and mandibular molar teeth on human skulls were selected. Size #15 files were placed in canals in order to assess working length. Then two radiographies were taken from each canal: one using conventional and the other one using digital technique, through parallel method of radiation accomplished by special positioning devices. Finally, the mean working lengths of each group were compared with the real amounts using paired t-test analysis. In all tests, a significance level of 0.05 was determined.
Results: Statistical analysis revealed that digital radiography was more accurate than conventional radiography in determining the working length ($p = 0.019$).
Conclusions: Due to the greater accuracy and other advantages of digital radiography, this method is strongly recommended, regarding the similarities between the study and clinical situation for working length determination.

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Poster Session 03 | 29.08.2017, 09:30–10:30 | Poster Display 3

Theme: Special Care Dentistry

P011

Determinants for Dental Trauma in Individuals with Cerebral Palsy

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Aim or purpose: The aim of this study was to evaluate the prevalence and risk factors related to traumatic dental injury in individuals with cerebral palsy.
Materials and methods: Thirty institutions in Lisbon, Portugal participated in the study. Four hundred and ten participants with cerebral palsy and ages ranging between 13 and 67 years old were included, after informed consent and assent was attained. The ethics committee at the Faculdade de Medicina Dentária – Universidade de Lisboa approved the study protocol.
Results: After oral examination, it was found a prevalence was 24.9% for traumatic dental injury, prevalent in individuals with ataxic cerebral palsy type. The most frequent type of trauma was tooth avulsion in 44.4% of the traumatic dental injuries. Gender, presence of epilepsy, presence of overjet over 3 mm and presence of open bite revealed an increased risk of dental trauma, although with no statistical significance.
Conclusions: The prevalence of traumatic dental injuries is similar between individuals with cerebral palsy and individuals without disabilities. Regardless of these results, it is essential to develop educational interventions among caretakers and parents, in order to reduce the risk of dental trauma injuries.

P012

Hospital Dental Care Procedures on Mentally Disabled Uncooperative Patients

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Aim or purpose: Learn about the oral health status and needs of dental treatments of a group of mentally disabled patients treated in a public hospital as well as to determine the characteristics, systemic conditions, cause of mental disability and comorbidity.
Materials and methods: 7-year period observation survey of dental treatment under general anesthesia.
Results: Data of 1040 patients: 554 men and 486 women. Their age ranged from 18 to 85 years (mean: 35, 26 ± 12.61), with a high proportion being under 45.
The most frequent cause of disability was Down syndrome 142 patients (13.7%). Other causes of mental disability were: 140 (13.5%) cerebral palsy and 120 (11.5%) perinatal hypoxia. 7.2% of the subjects had autism.
17.2% of the patients treated presented a coexisting medical condition being thyroid diseases the most frequent.
68.6% (713 patients) were classified as ASA II, 27.3% (279 patients) ASA III with only 0.5% of the subjects ASA IV and 4.1% ASA I.
10.982 treatment procedures were performed, being exodontias the most frequent (41, 68%), followed by fillings (28%) and preventive treatments (8.45%).
89.2% of the subjects needed cleaning of the dental plaque, 80.2% extractions, 11.2% wisdom teeth removals, 39% radicular cyst or periapical granuloma enucleation, 62% fillings, 0.8% biopsies, 0, 2% frenectomies and 2.2% gingivectomies.
Treatment needs vary significantly by age group ($p < 0.05$).
Conclusions: The existence of dental care units for those mentally disabled patients uncooperative that need dental treatment under general anesthesia is justified by their treatment needs and the difficulties to access the assistance services.

P013

New Approach to Managing Onychophagia

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Introduction: Onychophagia is defined as a chronic habit of biting nails, commonly observed in both children and young adults. This oral habit may lead to various medical and dental problems. To date, onychophagia is considered as an unsolved problem in medicine and dentistry. In this work, we describe an exclusive nonpunitive fixed appliance as a new treatment of onychophagia.
Case description: A 26-year old male patient was referred to our department of Dental Medicine to treat his onychophagia. So based on this habitual specific nail biting occlusal position, a new dental appliance was made to help the patient break this habit.
Discussion:
• To date, several treatments have been developed in order to treat onychophagia.
• Among the treatment options available today, the psychological aspect as well as the dermatological side effects of such an oral habit both remain the major therapeutic focus.
• The idea behind using appliances was developed to make the habit physically and mechanically difficult to maintain and remind the patient to keep his fingertips away from his mouth.
• Moreover, the duration, frequency of the habit, the cooperation and motivation of the patient are all important factors to be considered in ensuring treatment success.
Conclusions/Clinical significance: Numerous treatments have been suggested to treat onychophagia. This work describes the first dental treatment aiming to treat nail biting.

P014

Ethics in the Treatment of the Non-Contributing Intellectual Disabled

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Introduction: Royal Decree 1030/2006, on the Common Services Portfolio of the National Health System regards the dental

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treatment under sedation for disabled persons who cannot be treated otherwise. Occasionally, the treatments of these patients are performed due to the symptoms described, as clinical examination is not always possible. When patient and family expectations differ from facultative prescriptions, from the ethical dilemmas can arise solutions which do not always satisfy all parts involved.
Case description: The parents of a 27-year-old woman with intellectual disability request oral treatment of the patient due to pain, dental plaque and gingival bleeding, which they attribute to periodontal disease. The non-collaboration of the patient impeded clinical examination. The patient verbally states that she does not wish to undergo treatment. Due to the described symptoms, and after signing the informed consent, it is agreed to perform the treatment under general anaesthesia. Gingivitis was diagnosed and a dental prophylaxis was performed. Oral hygiene instructions were reviewed and a monitoring was carried out.
Discussion: The autonomy of the patient and the parents' right to decide were imposed in this case on the principle of beneficence and the medical indication. To avoid the sanitary paternalism, a treatment whose risks exceeded the benefits obtained was performed.
Conclusions/Clinical significance: An individual assessment of cases that raise ethical dilemmas will facilitate decision making. In spite of the therapeutic purpose of the treatment, in case of doubt, the Clinical Ethics Committees should advice the professionals.

P015
Orthodontic Treatment: Esthetic Aligner in a Patient with Muscular Distonya
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Introduction: Orthodontic treatment performed with fixed appliances could become a problem for patients who suffer muscle spasms. Soft tissue rubbing with the device can cause serious injury. A treatment with esthetic aligners could be an option. They are removable and made of thermoplastic resin.
Case description: A 29 years-old female who suffers from idiopathic generalized muscular dystonia and uses a pulse generator to prevent muscle spasms (deep brain stimulation or DBS) is referred to orthodontic practice with esthetic and functional concerns. Patient presents a skeletal and dental Class II, anterior and posterior open bite occluding only on left anterior incisors and difficulties for swallowing. The orthodontic technique included an esthetic aligner (INVISALIGN®).
Discussion: Patients with pathologies at the level of the central nervous system require special treatment. Using a removable appliance may help to improve esthetics and function. In this case, dental compensation was performed without modifying the skeletal class. Patient had no injuries of the oral mucosa during the treatment. Regarding the placement of the transparent aligners, patient was totally independent.
Conclusions/Clinical significance: This case highlights the potential of a relatively easy treatment technique with a removable appliance. Using aesthetic aligners may be an alternative to fixed multibrackets for patients with generalized dystonia.

Poster Session 04 | 29.08.2017, 09:30–10:30 | Poster Display 4

Theme: Oral Medicine

P016
Correlation between the Values of Urea and Creatinine, in Saliva and Serum in Patients with Chronic Kidney Disease
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Aim: To determine correlation between the values of urea and creatinine, in saliva and serum in different stages of the patients with chronic kidney disease (CKD).
Material and methods: In order to realize the objective, we carried out a research which included 32 patients in a different stage of CKD from PHI UC of Nephrology in Skopje. Also, a control group, a group of 20 healthy individuals was formed. A saliva sample was taken from all the examinees, using the spitting method. The values of the following parameters were determined in the saliva, using the adequate methods: urea (UREA/BUN-UV), creatinine (JAFFE). The research was carried out in the biochemical laboratory of the Faculty of dentistry, with the spectrophotometer – ULTROSPEC 1000. In the laboratory of clinical biochemistry, blood was taken from v. cubitalis from the patients with CKD, and the values of creatinine and urea were determined in the serum, with same methods. Pearson's coefficient of correlation between variables was used for the statistical analysis.
Results: The results showed statistically significant higher values of the examined salivary parameters in patients with CKD in comparison with the examinees from the control group. We registered statistically significant positive correlation between the values of urea and creatinine, in saliva and serum.
Conclusion: The values of degradation products were significantly increased in the saliva from the patients with CKD.
Keywords: CKD, saliva, urea, creatinine.

P017
NBF- GINGIVAL GEL in the Treatment of Traumatic Lesion of the Tongue
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Introduction: Products based on nanotechnology, containing antioxidants, are excellent adjuvant in the healing of oral lesions. NBF gingival gel which contains propolis, vitamin C and E in the form of nano emulsion.

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Case description: Patient examined referred that two days ago on the tongue lesion appeared accompanied with pain, which caused difficulty in eating and speech. Medical history noted that in negligence he injured the tongue with sharp razor.
Discussion: Examination of the tongue showed the presence of two irregular long fissures on the left lateral half followed by redness, infiltration and oedema. One was longitudinally placed with dimensions 0.5 cm in width and 3 cm, in length and 0.5 cm in depth. The other was placed transversely, smaller dimensions (length 1.5 cm, and the width and depth 0.5 cm). Patient began with topical application of the NBF gingival gel three times a day after meals. After 5 days of treatment partial withdrawal of redness, swelling and infiltration was noted. Initiated process of epithelialization reduced the width and depth of the fissures for 0.3 mm. The length of the bigger fissure cut to 2 cm, and smaller one less than 1 cm. Pain was moderate. After 7 days erythema was completely withdrawn, swelling visibly reduced and the depth and width of two fissures were barely measurable. The length of both fissure was reduced nearly twice. Pain was weakly present during the meals.
Conclusions/Clinical significance: NBF gel has an positive effect on a traumatic tongue fissures causing fast epithelialisation, without redness, which completely withdraw after 10 days.

P018

Investigation of the Cell-based Therapy Approach for Temporomandibular Joint Osteoarthritis

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Aim or purpose: To evaluate the therapeutic effect of encapsulation of mesenchymal stem cells and primary chondrocyte in encapsulation material consisting of hyaluronic acid (HA) and collagen combination on temporomandibular joint (TMJ) osteoarthritis.
Materials and methods: Mesenchymal stem cells were isolated from the oil and separated on a flow cytometer (with the aid of CD44, CD49c and CD151 markers) and primer chondrocytes were isolated from the rabbit joint cartilage (approval from Kırıkkale University Animal Experiment Ethics Committee). The effects of HA-collagen encapsulation materials on stem cell and primer chondrocytes were investigated. For this purpose, parameters such as glycosaminoglycan synthesis, collagen type I and type II synthesis, apoptosis, necrosis, proliferation, cytotoxicity and cell viability was evaluated using histological, histochemical, immunohistochemical, PCR, Western Blot, spectrophotometric, Alamar Blue, Annexin V, real time cell analysis. Data were analyzed using 1-way ANOVA and Bonferroni test ($p < 0.05$).
Results: It was observed that HA-collagen encapsulation material was not cytotoxic, the cells significantly maintained their viability in the encapsulation material. The activity of encapsulation material and metabolic activities of the cells began to decrease from the 8th day. In real-time PCR evaluations showed that collagen types I and II, Aggrecan, SOX9 expressions were increased in the first 8 days.
Conclusions: HA-collagen encapsulation material was considered to be a biocompatible encapsulation material that contributes to differentiation of mesenchymal stem cells and the preservation of the chondrocyte phenotype and the survival of the chondrocytes. This cell-based therapy approach can be used to treat TMJ osteoarthritis after *in vivo* animal studies.

P019

Protective Effect of Bromelain on Corrosive Burn Tongue in Rats

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Aim or purpose: Especially in childhood and suicide incidents, corrosive burns are very common on tongue tissue. Treatment options are limited in severe burns and surgical interventions may result in scar formation. Thus, this study was aimed to investigate the protective effects of non-surgical option, Bromelain, which can be extracted from natural sources, on corrosive burns.
Materials and methods: In our study, Wistar Albino rats weighing 200–250 g were used in both sexes. The rats were divided into 3 groups. All applications were performed orally. In Control Group (CG) only saline application, in Corozif Burn Group (CB) 10% NaOH application and in Corrosive Burn + Bromelain Group (CB+B) 10%NaOH application followed by Bromelain administration (20 mg/kg) were performed. 10%NaOH was used to induce. Bromelain was used to treat corrosive burn for 24 hours. The rats were decapitated after 24 hours. Measurements of proinflammatory cytokine(TNF-α, IL-1β) levels were performed in blood samples. Malondialdehyde (MDA), Glutathione (GSH), Luminol CL and Lucigenin CL levels were studied in damaged tongue tissue. The parameters were determined by one way analysis of variance (ANOVA) and the Tukey test was used for binary comparisons ($p < 0.05$).
Results: CB tissues were examined and it was investigated that Luminol CL and Lucigenin CL activities, MDA, TNF-α and IL-1β levels were significantly increased but Glutathione levels were significantly decreased compared to the CG. In the group CB+B, all levels significantly dropped and became close to the CG.
Conclusions: In conclusion, Bromelain with its antiinflammatory and antioxidant properties could be a potential therapeutic agent to protect against corrosive damage of tongue.

P020

Papillomavirus Infecting a Potentially Malignant Disorder in the Oral Cavity

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Introduction: Oral Lichen Planus (OLP) is a chronic mucocutaneous inflammatory disease. It is considered to be a potentially malignant disorder. Papillomavirus (HPV) is an oncogenic virus from the *Papovirus* family. Lesions overinfected by papillomavirus are thought to be more prone to become malignant.

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Case description: A 60-year-old female patient was referred to our oral medicine department by her gastroenterologist complaining of pain, discomfort in the right lateral border of the tongue. Their presumptive diagnosis was burning mouth syndrome.
On intraoral examination, we found out a white diffuse plaque, located both in the buccal mucosa and in the lateral border of the tongue. The lesions were bilateral but not symmetrical.
An incisional biopsy was performed and the final diagnosis was oral lichen planus overinfected by HPV.
Discussion: Oral Lichen Planus etiology remains unknown. Predisposing and triggering factors include genetic background, systemic diseases, drugs intake, autoimmune disorders and stress.
Conclusions/Clinical significance: The dentist plays an important role in the diagnosis and proper management of potentially malignant disorders. Since dysplastic changes may arise, we need to schedule follow-up appointments every 6 months, in addition to instructions for prompt follow-up in the event of clinical recurrence. Identification and elimination of multifactorial agents associated with OLP is essential.

Poster Session 05 | 29.08.2017, 10:45–11:45 | Poster Display 1

Theme: Implantology

P021
Comparative Analysis of Methods of Increasing Keratinized Attached Peri-implanted Gingiva
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Aim or purpose: Improving the efficiency of surgical treatment patients with insufficient width of keratinized attached gingiva in the implant.
Materials and methods: Our study included 58 patients, aged from 18 to 75 years, with insufficient width of keratinized attached gingiva in the implant, who had dental implantation surgery. Depending on the treatment, patients were divided into 3 groups by random sampling, and had an equal opportunity to receive treatment in any of the test methods: apical displacement of the split mucosal graft (group 1), apical displacement of the split mucosal flap in conjunction with a transplantation of free gingival graft (group 2), apical displacement of the split mucosal flap in conjunction with the closing of the wound by collagen matrix (group 3). Statistics methods were used: coefficient of variation limits of the series, Student t-test etc.
Results: The largest increase of keratinized attached gingiva was observed in patients from 2 group (4.8 ± 0.3 mm), 3 group (3.0 ± 0.3 mm), 1 group (2.0 ± 0.3 mm). Morphological study of biopsies gingival mucosa after different plastic operations showed that all methods of plastics cause regeneration of stratified squamous keratinized epithelium and subepithelial mucosal own lamina.
Conclusions: Surgical techniques increasing keratinized attached gingiva improve the effectiveness of patient care. The use of collagen matrix can be recommended as a method of choice to increase the width of keratinized attached gingiva.

P022
Implant Placement within Autogenous Bone Ring Graft: A Case Report
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Introduction: Unfavorable local condition of the alveolar ridge as a result of atrophy, which may cause insufficient bone volume, may constrain implant placement. Autogenous grafts are the most predictable graft materials used for reconstruction of complex alveolar defects. However, reconstruction with rectangular shaped block graft requires at least a four-month reformation period after surgery. Treatment period which prolonged by a second operation for implant placement and its healing duration, may be shortened by "ring block technique" which is used as single stage augmentation with simultaneous implant placement.
Case description: A 23-year-old female patient referred to Hacettepe University Faculty of Dentistry due to request for prosthetic rehabilitation of extracted tooth 11. The evaluation of the bone volume with CT was showed inadequate horizontal dimension for the implant placement. Simultaneous implant placement using autogenous bone ring graft was planned.
Socket was prepared with a bur. Bone ring within a implant osteotomy was harvested from the chin with a trephine bur. Bone ring was placed in the recipient socket. Implant drilling was performed to prepare the bone apical to the ring through its central osteotomy. Implant was screwed within the graft and the apical bone.
After 4 months from surgery, implant was loaded. Clinical and radiographic examinations after first year of loading, were displayed successful outcomes.
Conclusions/Clinical significance: Results of this case have showed that autogenous bone ring grafting technique may be a reliable alternative method for the management of severely defective sockets.

P023
6 mm and 8 mm Dental Implants In Mandible – 12 months Follow-Up
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Aim or purpose: Due to the indisputable progress and improvement of the implant surface the implant length can be reduced with maintaining proper stability and functionality. *Nowadays* short dental implants are considered to be an alternative method of treatment to bone augmentation procedure at the sites of reduced alveolar ridge height. The aim of the study was to compare different length implants for single tooth replacement in a reduced mandibular alveolar crest.
Materials and methods: 42 partially edentulous patients with residual posterior mandibular alveolar bone were divided into two groups according to the method of treatment provided. G1 (n = 21) patients had 8 mm dental implants (L8Ø4 mm) and G2 (n = 21) patients had 6 mm implants (L6Ø4 mm) placed.

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All implants were loaded with single non-splinted crowns. Before the surgery and after 12 months radiological examination (CBCT, RVG) was performed. Primary and secondary implant stability using Osstell ISQ®, marginal bone loss (MBL) and height of the keratinized tissue (HKT) were measured.
Results: A good result in a primary and stability was achieved regardless of the implant length. Primary stability was significantly higher in the G2 compared to the G1 there was no significant differences in secondary stability between the groups. No significant difference in MBL between groups was found. No correlation between implant length and MBL, and between MBL and HKT was found.
Conclusions: According to obtained results the use 6 mm and 8 mm can be considered a predictable method of treatment for patients with partially edentulous posterior mandible.
Acknowledgement: The study supported by **AstraTech D-2010-083**.

P024
Evaluation of the ISQ Values to Predict Implant Failure
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Introduction: The implant osseointegration concept was defined as direct, structural and functional contact between the living bone and a functionally-loaded implant's surface. Primary implant stability plays a keyrole to achieve osseointegration. The reason for early failure of implant can be lack of sufficient vital bone and osseointegration. Resonance frequency analysis (RFA), aim to provide an objective measure of implant stability and osseointegration.
Case description: This is a retrospective analysis of a case series of the survival of 300 dental implants that were inserted routinely in our clinic during last 1 year. Failed implants were selected and examined and submitted with ISQ values at placement. 5 early implant failures observed to be inserted 5 months after augmentation procedures such as ramus grafts, sinus lift and ridge split. One of failed implant was inserted to type 4 soft bone. The ISQ values at 2 failed implants were between 69 and 80. 4 failed implants had ISQ values between 39 and 65.
Discussion: In cases of successful healing, bone is formed at the implant surface, which creates a strong interlock between the bone and implant surface. All implant failures occured early in conjunction with bone augmentation and during the healing phase before functional loading.
Conclusions/Clinical significance: RFA has been introduced to provide an objective measurement of implant primary stability, even though it may not represent a true value for bone-implant contact. Implants inserted to augmented bone are at higher risk and should require a tighter and more careful follow-up during the healing period despite of high ISQ values.

P025
Minimally Invasive Implant-Prosthetic Treatment of Geriatric Patients
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Geriatric patients with difficult conditions in the prosthetic base usually accept a simple surgical procedure whose extent is limited as much as possible. Therefore, the slogan *minimum invasion for maximum acceptance (MIFORMA)* appears to perfectly express the idea for older patients. The aim of this presentation is to outline the possibilities of implant-prosthetic treatment with a low number of intraosseous implants for that group of patients. An extensively atrophied prosthetic base often found in the elderly make is possible to safely use the anterior, interforaminal, region of the edentulous mandible without prosthetic base augmentation. The insertion of even a small number of implants to support and retain an overdenture that reduces the loading of a poorly resilient and trauma-prone mucous membrane may produce a far more effective functional outcome in comparison with a traditional restoration. The use of tree, two or even one abutment can improve the function of the masticatory organ while employing the direct support of the bone in order to avoid causing trauma to soft tissues. The patient's perception of masticatory forces with a reduced non-physiological loading of the oral mucosa contributes to a higher quality of his or her life. The authors discuss the possibility of using various precision retention elements for overdentures supported by a low number of intraosseous implants, which to a certain degree limit the unfavourable tension around the implants and may reduce the loading of prosthetic base soft tissues as well as prevent horizontal denture displacement.

Poster Session 06 | 29.08.2017, 10:45–11:45 | Poster Display 2

Theme: Endodontics

P026
Cervical External Resorption and Complex Coronary Restoration: About a Case
Chafika Mehdid, Imene Farsi, Nedjma Boudghene Stambouli
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Introduction: The external cervical resorptions or inflammatory resorptions constitute a loss of cementary and dentinal substance thus making their treatment difficult, especially regarding the longevity and the waterproofing of the coronary restoration.
Case description: It is a case of trauma going back to 11 years on a central incisor superior necrosis and external resorption were diagnosed and treated according to a specific protocol.
Discussion: The therapeutic protocol used cannot be considered a gold standard because each resorption presents a variable topography. It is a particular case of cervical resorption of medium extent which required endodontic and restorative treatment with low postoperative period which remains a radiographic and clinical monitoring necessary to validate the therapeutic.

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Conclusions/Clinical significance: The management of the resorptions is complex requiring endodontic therapy in the case of communication with the pulp tissue and a restoration as waterproofing as possible of the loss of substance.

P027

Comparison of Dentinal Tubule Penetration of Three Root Canal Sealers by Scanning Electron Microscope

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Aim or purpose: For the long-term success in the root canal therapy, the canal system should be sealed completely.
The purpose of this study was to compare penetration depth into dentinal tubules of three different types root canal sealer: Nano Zno based sealer, Zno based sealer and epoxy resin based sealer by means of scanning electron microscopy.
Materials and methods: The crowns of twenty human, single rooted premolars were removed to equal the remaining length of each root.
Following completion of root canal preparation, the teeth were randomly divided into three groups of six teeth and obturated with gutta – percha by a lateral condensation and mentioned sealers. Two teeth filled without sealer and used as controls. 3 days later all the specimens were sectioned perpendicular to the long axis at 4 and 8 mm from the anatomic apex and prepared for observation using SEM.
Results: The mean value of the penetration depth of epoxy resin based sealer in middle sections was significantly higher than that of Zno based sealer, but was not significantly more than Nano Zno based sealer.
The penetration depth of sealer in apical sections was not significantly different between three groups.
Conclusions: Epoxy resin based sealer and nano Zno based sealer have the same dentinal tubule penetration.

P028

The Fate of Stem Cells During Rat Coronal Pulp Engineering

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Aim or purpose: We have recently developed a method of coronal pulp tissue engineering of pulpotomized rat molars involving implantation of rat mesenchymal stem cells (MSCs). This procedure resulted in pulp-like tissue formation and enabled us to perform standardized time-course analysis (1.2). In this study, MSCs were transfected with LacZ to evaluate the fate of the stem cells after implantation.
Materials and methods: All experiments were approved by the Animal Care Committee of Niigata University. On the day before implantation, MSCs were nucleofected with pVectOZ-LacZ plasmid (encodes ß-galactosidase) by electroporation. Then, the LacZ-transfected MSCs were implanted with biodegradable preformed scaffold-hydrogel constructs into pulpotomized pulp chambers of maxillary first molars of Wistar rats. Cavities were sealed with mineral trioxide aggregate (Dentsply Tulsa Dental). After 3, 7, and 14 days, samples were processed for ß-galactosidase staining.
Results: At 3 days, ß-galactosidase-positive cells were mainly distributed along the scaffolds. At 7 and 14 days, when the pulp-like tissue was formed, a number of ß-galactosidase-positive cells were observed in the implanted area. Interestingly, majority of odontoblast-like cells under the dentin bridge expressed ß-galactosidase.
Conclusions: These results suggested that MSCs are capable of differentiating into cellular components of the engineered pulp-like tissue including odontoblast-like cells.
References:
1. Ito T, *et al*. Dental pulp tissue engineering of pulpotomized rat molars with bone marrow mesenchymal stem cells. Odontology, in press.
2. Sueyama Y, *et al*. Implantation of endothelial cells with mesenchymal stem cells accelerates dental pulp tissue regeneration/healing in pulpotomized rat molars. J Endod, in press.

P029

A Plant Sprout Budded into the Root Canal: Case Report

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This is a case report describes a persistent sinus tract (ST) associated to a traumatized immature tooth with a sprout plant growing inside the root canal (RC). A 10 years-old boy was refereed for endodontic treatment of his traumatized left maxillary central incisor. The clinical examination revealed the presence of an advanced sinus tract in the vestibular attached gingiva of the referred tooth. Cold sensitivity and periapical tests revealed negative responses. Radiographic exam showed incomplete apex formation associated to an extensive radiolucency in the periapical area. The endodontic treatment, through apexification, was performed using irrigation with 20 ml of 1.5% sodium hypochlorite (NaOCl) and calcium hydroxide [$Ca(OH)_2$] as intracanal medication (ICM). After 21 days, the patient returned with a slight regression of the ST, conducing to the reinsertion of the ICM. The patient returned after 14 days presenting a swollen ST. A 20 ml of 5.25% NaOCl was then used to irrigate the RC associated to a gentle mechanical instrumentation. During the RC preparation, surprisingly, a green sprout plant was removed from the RC. A $Ca(OH)_2$ paste was carried out to the RC and periodic replaces were performed during a 6 months follow-up. After this period, a total regression of the ST was observed, associated to periapical lesion healing and the beginning of an apical bridge formation. The patient reported no symptomatology. Collectively, persistent root canal infection may be associated with uncommon circumstances requiring meticulous anamnesis and accurate clinical exams allowing prompt detection of signals related to the persistent infection.

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P030

Comparison of Antimicrobial Effect of Three Different Root Canal Sealers

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Aim or purpose: Survival or penetration of microorganisms following the completion of an endodontic treatment is the main cause for treatment failure. The present study aimed to evaluate the antimicrobial efficacy of a Nano Zno-Based sealer, Zn0-Based sealer and Epoxy Resin-Based sealer.
Materials and methods: The study examined the antimicrobial efficacy of the mentioned sealers in the presence of the following microorganisms: Enterococcus faecalis; Streptococcus mutans; Escherichia coli; Candida albicans; and Staphylococcus aureus, using a direct contact test. The antimicrobial efficacy of all three sealers was monitored at zero-time, 2- hour, 14-hour, 48-hour, and 7-day intervals. The findings were statistically analysed employing the Kruskal–Wallis test.
Results: It was observed that all of the three sealers involved in the study exhibited antimicrobial activity against all microorganisms used in this experiment. As for Nano ZNO, the sealer reduced all colonies of the microorganisms involved in this study to zero at zero time, except for E. faecalis colony which was reduced to zero after 2 hours. However, the other two sealers Zno-Based and Epoxy Resin-Based failed to completely eliminate the E. faecalis colony during the entire observation period. Also, Nano ZNO-Based showed a significant advantage over the other two sealers by effectively reducing the Candida albicans colony at zero-time and 7-day intervals.
Conclusions: According to this study Nano ZNO-Based sealer proved to possess a greater antimicrobial efficacy compared to Zno-Based and Epoxy Resin-Based sealers.

Poster Session 07 | 29.08.2017, 10:45–11:45 | Poster Display 3

Theme: Oral Pathology

P032

Pyogenic Granuloma: A Case Report

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Introduction: Pyogenic granuloma (PG) is a benign soft tissue tumor caused by local irritation, poor oral hygiene, calculus, traumatic injury or hormonal factors. It frequently found on gingiva in oral cavity. It may occur in both sexes. Clinically, PG is a smooth or lobulated, generally red in color, sessile or stalked lesion structure. After phase 1 periodontal therapy, it is treated with surgical excision. The aim of this case report is to evaluate treatment of pyogenic granuloma in the upper right anterior region of a 46-year-old male patient.
Case description: A-46-year-old male patient, applied to our clinic with complaints swelling in the gingiva and bleeding on the right upper region. An intraoral examination, the lesion was well-circumscribed, pedunculated, pink and 0.5 × 0.5 cm in size. After phase 1 periodontal treatment, the lesion was taken with excisional biopsy.
Discussion: Biopsy helps rule out malignant or cancerous medical conditions from Pyogenic granuloma. Result of histopathological examination of the mass, pyogenic granuloma was diagnosed. 6-month follow up showed absence of recurrence.
Conclusions/Clinical significance: After excision recurrence occurs in 3–23% of the lesions. Therefore, postoperative follow-up is required. The lesion should be totally excised.

P033

Oral and Maxillofacial Pathology Services in New Zealand

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Aim or purpose: The aim of this study was to profile the diagnostic service provided by the sole specialist oral pathology laboratory in New Zealand over a 10-year period.
Materials and methods: Cases from 2007 to 2016 were retrieved and categorised into 5 groups based on the histogenesis and the tissue primarily affected: Odontogenic/Dental, Epithelial, Connective tissue/Mesenchymal, Salivary gland and Miscellaneous lesions. The groups were sub-classified to examine the prevalent and important diagnoses.
Results: A total of 24175 cases were recorded in the 10-year period. Connective tissue lesions were most common (31%), followed by Odontogenic (30%), Epithelial (18%), Miscellaneous (15%), and Salivary gland (6%) lesions. In the Connective tissue Group, reactive lesions were most prevalent (80%); neoplasms constituted 4% of which a further 12% were malignancies. In the Odontogenic Group, cysts accounted for 51%, followed by inflammatory (35%), developmental (8%) and neoplastic (4%) lesions. Reactive lesions were the most common type in the Epithelial Group accounting for 30%, followed by infectious (25%) and immune-mediated (23%) processes. 289 cases of squamous cell carcinoma were recorded. Over 90% of salivary gland lesions were non-neoplastic. In this cohort, pleomorphic adenoma was the most common benign salivary gland neoplasm and polymorphous low-grade adenocarcinoma was the most common salivary gland malignancy.
Conclusions: This is the first report describing the prevalence of oral and maxillofacial lesions diagnosed by the sole specialist diagnostic centre in New Zealand over an extended period. The data reflect the specialist nature of the laboratory and the specificity of its clientele.

P034

Heck's Disease: A Rare Case Report of a Tunisian Male

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Introduction: Focal epithelial hyperplasia (FEH), or Heck's disease, is a rare virus induced pathology caused by human papillomavirus (HPV) that mainly affects the oral mucosa.

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Besides the paucity in the literature concerning this disease, it has never been reported in the Tunisian population.
Case description: A 50 years old Tunisian male was referred to the department of oral medicine at Fattouma Bourguiba's University Health Center of Monastir Tunisia with multiple painless papular lesions of the lips. Clinical examination revealed soft, sessile, pink, smooth-surfaced nodules. A biopsy was performed.
Histo- pathological features confirmed the diagnosis of FEH. No treatment was established as spontaneous remission has been observed.
Discussion: Etiologies and pathogenesis of Heck's disease are not entirely known.
A viral etiology has been proposed as well as a genetic predisposition, immune suppression, poor hygiene and malnutrition. An increased association of FEH in HIV-positive patients has been observed but the relationship is yet to be clarified.
The clinical and microscopic findings were sufficient to establish the accurate diagnosis of FEH; however; PCR analysis is considered to be the gold standard in the detection of HPV and could confirm the incrimination of a viral component.
Spontaneous remission of FEH can be observed.
Removal of the lesions may be managed by: scalpel surgery, cryotherapy, laser or by chemical agents.
Conclusions/Clinical significance: Clinicians must be aware of such rare pathologies and should establish a prompt diagnosis and plan an appropriate treatment according to esthetic and functional purposes.

P035
Noma: Case Report in South of Cameroon
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Introduction: NOMA is a rapidly progressing, necrotizing stomatitis infection responsible for tissue destruction of the orofacial region. It is found mainly in endemic areas of the sub-saharan african countries.
Case description: A two years old male patient, weight of 10.4kilos, was referred to take care of an ulceration of the right cheek, with six weeks of evolution.
In addition to an acute malnutrition, the lesion showed a loss of substance of 2 to 3 cm in diameter, affecting muscular and subcutaneous tissue structures; additionally, a satellite lymphadenopathy was found. A blood transfusion and a protein count were performed.
The treatment consists of administration of Augmentin® (Amoxicillin and Clavulanic Acid) 100 mg/kg/24H and of Flagyl® (Metronidazole,) 30 mg/kg/24H. Also, a nutritional support was given four times a week in the pediatric ward with Plumpy'Nut® (Nutriset). Finally, a plastic surgery was performed to repair the injured structures.
Discussion: Noma it almost always occurs in a context of malnutrition, where the presence of bacterial and polymicrobial component is constant. The natural curse begins with a gingivitis evolving to an ulceronecrotic periodontitis, from here we can end up with a diagnosis of Noma. Its clinical characteristic and presentation requires adequate management, as it causes death in near 70–90% of untreated cases.
Conclusions/Clinical significance: Noma is a pathology that is part of our context. And the correction of malnutrition, the use of broad spectrum antibiotics and reconstructive surgery constitute the therapeutic modality to follow.

Poster Session 08 | 29.08.2017, 10:45–11:45 | Poster Display 4

Theme: Materials

P036
Determination of the Free Radical Scavenging and Antimutagenic Activity of Mineral Trioxide Aggregate, Root Canal Treatment Material Used in Dentistry
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Aim or purpose: The purpose of this study is to determine the role of Mineral Trioxide Aggregate (MTA) as antimutagenic and free radical scavenging agent, with respect to root canal treatment.
Materials and methods: Free radical scavenging activity was determined according to the elimination of DPPH radicals. Antimutagenesis studies were performed with the Salmonella/microsome mutagenesis test. These assays were done on Salmonella typhimurium TA98 and TA100.
Results: MTA has low radical scavenging activity with a total of 8.95%. This mixture showed strong antimutagenic effects at all of the tested concentrations.
Conclusions: Although there have been several studies that discuss MTA having antifungal and antibacterial properties, we believe this will be the first report to show the drug's antimutagenic and radical scavenging properties. Overall, MTA showed great antimutagenic attributes, standing as a significant factor with respect to dentistry.

P037
Misdiagnosed Thermal Sensitivity of Teeth: Therapeutic Goals and Treatment Considerations
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Introduction: While the role of occlusion in the progression of periodontal disease and the loss of hard tooth structure had been discussed and studied for over than 100 years, it had been and remains a controversial subject. Occlusal trauma was defined as an injury to the attachment apparatus as a result of excessive occlusal forces 25 years ago. With the daily complications of misdiagnosed thermal stimulus of teeth sensitivity, we come to the idea of using the bio-active resin in management of non-carious cervical lesions.
Case description: A 45-year-old female patient was presented complaining of sensitivity related to her lower left premolars with repeated fallen of cervical restorations. Occlusal analysis and correction of occlusal errors was performed prior to the use of bio-active resin in restoring the mentioned teeth.
Discussion: In comparison to earlier studies recommending the use of composite resin and glass ionomer filling materials; bio-active resin showed to deliver all the advantages of glass ionomers in a strong, resilient resin matrix that will not chip or crumble. It chemically bonds to teeth, seals against bacterial microleakage, releases more, calcium, phosphate and fluoride and is more bioactive than glass ionomers, and is more durable and fracture resistant than composites, and glass ionomers.
Conclusions/Clinical significance: Bio-active resin seems to be a promising therapeutic approach in cases of non-carious cervical lesions.

P038
Effect of Silorane Based Composite on Adhesion, Survival and Growth of Oral Bacteria and Fungi
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Aim or purpose: Not provided by author.
Materials and methods: The micro flora around and beneath restorations is an important factor of restoration failure. The antimicrobial activity was evaluated against the most common oral organisms: *Streptococcus mutans* and *Lactobacillus acidophilus* (antibacterial) and *Candida albicans* (antifungal) using Agar disc diffusion method and Broth macro dilution method (MIC determination) on silorane based and methacrylate based composite. In addition, its adhesion and penetration potential were also evaluated.
Results: Both the composite materials showed bactericidal activity against *S. mutans* and *C. albicans* but were resistance against *L. acidophilus*. Higher antimicrobial effect was seen with silorane based composite than methacrylate based. Surface adherence and penetration to methacrylate based composite was more when compared to silorane based composite, though they were not statistically significant.
Discussion: The presence of yttrium fluoride (76%) in its composition and high surface hydrophobicity of silorane based composite contributes to the antimicrobial activity and low adhesion potential.
Conclusion: The antimicrobial activity and low adhesion potential of silorane based composite may potentially improve the longevity of direct fillings and reduce recurrent caries, hence, may contribute to clinical success of this material.

P039
Effect of H_2O_2 Concentration on Surface Properties of Ni-Cr Alloys
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Aim or purpose: To study the effect of different concentrations of hydrogen peroxide (H_2O_2) on the surface properties of Ni-Cr alloys.
Materials and methods: Surface roughness and surface morphology of Ni-Cr alloys were evaluated by surface profiler and scanning electron microscopy after immersed in different concentrations of H_2O_2(0 wt %, 3.6 wt %, 10 wt %, and 30 wt %) for 112 h, and surface corrosion products of Ni-Cr alloys were analyzed by photoelectron spectrograph after immersed in 0 wt % and 30 wt % H_2O_2.
Results: The pitting corrosion of different size in the surface of all Ni-Cr alloys happened non-homogeneously, the corrosion in the surface of Ni-Cr alloys was most obvious after immersed in 30 wt % H_2O_2. Furthermore,the elements of Be, Ni, Cr, C and O on the surface of Ni-Cr alloys were detected after immersed in both 0 wt % and 30 wt % H_2O_2, and the surface oxides were mainly NiO. Compared to those Ni-Cr alloys immersed in 0 wt % H_2O_2, the element content of Ni, Cr, C and O of those Ni-Cr alloys immersed in 30 wt % H_2O_2 decreased, while the element content of Al and Be increased.
Conclusions: As the concentration of H_2O_2 increased, the surface roughness of Ni-Cr alloys increased, surface morphology showed different degrees of corrosion. And surface corrosion products changed a little and the degree of oxidation was less apparent after immersed in 30 wt % H_2O_2 than in 0 wt % H_2O_2.

P040
Shear Bond Strength of Universal Adhesives Photopolymerized at 4 mm
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Aim or purpose: To assess dentin bonding effectiveness of two universal adhesives photopolymerized at 4 mm of distance using two bulk-fill composites and two adhesion strategies.
Materials and methods: Two surfaces of 60 human molars were sliced to expose dentin (n = 120) and were randomly assigned to eight groups according to adhesive used (without or with 10-MDP monomer), adhesion strategy (etch-and-rinse or self-etch) and resin composite (nanohybrid or nanofiller):
Group1(n = 15): nanohybrid,no 10-MDP,etch-and-rinse.
Group2(n = 15): nanohybrid,no 10-MDP,self-etch.
Group3(n = 15): nanohybrid,10-MDP,etch-and-rinse.
Group4(n = 15): nanohybrid,10-MDP,self-etch.

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Group5(n = 15): nanofiller,10-MDP,etch-and-rinse.
Group6(n = 15): nanofiller,10-MDP,self-etch.
Group7(n = 15): nanofiller,no 10-MDP,etch-and-rinse.
Group8(n = 15): nanofiller,no 10-MDP,self-etch.
Universal adhesives were light cured at 4 mm following the manufacturer′s instructions. Resin composites were placed into plastic cylinder (4 mmÆ×4 mm) in a one-increment and photopolymerized with a LED lamp. Teeth were stored 24 hours at 37°C. Shear bond strength was measured using a universal testing machine (cross-head speed=1 mm/min). Fracture pattern was observed with a stereoscopic microscope. Data were statistically analyzed by ANOVA and Games-Howell's post-hoc tests.
Results: Group4 presented the highest dentin bond strength (12.61 ± 7.35 MPa) and group 7 presented the lowest bond strength (3.65 ± 2.43 MPa) ($p < 0.05$). Self-etch groups showed better adhesion than the etch-and-rinse groups. Groups with 10-MDP monomer showed better results than no-10MDP groups, regardless of adhesion strategy. Instead, it produced more adhesive failures than cohesive.
Conclusions: Self-etch mode and adhesives containing 10-MDP monomer showed the best bond strength to dentin. There was no relationship between fracture pattern and adhesive used. In general, both universal adhesives photopolymerized at 4 mm of distance scored low bond strengths.

Poster Session 09 | 29.08.2017, 12:00–13:00 | Poster Display 1

Theme: Periodontics

P041
Digital Bone-Gauge Compared with Caliper for Measuring Alveolar Ridge Width
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Aim or purpose: An efficient, safe, affordable and easily accessible measuring instrument for quantitative assessment of bone prior to dental implant placement enables more accurate treatment planning. This study sought to assess the efficacy of a newly designed digital bone gauge for measurement of bone width with 0.1 mm accuracy in comparison with a digital caliper.
Materials and methods: Using CATIA software, three-dimensional (3D) model of the instrument was designed and its experimental version was fabricated in two models and tested on an edentulous alveolar ridge model. The efficacy of the instrument was assessed by comparing the values obtained by the designed bone gauge with direct measurements made by a digital caliper. The buccolingual width of the edentulous ridge was measured at the crestal level and at 1, 2, 3 and 4 millimeters apical to the bone crest by the designed bone gauge and digital caliper and the intraclass correlation coefficient (ICC) of the values was calculated.
Results: Virtual and experimental models of the instrument were designed and patented. The designed instrument was successfully capable of measuring bone width with 0.1 mm accuracy. The ICC with 95% confidence interval (CI) values at 1, 2, 3 and 4 millimeters apical to the bone crest and at all levels were calculated to be 0.973, 0.994, 0.987, 0.998 and 0.999, respectively.
Conclusions: The designed digital bone gauge can efficiently measure bone width at different levels with high accuracy. It can provide valuable and reliable information about bone width at initial clinical examination.

P042
Role of Stem Cell Markers in the Diagnosis of Periodontitis
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Aim or purpose: To compare the levels of salivary CD44 in periodontally diseased smokers and non-smokers, and compare them with healthy subjects.
Materials and methods: A total of 40 patients, were divided according the presence or absence of the disease into two groups: Group I (Control group): 10 patients. Group II (Periodontally diseased): 30 patients, divided into two subgroups: Group II A (Smokers): 15 and Group II B (Non-Smokers): 15.
Patients who presented with chronic periodontitis identified via The plaque index, gingival index (GI), probing depth and clinical attachment level using Williams periodontal probe, along with the intraoral periapical radiographs.
The saliva samples were collected from each patient using Navazesh's Unstimulated method and testing the CD44 levels using ELISA. SPSS software used for all statistical analyses.
Results: The higher mean of CD44 13.5 was recorded in (Group I) followed by (Group II B) 10.3, and the lower mean was recorded in (Group II A) 6.0. The difference in mean CD44 between the groups was found to be statistically non significant ($p > 0.01$).
Conclusions: Based on the finding of the present study it could be concluded that the mean level of CD44 was higher in healthy group more than that in nonsmokers chronic periodontitis group, and the lower mean was recorded in smokers-chronic periodontitis group. It may be suggested that smoking increase periodontal destruction and decrease the regeneration capacity of the tissue and this may lead to decrease the level of salivary CD44.

P043
Clinical Parameters and CRP Levels in a Generalized Aggressive Periodontitis Patient
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Introduction: Generalized aggressive periodontitis (G-AgP) is the most severe and destructive form of periodontitis. It usually starts under age of 30. It's difficult to recover tissue health with sole periodontal treatment. Full-mouth ozone treatment and monitoring acute phase proteins like C-reactive protein (CRP) might be beneficial in treating G-AgP.
Case description: A 23-year-old male patient was diagnosed as G-AgP. Clinical attachment levels (CAL), plaque index (PI), gingival

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index (GI), bleeding on probing (BoP) and blood CRP levels were recorded. Full mouth scaling and root planning (SRP) and ozone application were performed.
Discussion: G-AgP has some etiopathogenetic factors which cause severe destruction and resistance to conventional treatments with increased systemic inflammatory mediators. Therefore, adjunctive therapy, antimicrobial agents and/or host modulatory agents could be used along with SRP. In present case, CRP, as an indicator of acute infection, was monitored to observe the changes related to G-AgP, periodontal treatment and ozone application. Baseline mean full-mouth PI, GI scores and PD were 3, 2 and 5.2 mm respectively. 42% of sites showed 4–6 mm CAL and 26% of sites showed ≥7 mm. 15% had CAL ≥6 mm. After treatments, PI and GI scores were both 1.0. 19% of sites had 4–6 mm and 16% of sites had ≥7 mm CAL. Six teeth had CAL ≥6 mm. CRP levels in baseline, during and after therapy were 9, 34 and 2 mg/dL respectively.
Conclusions/Clinical significance: Within limitations of this case report, it could be suggested that monitoring CRP and subgingival ozone application might be beneficial in treating GAgP.

P044
Effect of Topically- Applied Hyaluronan on the Expression of Prolyl 4- Hydroxylase in Gingivitis of Diabetic Rats
Abeer Gawish[1], Rawand Abu Nahla[2]
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Aim or purpose: To evaluate the effect of topically applied hyaluronic acid gel (hyaluronan) on gingivitis in diabetic rats. The evaluation based on clinical, histological, and immunohistochemical analysis.
Materials and methods: The present study included seventy rats were included in this study, sixty rats were divided into two main groups according to treatment modality, group I involved thirty rats treated with topical HA, while group II involved thirty rats left untreated. Furthermore, groups I and II subdivided into subgroups Ia, IIa were sacrificed on the seventh day, and subgroups Ib, IIb were sacrificed was sacrificed on the day fourteen, negative control compromised five healthy rats, and positive control group compromised five diabetic rats. Harvested gingival specimens were fixed in formalin, then embedded in paraffin wax, and serially sectioned at 4 μm for immunohistochemical assessment using Prolyl 4 Hydroxylase A1(P4HA1).
Results: Immunohistochemical evaluation using P4HA1 revealed a significant difference between all groups.
Conclusions: Hyaluronic acid gel improves the clinical gingival conditions in diabetic rat model. Moreover; it has host modulating effect and has an effect on the expression of Prolyl 4 HydroxylaseA1 evidenced by histological and immunohistochemical analysis.

P045
PHD2 Inhibition in BMMSCs Facilitates the Repair of Periodontal Defects in SD Rats
Changxing Chen
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Aim or purpose: Inhibiting the Prolyl hydroxylase domain-containing protein 2(PHD2) expression in bone marrow mesenchymal stem cells of SD rats under normoxic conditions in this study by utilizing lentiviral vector-mediated RNA interference, to facilitate the repair of periodontal defects in SD rats and validate the resistance to oxidative stress *in vitro*.
Materials and methods: Lentiviral vector-mediated RNA interference was utilized for PHD2 gene silencing in bone marrow mesenchymal stem cells of SD rats. The biological behaviors in cells were then determined. Oxidative stress *in vitro* was induced to validate the resistance of cells to oxidative stress after gene silencing. A rat periodontal fenestration defect model was developed, and the tissue-engineered compound (after gene silencing) was implanted into the defect sites to validate the effects on tissue repair.
Results: After the gene silencing in cells under normoxic conditions, it enhanced the osteogenic differentiation of the cells *in vitro*. The resistance of cells to oxidative stress was also validated *in vitro*, thereby illustrating the promotion of the repair of artificially constructed periodontal fenestration defects in SD rats.
Conclusions: PHD2 gene interference by lentiviral vector-mediated RNA in bone marrow mesenchymal stem cells can promote periodontal tissue defect repair in SD rats. This provides a reference and guidance for future RNA interference applications in the field of periodontal tissue engineering. These findings also serve as the basis for improving the survival of seed cells in recipient tissues.

Poster Session 10 | 29.08.2017, 12:00–13:00 | Poster Display 2

Theme: Caries prevention.

P046
Clinical Effect of the Dental Drug Delivery System (3DS)
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Introduction: The principal microorganism associated with the development of dental caries is the mutans streptococci. The mutans streptococci tenaciously colonize to the tooth surfaces rather than mucous membrane and will be formed biofilms on the tooth surfaces. We have proposed that a combination of physical removal and chemical removal methods of the biofilm lead to the elimination of the mutans streptococci. We have designated the chemical removal method of biofilm as a dental drug delivery system (3DS).
Case description: The dental drug delivery system (3DS) for the selective reduction method of the mutans streptococci from the various species of bacteria in oral cavity was performed on the patients during 10 years. Fifty-five patients with middle or high levels of the mutans streptococci in saliva were participated in this study. Each patient was treated by PMTC and subsequently individual trays (3DS drug retainers) with antiseptic gel and/or stannous fluoride gel were applied to the tooth surfaces for five minutes. In this presentation, we will show the clinical results of DMFT of fifty-five patients. We also present the case reports of two patients, who can successfully eliminate the mutans streptococci.

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Discussion: A significant reduction in the salivary colony count of the mutans streptococci was observed, while no relevant decrease in the salivary count of the total streptococci was found in this study.
Conclusions/Clinical significance: The mutans streptococci tenaciously colonize to the tooth surfaces can be eliminated by a new developed method, designated as the dental drug delivery system (3DS).

P048
Evaluation of Oral Hygiene of Consulting Patients
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Faculty of Dentistry, Dental Clinic and Treatment Center Casablanca, Morocco

Aim or purpose: The aim of this study is to evaluate oral hygiene of patients consulting for the first time and then to reassess it after motivation to know the impact and the efficiency of the message transmitted.
Materials and methods: Descriptive cross-sectional study taking place from 15/12/2013 to 09/01/2014 with patients who had more than 16 years old, established in two phases. A phase of evaluation with indices and awareness of oral hygiene, then after three weeks a phase of reassessment of hygiene.
A three-part questionnaire was used.
Statistical analysis using Epi Info 6 software.
Results: 200 patients were included in the study, with a female predominance of 80.4%.
54.5% of patients surveyed say they brush their teeth 3 times a day.
No significant difference was found for the CAD, CA, CO and gingival index values before and after evaluation.
A statistically significant difference was found for the plaque index.
Conclusions: Motivation for oral hygiene should be a crucial step in the treatment plan, because it allows the patient to become aware of his involvement as an actor in his own oral health.

P049
Appropriate Etching-Time for the Bond of Sealant on Primary Molar
Hyun Tae Jeong, Nam Ki Choi, Seon Mi Kim, Jae Hwan Kim, Yoo Min Choi
Department of Pediatric Dentistry, College of Dentistry, Chonnam National University, Gwangju, Korea

Aim or purpose: Resin sealants are accepted as one of effective materials to control fissure decay in primary and permanent teeth. Primary enamel has a thicker aprismatic layer and lower degree of mineralization, but very few studies have evaluated the bonding strength of sealant on the fissures of primary enamel.
The objective of this study was to evaluate the effect of etching time on enamel roughness and bond strength of sealant in the fissures of primary molars.
Materials and methods: Forty non-carious exfoliated human primary molars were included in the study. The teeth were randomly divided into 2 groups for measurement of enamel roughness and determination of bond strength. Each group was divided into 4 subgroups. For group 1, no acid etching treatment was used. For group 2, 3, and 4, acid etching gels were applied on the occlusal surface for 15, 30, and 60 seconds, respectively. The roughness was measured at fissure and other areas of the occlusal surface with 3D-SEM software program. A resin-based sealant was applied to the primary molars, and bond strength was evaluated using a universal test machine.
Results: Primary enamel on the fissures showed a statistically significant difference in mean surface roughness among all groups ($p < 0.05$). The surface roughness was increased with longer duration of etching time. There were no statistically significant differences in bond strength with varying duration among groups ($p > 0.05$).
Conclusions: It could be concluded that etching time has an influence on the enamel roughness, but it does not significantly enhance the bond strength.

Poster Session 11 | 29.08.2017, 12:00–13:00 | Poster Display 3

Theme: Public Health

P051
A Social Approach to Adolescents' Oral Health: Exploratory Study
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Aim or purpose: There is a need for information on adolescents' oral health status and its relationship with their socioeconomic status.
Purpose: The purpose of this study was to analyze oral health indicators (DMFT, crowding and OHI-S) in 15-year-old adolescents attending public and private schools in Mexico City.
Materials and methods: Using non-probabilistic sampling, 249 adolescents (52% male) were studied (58% in public schools). Informed consent was obtained from the children and their parents. Caries and crowding were recorded by two calibrated examiners (Kappa 0.92, $P < 0.001$) according to WHO criteria, and OHI-S using Green and Vermillon criteria. A nominal logistic model was applied to analyze the association of DMFT with the other variables studied.
Results: The average DMFT index was 2.8 SD 3.3, the OHI-S was 0.60 SD 0.80, and 51% of the adolescents presented crowding. Between adolescents from private and public schools, there were significant differences in caries ($p = 0.0074$)) but not in crowding. Adjusting for sex, oral hygiene, crowding and type of school, the logistic model shows that DMFT is explained by the adolescent's socioeconomic status (type of school) $p = 0.0247$.
Conclusions: Our observations suggest that for these students the only significant indicator for caries risk was the socioeconomic level, established by the indirect indicator of school type.

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P052

Albanian Dentist's Preferences Regarding Behavior Management Techniques (BMT)

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Background: Dental treatment for children often requires the use of behavior management techniques (BMTs).
The Aim: The aim of the present study is to determine the preferences of Albanian dentists in Albania and Kosovo regarding BMTs and their effectiveness by the ratings.
Materials and methods: The study was conducted during the 4th Pan Albanian Dental Congress, in November 2015, Tirana Albania. A questionnaire recording dentists to dentist's preferences about BMTs was used. It was structured as anonymous and information about gender, age, city, years of practice, specialization and multi choice of widely accepted BMTs while treating children patients was collected. Consent was assumed if the dentist agreed to take part. The information collected was analyzed using IBM SPSS 20. Descriptive statistics, chi-square test and multivariate regression analysis were used. The results were evaluated within a 95% confidence interval. Statistical significance level was set at $p < 0.05$.
Results: A total of n = 510 dentist participated, n = 96 from Kosovo (mean age 39.4 yrs) (51 specialists) and n = 414 Albanian dentists (mean age 35.6 years) (65 specialists). 23% (n = 22) of Kosovo dentists and 20% (n = 83) of Albanian dentists did not treat and referred children to a specialist. "Tell, show, do" was rated the most preferred technique ($p < 0.05$) both by Albanian and Kosovo dentists. All non-aversive BMTs were considered by the dentists to be very effective.
Conclusion: All non-aversive BMTs were preferred as effective techniques by Albanian and Kosovo dentists.

P053

Incidence of Dental Caries in SOS-Children's-Village in Croatia

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Aim or purpose: The aim of study was to determine the incidence of dental caries among children in the SOS Children's Villages in Croatia, Ladimirevci and Lekenik.
Materials and methods: Dental examinations based on the WHO criteria were performed on 88 school children of SOS Children's Village in Croatia. The teeth were clinically examined with using visual-tactile method under standard light. Clinical indexes of dmft, DMFT and DMFS as well as the SIC were recorded.
Results: Among the children of SOS children's caries incidence were 57.94%. The mean dmft, DMFT and DMFS of all children was 1.82, 1.90 and 2.82, respectively. The highest mean dmft and DMFT score of 4.24 and 2.56 was found among 7–10 and 11–14-year-old children, respectively. The highest mean DMFS score of 3.85 and 3.90 was found among 11–14-year-old children and among children in SOS Children's Village Lekenik, respectively. Among all children the SIC index was 4.69. There was a significant difference between age groups and children place of residence in DMFT, DMFS and SIC.
Conclusions: The incidence of caries is low among children of SOS Children's Village in Croatia compared to the published results of the survey of caries incidence in children living in biological families in Croatia.

P054

Oral Health Knowledge, Attitude & Behavior of Parents of Pre-School Children

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Aim or purpose: The purpose is to describe the oral health knowledge, attitude and behavior of parents at a Pre-School and evaluate the oral health education program implemented.
Materials and methods: Data was collected by self-administered surveys in English and written Cantonese. With a convenience sample, there were a total number of 18 participants with 16 pre-surveys and 12 post-surveys conducted. A total of 10 paired pre- and post-surveys were collected. The Wilcoxon signed rank test was used to compare the matched 10 pre- and post-surveys. Descriptive analysis will be used to describe the general oral health knowledge, attitude and behavior of the pre and post surveys.
Results: There is a general trend of improvement of oral health knowledge, attitude and behavior of parents of a Pre-School after an oral health education program was implemented. Based on the Wilcoxon test, there are two statements that show a significant change from the matched pre and post surveys: "Bleeding gums means gum disease" shows a p value < 0.05 (p value = 0.047), and "Problems with teeth are serious" (p value = 0.046). As a pilot study, a small sample size resulting in a low statistical power is a limitation of the study.
Conclusions: Implementation of oral health education seminars can improve the oral health knowledge, attitude and behavior of parents that can be a basis for further development of a comprehensive oral health program. This can be contributory towards lowering caries rate among children.

P055

Efficacy of Panoramic Radiographs, When Applied to National Health Examination

Helen Hye-In Kweon, Byung-Hun Kim, Tae-Mi Youk, Bo-Ah Lee, Young-Taek Kim
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Aim or purpose: The aim of this study is to examine the efficacy of the panoramic radiographs, when applied to National Health Insurance Service Health Examination.

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Materials and methods: Study included patients who visited the Health Examination Center in 2009–2015 and underwent panoramic radiographic examination within one year after oral examination. The oral examination was performed at the Health Examination Center including the presence of gingival inflammation, dental calculus, proximal dental caries and lost teeth. The data was compared by Cohen's kappa coefficient and inter-rater agreement values, and statistical significance was confirmed.
Results: Among the 48,006 patients who received National Health Examination, 1091 patients were included in this study, excluding redundancy. The results of panoramic radiography showed that the sensitivity of the dental caries was 48.2% and the specificity was 100% and the proximal dental caries showed sensitivity of 14.0% and specificity of 89.2%, accuracy was 84.4% and 82.5% respectively. Sensitivity of detecting calculus was 18.3%, specificity was 83.7%, while sensitivity was 66.2%, and specificity was 43.7% in the tooth loss.
Conclusions: Panoramic radiographs can be used to obtain information that can be hardly obtained through oral examinations such as proximal dental caries, root caries, furcation involvement, gingival recession, and therefore more accurate and objective information can be acquired.

Poster Session 12 | 29.08.2017, 12:00–13:00 | Poster Display 4

Theme: Caries

P056
Shear Testing of Composite Restorations in Deep Cavity Preparations
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Aim or purpose: To test an innovative joggle lap shearing jig that integrates the tooth and the entire biomechanical unit into testing, to compare the shear bond strengths of Class I occlusal composite restorations in deep cavity preparations lined with Dycal, conventional glass ionomer or resin-modified glass ionomer. The mode of failure (adhesive, cohesive, mixed) after debonding was determined by stereomicroscopy. The jig integrates the entire biomechanical unit into testing.
Materials and methods: 150 standardized occlusal cavities were prepared and divided into five groups. Group I cavities (n = 30) were coated with adhesive(Excite) and filled directly with composite (Tetric Ceram). Group II and III cavities were lined with Dycal (n = 30) before placing composite. Group IV and V specimens were based with Fuji IX (n = 30) or Fuji II LC (n = 30). Shear bond strengths were determined with a universal testing machine and fractured bonding sites were analyzed under stereomicroscope. Mean bond strengths were analyzed using one-way ANOVA test (P<0.05) and means between groups were analyzed with Student t-test.
Results: Shear bond strength (MPa) of composite restorations in cavities without base (23.91 ± 4.54) was higher than cavities lined with Fuji II LC (17.45 ± 2.74), Fuji IX (8.76 ± 2.57 or Dycal (6.12 ± 1.28).
Conclusions: Measures by a jogged lap shear testing jig was greater than cavities lined with Fuji II LC>FujiIX>Dycal. A composite restoration in deep cavities lined with modified resin glass ionomer resisted debonding better than cavities lined with conventional glass ionomer or both self-cured and light-cured calcium hydroxide liners, satisfying a minimum adhesive strength of 17 MPa.

P057
Dentin Disinfectants and their Influence on Bonding Stability
Ilijana Muratovska[1], Vera Stojanovska[2], Mirjana Popovska[1], Lidija Popovska[1], Ana Minovska[3]
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Aim or purpose: The aim of the study represents the potential of the dentin disinfectants to act on bond strength between two-step adhesives in deep cavity lesions.
Materials and methods: Class I deep cavities were prepared on the occlusal surfaces of eight carious third molars. Before placement of the adhesive systems, NaOCL 2.5% and Chlorhexidine 2% were used as cavity disinfectants. Cavity preparations were treated with Optibond Solo Plus Self-Etch, AdheSE or Clearfil SE Protect Bond. Two specimens without an adhesive system, served as control. Immediately to adhesive application, a composite resin (Filtek Z250) block was built up. The bonded enamel surfaces were sectioned into sticks with a cross-section of 0.8 ±0.2 mm2, 24 pieces of each tooth. The specimens were fixed lengthways to a microtensile device and tested using a universal testing machine with a 50-N load cell at a crosshead speed of 0.5 mm/min. Microtensile bond strength values were recorded in MPa and compared by Analysis of Variance and the post hoc Tukey test (a = 0.05).
Results: Significant improvements in adhesive bond strength compared to control sticks were detected. No significant differences were found between the used disinfectants ($p > 0.05$) in all three tested self-etch adhesives. However, for both bonding systems, AdheSE or Clearfil SE Protect Bond showed significantly higher bonding than Optibond Solo Plus Self-Etch ($p < 0.05$). Lower bond strength values do not mean worse retention rates, regarding to the type of failure.
Conclusions: The tested disinfectants should be used safely prior to bonding with two-step adhesives.

P058
***In Vivo* Comparative Evaluation of DiagnoCam versus ICDAS**
Sara Bukhari, Belal Gogandy, Mohammed Yagmoor, Hani Nassar
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Aim or purpose: The aim of the study was to evaluate and assess differences in detecting caries between routine bitewing radiographs, visual inspection based on ICDAS scores, and near-infrared light transillumination device.

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Materials and methods: Thirty adult patients were examined by trained examiners and teeth were scored by visual inspection utilizing the International Caries Detection and Assessment System (ICDAS), bitewing radiographs, and near-infrared light transillumination device (DiagnoCam). Professional photographs were taken of each scored tooth before and after caries excavation if indicated. After lesion excavation, resultant cavities were measured clinically and compared to radiographic depth. Lesions detected via DiagnoCam were scored via a five-scale system ranging from sound to inner dentin depth. Lesion depth was the main parameter used for comparison between the three detection modalities. Chi square test with person correlation at 0.05 significance were obtained.
Results: One hundred and ten carious lesions where assessed. Both Diagnocam and bitewing radiographs showed similar lesion depth. DiagnoCam images aided the investigators in predicting the bucco-lingual extension of the caries lesion. DiagnoCam showed good correlation with the gold standard. Some advanced lesions could not be detected upon clinical examination; but were clearly visible with the DiagnoCam.
Conclusions: Diagnocam has better abilities in detecting cavitated & non-cavitated occlusal and interproximal lesions compared to clinical examination. It was able to predict bucco-lingual extension of caries; but showed similar ability as radiographs for predicting lesions' depth.

P059

Gingival Health Around Cervical Carious Lesions Restored with Calcium Silicate Based Cement (Biodentine) Compared to Those Restored with Glass- Ionomer Cement

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[2]*College of Dentistry. University of Dammam, Dammam, Saudi Arabia*

Aim or purpose: The aim of this study was to assess the gingival health around cervical lesions restored with calcium silicate (Biodentine) in comparison with glass-ionomer.
Method: Healthy subjects attending Jordan University of Science and Technology Dental Health Center with carious lesions on the cervical third of the buccal surfaces of posterior teeth (class V-Black's Classification) between Dec 2014 and February 2015 were invited to participate. Twenty-eight subjects distributed over two equal groups and received two type of restorations either calcium silicate based cement (Biodentine) Bio)) or glass-ionomer cement (GC Fuji IX GP (GIC)), For each patient, Plaque and Gingival indices, probing pocket depth, recession, and bleeding on probing were evaluated over a 6 months period. Difference between two means was analyzed using independent t test. The change over time in each group was analyzed using GLM with repeated measures. A p-value of less than 0.05 was considered statistically significant.
Results: Throughout the study, the recorded clinical parameters changed significantly between Bio and GIC, the plaque index and gingival index, were higher in Bio Group at 1, 3 and 6 months of evaluation with a significant difference ($p < 0.05$), a rise in pocket depth has been noticed at 3 and 6 months ($p < 005$), however, gingival recession did not show any difference between groups ($p > 0.05$). Moreover bleeding on probing values were higher for Bio Restorations compared to GIC with significant difference ($p < 0.05$).
Conclusion: Biodentine showed greater amounts of plaque and a higher degree of gingivitis in comparison with GIC.

Poster Session 13 | 29.08.2017, 13:15–14:15 | Poster Display 1

Theme: Esthetics

P061

Assessment of Tooth Color Changes of In-Office, At-Home and Combined Whitening Techniques Using VITA Easyshade V Spectrophotometer

Maja Zagar, Dubravka Knezovic Zlataric
School of Dental Medicine University of Zagreb, Zagreb, Croatia

Aim or purpose: The study evaluated tooth color changes of three different whitening techniques: in-office (OW), at-home (HW) and combined (CW) using spectrophotometer.
Materials and methods: Thirty patients were randomly divided into three groups and submitted to a single 45-minute in-office whitening session with 6% hydrogen peroxide, at-home whitening performed with 16% carbamide peroxide overnight over the course of two weeks or to combined technique using both in-office 6% hydrogen peroxide and at-home 16% carbamide peroxide overnight for two weeks. The tooth color changes were measured using Easyshade V spectrophotometer and color changes were calculated (ΔE). The tooth color was evaluated at baseline, immediately after OW and 14 days after HW and CW.
Results: Immediately after the treatment the teeth treated with OW presented $\Delta E = 6.7$, and at 14 days, the teeth treated with HW and CW presented $\Delta E = 8.8$ and 9.6, respectively ($p < 0.05$; $F = 157.18$; $df = 2$). Less than 35% of the subjects experienced tooth sensitivity after OW and no subjects experienced tooth and gingival sensitivity at 14 days, after HW and CW.
Conclusions: All three whitening techniques proved to be effective with the color changes above the threshold. However, the combined whitening technique using at-home whitening associated with in-office whitening appeared the most effective with no tooth and gingival sensitivity.

P062

Clinical Behavior and Surface Properties of Human Enamel Bleached with Different Bleaching Systems

Mohamed El Nawawy
Mansoura Faculty of Dentistry, Mansoura university, Egypt

Aim or purpose: The aim of this study was to evaluate the clinical behavior and surface properties of human enamel bleached with five different bleaching systems.
Materials and methods: The effects of 15, 20.38% H2O2 and 15.35% CP on color change of human teeth, microhardness and wear resistance of enamel specimens were tested. As regard to color change, sixty participants were involved in this study. The color change was recorded at base line, 2 weeks, 3 month,

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6 month and one year after bleaching treatment. For microhardness and wear resistance tests, sound premolars were selected. These premolars were sectioned in a mesio-distal direction in equal halves and embedded in chemically activated acrylic resin. Specimens were divided into six groups according to bleaching system used. Specimens were pre-measured and post-measured for microhardness and wear resistance by using Vicker's microhardness tester and profilometer respectively.

Results: There was significant differences between bleaching group (Ti-ON 20% H2O2) (Δ=8.97) and other bleaching groups: control group 15%, 38% H2O2 and 15%, 35% CP where $p < 0.05$. With respect to microhardness and wear resistance, there was no significant difference between different bleaching groups (before and after bleaching) where $P < 0.05$.

Conclusions: Office and home bleaching systems were demonstrated as similarly save to enamel surface. Ti-ON 20% H2O2 had better bleaching effect rather than conventional high concentration hydrogen peroxide.

P063

Aesthetically Rehabilitating using Morphopsychology and Dental Visagism

Rodrigo Venticinque
Venticinque Odontologia, Sp, Brazil

Introduction: Patients every day, more and more, want beautiful smiles in harmony with their emotional and physical characteristics.

Case description: Before drilling teeth we determine patient s temperament and make a great diagnostic. We ll show a aesthetically rehabilitation using morphopsychology and dental visagism to individualize one smile.

Visagism was created based on anthropology, psychology, sociology, visual language and cognitive science. The created method allows analysing the temperament of a person according to her face shape and features. The secret of visagism is in its four types different temperaments, identified by Hippocrates during researches and studies: choleric, melancholic, sanguine and phlegmatic.

Morphopsychology is the area of psychology that studies personality through face features, responsible for correlating psychological characteristics with physical characteristics.

Discussion: Before drilling teeth we determine patient's temperament and make a great diagnostic and treatment planning using:

• Photos, video, Digital Smile Design.
• Study Cast.
• Diagnostic wax-up cast using the symbols to harmony the psychological and physical aspects.
• Mock-up test.

Conclusions/Clinical significance: After planning, we will wear the teeth, if necessary, to place venners, contact lenses, composites or other material determining the shape, texture, shape of the arch, axes, incisal line, etc. second our planning. This way we will obtain the best clinical result according to the emotional, psychological and physical needs of our patient.

P064

Influences of Dentin Desensitizers on the Effect of Tooth Whitening

Kazushi Yoshikawa, Kenzo Yasuo, Kazunori Furusawa, Kazuyo Yamamoto
Osaka Dental University, Osaka, Japan

Aim or purpose: In this study, we investigated the influence of the concomitant use of dentin desensitizers with tooth whitening on the tooth-whitening effect.

Materials and methods: The discolored teeth were immersed in a tea-infused solution as a stainer for 7 days. Tooth whitening was performed using TiON in Office, and the color was measured (first bleaching). The color of the labial central region was measured objectively using a dental colorimeter, Shade Eye (Shofu). In the control group, teeth were stored in saline thereafter and subjected to bleaching followed by color measurement every 7 days (2nd-4th whitening). As intra-treatment application groups, teeth were subjected to bleaching 4 times and MS-Coat F (MS), Nanoseal (NS), Teethmate Desensitizer (TD), and Teethmate AP Paste (AP) applied after each bleaching. The tooth color was measured pretreatment, after the 1st-4th bleaching. The color differences, ΔE, between the value on pretreatment and after the 4th bleaching were determined. The results were analyzed using one-way layout analysis of variance and Tukey's test ($n = 5$) ($P < 0.05$).

Results: ΔE after the 4th bleaching compared to the pretreatment value was 32.9 ± 4.5 in the control group and 44.9 ± 6.2,7.7 ± 10.9,40.9 ± 9.6, and 34.6 ± 2.5 in the intra-treatment application groups with MS, NS, TD and AP, respectively, showing no significant difference due to the concomitant use of the dentin desensitizers compared to the control.

Conclusions: The influences of various dentin desensitizers applied during and after whitening treatment on the tooth-whitening effect were investigated. 1. When the dentin desensitizers were applied during whitening treatment, none of them influenced the tooth-whitening effect.

P065

A Comparative Study of Physical Properties of Composite Resins due to Artificial Aging

Behzad Gorgani
Private Office, Mashhad, Iran

Aim or purpose: The most important advantage of resin composite restorations is esthetic, however with passing of time, inevitable discoloration is one of the main reasons for replacing the resin composite restorations.

Color stability has always been considered in restorative resin composites.

The aim of this *in vitro* study was to evaluate the effect of Accelerated Artificial Aging on color stability of three different resin composites: Microhybride, Nanofield and Nanohybride.

Materials and methods: In this *in vitro* study 8 specimens with the same size and dimension were fabricated.

The primary color parameters were measured with Chromameter according to CIELAB system.

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The specimens were subjected to aging process for 384 hours.
After that, final evaluation of specimens' color was measured with Chromameter. Specimens' hardness was measured with Micro Hardness Tester and Surface roughness was determined by Profilometer before and after aging process.
Results: Color change in Nanohybride composite was significantly less than Microhybride and Nanofield composite ($p < 0.05$).
There was no significance difference between color change of Microhybride and Nanofield ($p > 0.05$).
There was no significance difference among 3 groups for their hardness and surface roughness too ($p > 0.05$).
Conclusions: According to this study nanohybride composite had more color stability compared with two other composites, and aging increased surface roughness while decreased hardness in all three types of mentioned composites.

Poster Session 14 | 29.08.2017, 13:15–14:15 | Poster Display 2

Theme: Prosthodontics

P066
Effect of Stone Cast Type on Complete Denture Base Adaptation
Salman Hamdan
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Aim or purpose: Adapting of the complete denture will ensure its retention. Poly (methyl methacrylate) is considered the best material to manufacture denture bases.
However, it incurs changes in dimension and volumetric contraction, which affects the adaption of dentures and therefore the retention. The purpose of this study was to compare two types of stone casts in their effect on accuracy of fit of complete denture base.
Materials and methods: The research sample consisted of 60 fully replicate master casts (30 casts were poured in type III stone and the remaining 30 casts were made from type V stone) which were obtained by copying a metal die represented an edentulous maxillary arch, accredited by the ADA. All denture was completely waxed using the same thickness of base plate wax and teeth they were made so by making accurate copy of the teeth. After polymerization in the same working conditions, the dentures were trimmed and polished. The dentures adaptation was studied by using the method of weighing the elastomeric silicon layer between each denture and the metal die. Data were statistically analyzed by using T test ($P \leq 0.05$).
Results: The means of elastomeric silicon layers weight in group of stone type V were (1.26 ± 0.09) statistically significant less ($p < 0.05$) than those of stone type III group (1.89 ± 0.14).
Conclusions: Within the limitation of this study, the accuracy of fit of complete denture base was better with high expansion stone (Type V).

P068
Effect of Black Thyme on Antimicrobial Properties of Soft Liner
Tuba Baygar[1], Nurdan Sarac[2], Aysel Ugur[3], Gulfem Ergun[4], Uydu Balcı[2]
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Aim or purpose: Microbial diversity of the oral mucosa may cause to susceptibility of denture soft liner against accumulation of plaque and colonization by pathogenic microorganisms. *T. spicata* L. var. *intricata* P. H. Davis (black thyme), endemic to Turkey, is an aromatic and medicinal plant with effective *in vitro* pharmaceutical properties. In this study, antimicrobial and antibiofilm activities of denture soft liner combined with *Thymbra spicata* var. *intricata* essential oil (TSI-EO) has been investigated.
Materials and methods: Soft liner (UFI Gel P) was prepared as recommended by the manufacturer and 10 μL TSI-EO was added aseptically to the soft liner discs. Inhibition zones for the control discs without TSI-EO (C) and TSI-EO-incorporated discs (T) were determined by disc diffusion method against *Candida albicans, Staphylococcus aureus, Streptococcus mitis, Streptococcus mutans and Streptococcus sanguis*. The biofilm inhibition percentages of TSI-EO on soft liner was measured by tube dilution method and also observed by Scanning Electron Microscopy (SEM).
Results: The highest inhibition zone of TSI-EO-incorporated discs was measured for *C. albicans* (87 mm) which is followed by *S. mitis* (39 mm). Inhibition percentages against biofilm formation capacity of tested microorganism were found to be efficient. Incorporation of TSI-EO into the soft liner decreased 97.96% of the biofilm formation for *S. mutans*.
Conclusions: Study results demonstrated that denture soft liner supplemented with *Thymbra spicata* var. *intricata* essential oil incorporation revealed a great antimicrobial activity for test microorganisms with an effective antibiofilm activity.

P069
Antimicrobial Characteristics of Denture Soft Liner Combined with *Origanum onites*
Tuba Baygar[1], Nurdan Sarac[2], Aysel Ugu[3], Gulfem Ergun[4], Uydu Balcı[2]
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Aim or purpose: The use of denture soft liners is gaining importance as they have clinical advantages for denture wearers. Due to their cushioning effects, soft liners are used to improve the fitness

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of denture and help to rehabilitate the inflamed tissues in the inner surface of the denture base. *Origanum onites* L. is an aromatic plant naturally grow in Turkey. The essential oil of *O. onites* have great antimicrobial potential. Antimicrobial and antibiofilm activities of denture soft liner combined with *O. onites* essential oil (OEO) have been investigated in this study.
Materials and methods: Soft liner (UFI Gel P) was prepared as recommended by the manufacturer and 10 µl OEO was added aseptically to the soft liner discs. Inhibition zones for the control discs without OEO (C) and OEO-incorporated discs (O) were determined by disc diffusion method against *Candida albicans, Staphylococcus aureus, Streptococcus mitis, Streptococcus mutans and Streptococcus sanguis*. The biofilm inhibition percentages of OEO on soft liner was measured by tube dilution method and also observed by SEM.
Results: The highest inhibition zone of OEO-incorporated discs was measured for *C. albicans* (47 mm) which is followed by *S. sanguis* (39 mm). Inhibition percentages against biofilm formation capacity of tested microorganism were found to be effective. Incorporation of TSI-EO into the soft liner decreased 98.16% of the biofilm formation for *S. mutans*.
Conclusions: It can be suggested that essential oil of *O. onites* has an effective therapeutic potential to enhance the antibacterial and antifungal characteristics of denture soft liners.

P070
Reconstitution of the Devitalized Posterior Teeth, New Data: Endo Crown
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Introduction: It is known that a devitalized tooth is a fragile tooth, for this, modern adhesive dentistry propose many solutions for the reconstitution of these posterior devitalized teeth.
Case description: About a clinical case, we will show the one of many therapeutic options, it's an EndoCrown.
The objectives of the Endo crown are:
Maximum tissue preservation.
Increase mechanical strength.
Aesthetic.
In order for it to achieve its objectives it requires a knowledge of concepts to realize an endo crown so that we can talk about success of this therapeutic.
Discussion: When this endo crown finds its indication, she offers a veritable advantage comparing with an inlay core and a crown sealed, so this will make an objective of our poster.
Conclusions/Clinical significance: The endo crown is a more conservative approach for damaged posterior teeth.

Poster Session 15 | 29.08.2017, 13:15–14:15 | Poster Display 3

Theme: Oral Medicine

P071
Chemokine CCR6/CCL20 in Patients with OLP
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Aim or purpose: Expression of Chemokine CCR6 and its ligand CCL20 in peripheral blood mononuclear cells (PBMCs) and tissues by comparing OLP with healthy controls, aimed to find out whether CCR6/CCL20 were involved in the pathogenesis of OLP.
Materials and methods: All subjects were free of other autoimmune diseases. PBMCs and tissues were collected from all subjects. The Simple Western was performed to detect the protein expression of CCR6 in peripheral blood. Besides, we used Real- time quantitative PCR to detect the protein and mRNA expression of CCR6 and CCL20 both in PBMCs and tissues. Immunohistochemistry was used to detect the presence of CCR6 and CCL20 in oral mucosa of patients with OLP and healthy controls. One-way ANOVA was used to analyze the overall level of significance between experimental groups. Unpaired *t*-test was performed to compare mean differences between two different groups.
Results: OLP Patients demonstrated markedly up-regulated levels of CCR6 and CCL20 mRNA expression compared to controls in tissues ($p < 0.001$). While in blood, the levels of CCR6 and CCL20 mRNA were deceased in OLP subjects ($p < 0.001$). After immunohistochemical staining, the data of integrated option density (IOD) showed in OLP patients, CCR6 and CCL20 expressions were obviously higher than controls. However, there were no significant differences of protein in peripheral blood.
Conclusions: The distribution of CCL20 is important in the migration of inflammatory cells into lesional sites. Furthermore, the CCR6-CCL20 axis has potential as a diagnostic and therapeutic tool for OLP.

P072
Detection of Autoantibodies and Activity of Autoimmune Oral Blistering Diseases
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Aim: Autoimmune blistering mucosal diseases belong to the most serious diseases of the oral cavity. The evaluation of titres of specific autoantibodies by the indirect immunofluorescence method (IIF) could be relatively available and exact method for monitoring of the activity of the disease and treatment mode decision.
Materials and methods: In 28 individuals suffering from pemphigus vulgaris or pemphigoid, autoantigens desmoglein 1, desmoglein 3, BP180 and BP230 were identified in 90 samples of venous

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blood, and titres of specific autoantibodies of IgG class were semi-quantitatively detected by IIF. The diagnosis of the autoimmune blistering disease was verified by histological and/or direct immunofluorescence examination of a specimen obtained from the oral mucosa. Statistical analysis of data was done using NCSS 9 software, nonparametric tests for quantitative and parametric tests for qualitative parameters, with statistical significance at $p < 0.050$.

Results: There were not found tight correlations between the clinical data, and titres of specific autoantibodies. No discrepancies in diagnoses were seen between direct and indirect immunofluorescence findings.

Conclusions: The detection od an autoimmune disease of the oral mucosa, both pemphigus vulgaris and pemphigoid group, is often done by dentists because of typical localization of initial clinical signs of the disease in the oral cavity. As early the diagnosis as better seems to be the prognosis of the disease. IIF detection of the type of the autoantigen and titres of related autoantibodies may improve diagnostic procedures, mostly in non-typical clinical situations, and decision-making process, including types and doses of immunosuppressants to use.

P073

Clinical Study on Dry Mouth Treatment for Sjögren's Syndrome–From Cevimeline Hydrochloride Hydrate to Pilocarpine Hydrochloride

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Aim or purpose: Until recently, Cevimeline hydrochloride hydrate (Cevimeline) was widely used for dry mouth of patients with Sjögren's syndrome. However, its side effects on the digestive organs may cause patients to reach to loss in quantity of dosage and to discontinue usage. Pilocarpine hydrochloride (Pilocarpine) exists in Japan as other dry mouth treatment. Therefore, we examined the effectiveness and safety of Cevimeline and Pilocarpine.

Materials and methods: Ten patients (all females, average age 66.2) diagnosed as Sjögren's syndrome and receiving the medication of Cevimeline for 1 months or more, were enrolled in this study. Cevimeline was modified to Pilocarpine, and saliva secretion (Saxon test), subjective symptoms, and side effects were compared. Data were statistically analyzed with a one-way ANOVA test ($p < 0.05$).

Results: Before the treatment, at the time of Cevimeline dosage and at the time of Pilocarpine dosage, the saliva secretions were 0.31 g/2 min, 0.41 g/2 min and 0.50 g/2 min, respectively (p each <0.05). As for side effects, Cevimeline caused various digestive organ conditions. On the other hand, Pilocarpine showed of side effects frequent sweating. In the comprehensive evaluation by patients, 70% selected Pilocarpine.

Conclusions: It was suggested that Pilocarpine is useful as the first choice for treatment of dry mouth with Sjögren's syndrome.

P074

Farnesol Production by *Candida albicans* Biofilms Formed from Resistant Strain

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Aim or purpose: To study the production of farnesol in *Candida albicans* biofilms formed from the resistant strain in different cultured conditions, and further to compare that formed from the standard strain in the development of biofilms.

Materials and methods: *C. albicans* resistant strain, which was resistant to fluconazole, amphotericin B, caspofungin, itraconazole, terbinafine and 5-fluorocytosine, was induced by *C. albicans* SC5314 through increasing fluconazole concentration gradient method *in vitro*. *C. albicans* resistant strain and standard strain were cultured in different media(RPMI1640、YPD、YNB+0.5% glucose、RPMI 1640 + 10% FCS) to form biofilms, respectively. The farnesol was detected by gas chromatography-mass spectrometry (GC/MS).

Results: The production of farnesol increased with the development of *C. albicans* biofilm, reached to a highest peak in the mature biofilm, then decreased subsequently. The production of farnesol in YNB+0.5% glucose medium was more than that in other mediums. The difference of the farnesol production between biofilms from resistant strains and standard strains was less obviously at the early phase of biofilms formation, while more obviously at the late phase biofilms. Farnesol production of the mature biofilms from the resistant strains in RPMI1640 and YPD medium were higher than that from the standard strains, respectively.

Conclusions: The mediums played an important role in the production of the farnesol by *C. albicans* biofilms. There were also significant differences of the farnesol production between biofilms formed from resistant strain and standard strain in different mediums.

P075

Bisphosphonates, Knowledge and Practice of Dentistry Students: A Comparative Study

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Aim or purpose: Bisphosphonates, antiosteolytic agents, are used in the prevention and treatment of diseases with bone resorption and bone metastasis caused by solid tumours. This study aims to evaluate and compare the training and knowledge about bisphosphonates that the dentistry students of the University of Oviedo (Spain) have, as well as the resolution capacity of clinical cases of patients who take these medicines.

Materials and methods: A cross-sectional descriptive study was carried out through a survey divided in four sections: level of knowledge, means of acquisition of knowledge, common practice

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and resolution of clinical cases. Survey respondents (n = 225) were split into two groups: Group A (2015–2016 course) and Group B (2016–2017 course). The students of Group B received more information about BFs. For the statistical study a chi-squared, a t-student test and a ANOVA test were employed. Differences were considered to be significant when $p < 0.05$.

Results: The response rate was 77.7% (175 valid surveys). A preference for an online continuous training was observed in both groups. The most well-known drugs were Alendronate (Fosamax®: 56.9%, Group A; 67.5% Group B) and Zoledrónic Ac. (Zometa®: 56.9% Group A; 51.8% Group B) students knew that there are other drugs that can be associated to osteonecrosis of the jaws (ONJ). In the clinical cases, Group B showed significantly higher skills.

Conclusions: There are significant differences in the knowledge and use of the ONJ between Groups A and B. In Group A the score is insufficient (4.04) whereas in Group B reaches a value of 6.

Poster Session 16 | 29.08.2017, 13:15–14:15 | Poster Display 4

Theme: Implantology

P076

Choice of the Occluso-Prosthetic Concept in Implantary Prosthesis

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Introduction: Improved implant surgery procedures and pre-implantation investigations have helped to increase the success rate of dental implants by enhancing osteointegration and stability. But achieving stable osteointegration And durable is only one of the objectives of the implant act, since the major objective is the durability of the prosthetic construction.

In this field, we have now entered the era of occluso-integration which ensures the sustainability of our implant restorations but an important question that requires a moment of reflection: "Which occlusal concept to choose and for which clinical case?".

Case description: Failure of all clinical cases in which there was no respect for the occlusal concept By the appearance of peri-implantitis and mobility of the implant.

Discussion: Indeed, whatever the extent of a rehabilitation (unitary, plural), whatever the type (removable, fixed), it must necessarily seek an optimization of the occlusal functions since it is the position of The implant prosthesis that guides the position of the implant and not the reverse and that it is the latter that must be integrated in the occlusal pattern of the patient thus ensuring a musculo-articular balance.

Conclusions/Clinical significance: Vast subject..... but simple rules and common sense can clarify it.

Through our communication, we would like to emphasize the elements that underpin the choice of the occluso-prosthetic concept of implant prostheses.

P077

Mandibular Torus Harvesting for Sinus Augmentation: Two Year Follow Up

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Introduction: Maxillary sinus grafting procedure is a common treatment alternative in cases with insufficient bone height in the posterior maxilla. It is commonly carried out with autogenous grafts, biomaterials or both. Autogenous bone grafting is considered gold standard for this procedure. Mandibular tori are hyperostoses on the lingual side of the mandible. This is two-year follow-up of a case in which mandibular tori were used for a sinus augmentation procedure.

Case description: A patient with a missing left maxillary first molar was referred to our clinic to have his missing tooth replaced. After clinical and radiological examination, it was determined that there wasn't enough bone in the area of the missing tooth. The patient also had bilateral mandibular tori. The tori were resected and used for sinus augmentation. 6 months later computerized tomography and panoramic radiographs were taken to evaluate bone formation. One implant was successfully inserted into the bone. 18 months after implant insertion; clinical and radiological evaluations proved success.

Discussion: Mandibular tori are osseous outgrowths that are covered with mucosa. They don't have to be resected unless they cause pain or interfere with prosthetic appliances. To our knowledge, this is the second case where mandibular tori were used for sinus augmentation.

Conclusion/Clinical Significance: It should be kept in mind that mandibular tori may be used as autogenous bone graft for augmentation procedures. Further studies are needed to evaluate the usage of mandibular torus as an autologous bone graft.

P078

Alternative Approaches to Treating the Atrophic Ridge

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Introduction: Implant placement in Atrophic Ridges are often challenging to both clinicians and patients. The traditional methods used over the years have shown great success and predictability but are often too expensive and may take longer than the patient's desire. This presentation will show new treatment modalities that are well documented by both literature and clinical cases. They are very predictable, more conservative and provide very promising results.

Case description: This presentation will discuss various clinical cases treated by using osseodensification, partial extraction therapy and vascularized ridge split techniques that provide alternative methods to placing implants in Atrophic ridges without the need to do block bone grafts and other aggressive grafting techniques.

Discussion: These techniques are well documented in the literature and are becoming the standard of care in day to day Implant practices.

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Conclusions/Clinical significance: Implant Dentists and clinicians can learn about these techniques and implement them in their day to day practice.

P079

The Human Factor as a Determining Factor in Oral Treatments

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Introduction: Currently, with the development and advancement of technology, added to the pressure of the industry to place products and tools in dental centers, it is important to remember that finally before any dental treatment, the human factor is still essential for the achievement of the objectives set with this treatment.
In patients, information, motivation, knowledge of the characteristics and limitations of the treatment received, as well as the correct aftercare, will mark the difference between success/failure.
Case description: We present a special and singular clinical case, in which a patient receives a superior and inferior supported implant rehabilitation, where the main characteristic is that each one of the implants used are different. Case reinstated by a professional team that includes the laboratory technician. The sum of skills and knowledge of all participants are the best insurance of success.
We chose a healthy patient, without important ills (ASA 1) with good bone residuary in both maxillaries, that after the conventional clinic and radiographic studies is realized the treatment described.
Discussion: At the begin of a dental treatment of any nature we must planed not only the treatment, also the method to do it, the stages and the required time to finish them and looking for the predictable and safety treatment to the patient.
Conclusions/Clinical significance: Without discount the value of the technology development, we think that clinical experience, training, study, skills development and motivation are the main factors in the dental treatments success.

P080

Management of Mechanical Problems of Implants

Christos Konstantinidis
OD. VIMA DENTAL P.C., Athens, Greece

Introduction: Implant tx. is the most popular treatment restoring lost teeth. The contributing parameters are the perfect prognosis of osseointegration and the introduction in the technique of most dentists. Nevertheless, there are complications, biological and mechanical. Modern implants are very reliable mechanically, but the huge numbers placed has created need for dealing with several complications.
Case description: There are two categories of severe mechanical complications. The first refers to the implant screws (prosthetic or horizontal) and the other to the failure of the implant itself.
Three techniques are presented for the complications of screws demonstrating: a) the use of a special company kit b) a technique creating access in the prosthetic restoration for the screw driver for the removal of the screw.
The other three cases are dealing with implant removal with a special kit, the extractor. The removal cases are: a) of broken implants b), misplaced implants and c) failed implants due to periimplantitis.
Discussion: Dealing with implant complications is a rather new field. The techniques were presented so as to show where each one was indicated. In the cases of the broken screws these techniques can save the implant and the restoration. In the cases of the implant removal the technique presented can save the implant site so as to accept a new implant without major interventions.
Conclusions/Clinical significance: New and traditional techniques for the management of implant complications are an important knowledge for any dentist providing implant treatment.

Poster Session 17 | 29.08.2017, 14:30–15:30 | Poster Display 1

Theme: Oral Surgery

P081

Sufficient Hydraulic Pressure Arthrocentesis in Patients with Chronic Closed Lock

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Aim or purpose: Arthrocentesis is an easy and minimally invasive procedure in patients with closed lock of the temporomandibular joint. We describe sufficient hydraulic pressure arthrocentesis and study the effectiveness of the procedure in closed lock cases with severe joint pain.
Materials and methods: In 45 chronic lock cases with severe joint pain, arthrocentesis under sufficient hydraulic pressure and opening excursive exercise after the arthrocentesis were performed. The procedure was performed by the same surgeon. Maximum mouth opening and joint pain were measured at the initial visit and after 2 weeks, 4 weeks. The effectiveness of the procedure was statistically analyzed with Wilcoxon signed-ranks test.
Results: Two and four weeks after these two procedures, ranges of maximum mouth opening and joint pain at maximum mouth opening improved significantly ($p < .001$).
Conclusions: The result indicates that the arthrocentesis under sufficient hydraulic pressure is an easy and highly efficient procedure in closed lock cases with severe joint pain.

P082

Periodontal and Periapical Abscess – Rare Case

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Introduction: Mixed buccal and palatal swelling is exceptionally rare. Periodontal abscess from deep pockets *associated* with *excessive bone loss can cause swelling of the buccal region. A periapical*

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abscesses of *lateral incisors*, which had been *inclined* palatally and palatal roots of maxillary posterior teeth are source of palatal abscesses.
Case description: This study reports the unusual case of a buccal and palatal swelling. The upper right *lateral incisor* and *maxillary* right first *bicuspid* were *extracted*. One buccal incision and two parallel palatal incisions were performed.
Discussion: Only a few cases of mixed buccal and palatal swelling have been reported in the literature.
Conclusions/Clinical significance: The postoperative period was without complications.

P083
Buccal Bifurcation Cyst (BBC): Diagnosis, Treatment and a Case Report
Benjamin Peretz
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Introduction: Buccal bifurcation cyst or BBC (also known as "mandibular infected buccal cyst") is an inflammatory odontogenic cyst, of the paradental cysts family, that typically appears in the buccal bifurcation region of the mandibular first molars in the second half of the first decade of life. Infected cysts may be associated with pain. The etiology is uncertain, but an inflammatory response in the tooth follicle or formation of a buccal pocket is speculated. Although the treatment of the cyst was previously enucleation of the cyst with removal of the involved tooth or enucleation with root-canal treatment, the current management is conservative, and includes enucleation with the preservation of the involved tooth.
Case description: A case of a 7-year old boy, presented with a swelling of the cheek on the left side is presented. The boy was diagnosed with a BBC. The diagnostic process including the signs, symptoms and diagnostic tools is described in detail, as well as the treatment options. The conservative treatment modality was chosen: enucleation and follow-up.
Discussion: The various aspects of the cysts are explained and discussed, with a reference to previous reports on BBC.
Conclusions/Clinical significance: The clinician should know to identify and diagnose the BBC, and choose the optimal treatment option according to the signs and symptoms.

P084
Reconstruction of Mandibular Bone Defects with Decellularized Bovine Bone Graft and Freeze-Dried Bone Marrow Stem Cell Paracrine Factors
Zurab Kakabadze, Lia Karalashvili, Mariam Kakabadze, Ana Kakabadze
Tbilisi State Medical University, Tbilisi, Georgia

Aim or purpose: One of the main problems in maxillofacial surgery is the reconstruction of the mandibular defects that occurred after tumor resection, injury or infection. Autogenous cancellous bone grafts are considered to be the gold standard in mandibular bone defect reconstruction. However, the use of autogenous bone does not always guarantee a successful outcome in the bone reconstruction. Main objective of our study was to create a new biologically active bone implant for the reconstruction of maxillofacial bone defects.
Materials and methods: Decellularized three-dimensional matrix was obtained from the cattle femur bone. Paracrine factors were obtained from the human bone marrow stem cells. Four patients with primary tumors of the mandible were enrolled into the study. Three female patients underwent right hemimandibulectomy, and mandible defects were reconstructed using autogenous rib grafts. Left hemimandibulectomy was performed in one male patient, and the mandible defect was reconstructed using a decellularized bioactive bone graft containing freeze-dried bone marrow stem cell (BMSC) paracrine factors.
Results: All patients were followed-up every five months following the reconstruction of the mandible, with no complications observed. Study results have confirmed the efficiency of bioactive bone implants for maxillofacial defect reconstruction. Bioactive bone graft has demonstrated biocompatibility, osteoconductive, osteoinductive, osteointegration and bone remodeling features.
Conclusions: Preliminary clinical investigations showed that bioactive bone graft containing freeze-dried BMSC paracrine factors may be used for the reconstruction of large mandibular bone defects following tumor resection.

P085
Mouth-Opening Exercise in Patients with Chronic Closed Lock
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Aim or purpose: Mouth-opening exercise is an easy and minimally invasive procedure in patients with closed lock of the temporomandibular joint. We describe mouth-opening exercise and study the effectiveness of the procedure in closed lock cases.
Materials and methods: Mouth-opening exercise was enforced on 24 chronic lock cases without severe joint pain. The patient underwent 100 times of enforced opening, protrusive, and lateral excursive exercises with the thumb and forefinger of both hands, with one opening per second, 100 seconds total. This exercise was done twice a day, once in the morning and once at night. Maximum mouth opening and joint pain were measured at the initial visit and after 2 weeks, 4 weeks. The effectiveness of the procedure was statistically analyzed with Wilcoxon signed-ranks test.
Results: Two and four weeks after these the procedure, ranges of maximum mouth opening and joint pain at maximum mouth opening improved significantly ($p < .001$).
Conclusions: The result indicates that the mouth-opening exercise is an easy and highly efficient procedure in closed lock cases without severe joint pain.

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Poster Session 18 | 29.08.2017, 14:30–15:30 | Poster Display 2

Theme: Oral Health and Systemic Health

P086

Spreading of Teeth – Jaw Anomalies Beside Bishkek Teenagers

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Aim or purpose: Investigate spreading of teeth – jaw anomalies beside Bishkek teenagers.
Materials and methods: We check oral health condition on 734 teenagers from 15 to 18 years. Clinical examination study of the jaw models was conducted according to the following parameter: discovery factor risk, promoting development bite anomalies; the determination of the condition of the bite, forming anomalies, formed anomalies. Korkhauz, Nance and Haus methods was used.
Results: The Results of the studies – dental caries is revealed beside 72.2%. The Periodontal and Oral mucosa diseases are determined as 70.8%. The Different anomalies of the teeth-jaw system were beside 44.45%. Amongst different type dominate the anomalies of the bite, (24.23 ± 1.48). The teeth and teeth arch anomalies turned out to be several less (20.22 ± 1.03%, $R < 0.05$). There is evidence about dependence in development of such main child oral diseases and premature extraction of the deciduous and permanent teeth beside child and teenager. According our data beside 3.5% young people were prematurely removed first permanent molars, which have influenced on teeth-jaw anomalies development beside teenager.
Conclusions: Different teeth-jaw anomalies have revealed beside 44.45% teenager, amongst which prevailed boys. Amongst revealed different teeth-jaw anomalies type dominated the anomalies of the bite (24.23 1.48%), which had a trend to increase from 15 years to 18. The Anomalies teeth and teeth arch have formed 20.22 ± 1.03%.

P087

Three Years Follow-Up of Focal Infection Diagnosed using Infrared Thermography

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Introduction: Infrared thermography is a novel, non-invasive and highly informative diagnostic method that helps detecting associated oral and systemic pathologic conditions.
Case description: A 40 years old female patient after referred by a dermatologist visited the dental office, presenting a 5-cm alopecia areata lesion in the right fronto-temporal region. Infrared thermography was performed for the maxilla-facial region as well as for the whole body.
Two sites presenting thermal changes with active focal infection were detected.
The first site -tooth 36 presented a chronic periodontitis. An endodontic retreatment was undertaken.
The second site presenting focal infection was found in the pelvic area – with the typical picture of endometriosis that was later confirmed by a gynecologist. A gynecological operation was performed. The alopecia areata lesion disappeared within several months.
On a three-year follow up the patient presented a stable result with none of the initial complaints presenting.
Discussion: In our case both of the findings by the infrared thermography were confirmed by other specialists and diagnostic methods. The treatment of the two problematic areas lead immediately to the disappearance of the alopecia areata lesion.
Conclusions/Clinical significance: The present clinical case alongside with many others gives us a reason to consider the infrared thermography to be a highly useful method whenever an association between oral and general pathologic conditions is suspected.

P088

Cytokine Profile in the Dynamics of Treatment of Recurrent Aphthous Stomatitis

Dono Alimova
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Aim or purpose: Study the concentration of cytokines in the dynamics of treatment of recurrent aphthous stomatitis with the use of ozone therapy.
Materials and methods: The study included 116 patients with RAS. The level of pro and anti-inflammatory cytokines was determined using solid-phase enzyme immunoassay.
To compare the results of treatment, three groups of patients were identified:
1 group of comparison received standard treatment, antiseptic treatment of the oral cavity with 0.05% chlorhexidine bigluconate solution, topical application of metrogyl dental paste, immunomodulating therapy with the drug imudon.
2 the main group of patients received treatment in accordance with the developed scheme without infusion ozonotherapy (IFO).
3 the main group received a complete treatment regimen.
For ozonization of physiological solution, was used a medical ozonator.
Results: After treatment in the 3 main group, the concentrations of proinflammatory cytokines decreased in the oral fluid: TNF-α – by 82.29%; IL-1 74.48% and IL-6 65.57%. Opposite levels of anti-inflammatory mediators increased: IL-4 – by 51.27%, IL-10 247.2%; The corresponding dynamics in the serum blood cytokines is 57.40%; 44.58%, 52.67%; And the growth of anti-inflammatory drugs – 14.16%, 7.96%.
Conclusions: After treatment, when included in the complex treatment of IFO, the normalization of the cytokine profile is recorded to values that do not have significant differences with the control group.

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P089

Temporomandibular Joint Derangement in Patients with Psoriatic Arthritis

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Introduction: Psoriatic arthritis (PsA) is a chronic seronegative, inflammatory arthritis. It appears in 10–20% of patients with psoriasis. PsA patients usually develop clinical symptoms long after the initial appearance of psoriasis, thus allowing severe structural damages of the affected joints. The Temporomandibular Joint (TMJ) is affected in 30–60% of PsA patients.
Case description: A 34 years old female patient was referred to the Orofacial Pain Clinic of the Dental School of Athens complaining about the severe restriction of jaw movements. Patient was diagnosed with psoriasis and psoriatic arthritis 16 years ago, without receiving any systemic therapy during the last year. The Cone Beam Computed Tomography revealed severe structural changes at the left TMJ. After 9 months of treatment with the use of a stabilization splint and intensive kinesiotherapy, patient regained normal jaw function. The condition remained stable throughout the 2-year follow-up period.
Discussion: The management of patients with psoriatic arthritis when TMJs is affected could be a complex and demanding process. Strict patient's compliance and the quality co-operation of the dermatologist and the rheumatologist with the specialized dentist, could have a positive outcome, with significant improvement in Stomatognathic's System function.
Conclusions/Clinical significance: Early diagnosis of PsA involving the TMJs is valuable, since it could diminish its detrimental effects. Timely and aggressive control of the disease, results in significantly better clinical and radiographic outcomes, leading to significant improvement of the patient's quality of life.

P090

Oral-Health and Quality-of-Life Assessment in Hospitalized Patients Using an IPAD-App

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Aim: The aim of the study was to determine the prevalence of oral health and dental treatment need as well as quality of life and depressive attitude in hospitalized patients.
Materials and methods: 105 inpatients, admitted to the Departments of General Surgery or Traumatology, University Medical Center of Mainz, Germany, were enrolled. The patients filled in the OHIP and BDI, either by themselves or after being instructed, using a newly developed App. The results from a WHO questionnaire was recorded and analyzed by a dental examiner who also performed the dental assessment.
Results: A total of 54 male und 51 female patients with a mean age of 55.6 years were enrolled. The mean number of teeth was 23±7, 12±8 of them free of caries. Of the hospitalized patients 22% were smokers, 78% were non-smokers. Only in 10% of the subjects enamel fluorosis was observed; in 2% there was a mild form, 8% of the cases were unclear. Most of the patients (75.2%) showed enamel and dentine erosion. The BDI score was 4.6±6, the OHIP Score was 5.5±8. Mucosal lesions were found in 11.4%, 88.6% were free from lesions. The need for immediate dental treatment was observed in 18%; urgent problems in 14%, preventive measures in 31%, no dental need in 36%.
Conclusions: Using the App is suitable for detecting cohorts in inpatients. However, handling tablets proved to be difficult for older patients, so that additional time was necessary. A few patients refused to use the Apps.

Poster Session 19 | 29.08.2017, 14:30–15:30 | Poster Display 3

Theme: Oral Pathology

P091

Influence of Periodontal Infection Upon Medication-Related-Osteonecrosis-of-the-Jaws Staging

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Aim or purpose: Bisphosphonates (BPs) are medications used to treat bone cancer, as well as osteoporosis. Although BPs improve bone mineral density, reduce fracture fisk, some patients develop medication related osteonecrosis of the jaws (MRONJ). In 2014 AAOMS MRONJ position paper, Medication-Related-Osteonecrosis-of-the-Jaws(MRONJ) is necrotic bone change and delayed healing conditions in mandible or maxilla persisted for more than 8 weeks with currents or previous treatment with antiresorptive or antiangiogenic agent. It affects the quality of life, producting significant morbidity. The aim of this study is to prove the influence of periodontal infection upon MRONJ staging.
Materials and methods: This study involved 86 patients diagnosed as MRONJ who visited Department of Dentistry, Oral & Maxillofacial Surgery, Ajou University Hospital from August 2006 ~ September 2016. Clinical and radiographic data were included in this study. Each patient was classified on MRONJ stage according to the 2014 AAOMS position paper. Each patient's alveolar bone height was measured with panoramic radiograph. SPSS 18.0 software was used for the statistical analysis. Kruskal-Wallis test and independent t-test were used for analyzing association between alveolar bone height, residual tooth rate and MRONJ stage.
Results: There is strong association between periodontal disease and MRONJ stage. Between MRONJ stage 0.1 and 2.3 patients there is a significant difference in alveolar bone resorption rate. This means advanced periodontal disease can affect MRONJ severity.
Conclusions: The patients with MRONJ stage 2.3 have poor periodontal condition than MRONJ stage 0.1. Periodontal infection influence not only MORNJ risk factor but also MRONJ staging.

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P092

Vitamin D and Its Relevance in Recurrent Aphthous Stomatitis (RAS)

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Aim or purpose: Recurrent aphthous stomatitis (RAS) is a common inflammatory disease of the oral mucosa of an unknown cause, where the dysregulation of the immune response seems to play an important role. This study aims to evaluate the vitamin D status in RAS patients and the effects on RAS severity, given the likely immunomodulatory function of vitamin D in the human organism.
Materials and methods: Sixty-six patients with RAS and 66 controls were examined. The severity of RAS was assessed according to the clinical classification of the disease, the number of lesions per flare-up and the length of intervals between the episodes. The serum vitamin D level was established in each participant.
Results: The mean serum vitamin D25(OH)D levels were found to be 16.81 ng/ml in the study group and 19.22 ng/ml in the control group, with no statistically significant difference between the two groups. In the study group 5 (7.6%) participants were diagnosed with the "normal" vitamin D levels, while 16 (24.2%) had "insufficient" levels and 45 (68.2%) had "deficient" levels. The corresponding distribution in the control group was 8 (12.1%), 18 (27.3%) and 40 (60.6%), respectively. There were no significant differences in vitamin D status between the study and control groups. No correlation was detected between the severity of RAS and the serum vitamin D level.
Conclusions: Vitamin D does not seem to be a trigger factor for RAS. The microelement status does not appear to influence the severity of the disease in a studied group.

P093

Lysyl Oxidase in Prognostication of Oral Squamous Cell Carcinoma

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Aim or purpose: Lysyl Oxidase is a copper amine oxidase and belongs to the LOX multigene family that is normally involved in cross-linking of stromal collagen fibres. LOX expression is associated with increased episodes of recurrence, metastasis and overall poor prognosis in renal cell carcinomas and melanomas. This study aimed to assess the effects of LOX on the prognosis of Oral Squamous Cell Carcinoma (OSCC), which is the sixth most common form of cancer.
Materials and methods: The immunohistochemical expression of Lysyl Oxidase using LOX2 primary antibody was assessed at the tumour proper, invasive tumour front and peri-tumoural stroma in tissue sections from 40 cases of OSCC. The parameters were statistically evaluated using Chi-squared test.
Results: LOX expression was elevated in OSCC patients who had lymph node metastasis and in those who died of disease. No significant variation was seen with histological grade.
Conclusions: LOX has a 'pro-neoplastic' effect as it modulates the host stroma to favour increasing tumour mass and worsening prognosis. Increased expression of LOX causes increased collagen fibre cross-linkage that 'stiffens' the stromal matrix. This increases compressive stresses contributing to tissue hypoxia that elevates Rho GTPase-dependent cytoskeletal tension leading to erratic tumour cell morphogenesis that in turn confers motility to these cells resulting in metastasis.
Inhibitors of LOX can potentially down-regulate LOX levels in the tumour micro-environment by controlling tissue hypoxia and curtailing the production of hypoxic LOX molecules.

P094

Survival Rate of Advanced Oral Squamous Cell Carcinoma and Related Factors

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Aim or purpose: Oral squamous cell carcinoma (OSCC) is a malignant tumor with an unpredictable behavior, especially in advanced stages of the disease. This study aimed to determine the survival rate of OSCC patients at various stages of the disease and assess the related factors.
Materials and methods: This cross-sectional study was conducted on patients with stage III or IV OSCC who underwent surgical resection with 1 cm free margin via unilateral or bilateral neck dissection and received post-operative radiotherapy as well. Age, sex, tumor size, lymph node involvement, histopathological grade and metastasis were the variables and the survival time was the outcome of the study. The Kaplan–Meier analysis was used to determine the survival rate of patients with regard to the variables.
Results: Forty-three patients were studied. Fifteen patients (34.9%) died during the follow-up period and 28 patients (65.1%) survived. The mean duration of follow-up was 52.95 ± 13.73 months. Analysis of the data did not demonstrate the effect of sex and tumor size on the survival rate. Advanced age, histopathological grade and lymph node involvement significantly affected the survival rate.
Conclusions: The survival rate of patients with advanced stages of OSCC was higher in our study than the rates reported in similar studies in other parts of the world. Advanced age, high grade of tumors and cervical node involvement may be considered as factors decreasing the survival rate of OSCC patients.

P095

Ossifying Fibroma in the Mandible

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Introduction: The aim of this study is to present a case of ossifying fibroma of the mandible.
Case description: Thirty-three years-old female patient was referred to our clinic with a complaint of swelling on her lower left jaw. The overlying mucosa was normal in appearance. Panoramic radiography revealed a pure radioluscent cystic lesion that is associated with the roots of molar teeth on mandibular left posterior region. CBCT revealed buccal bony expansion, ground glass appearance and second molar root resorption. Extraction of molar teeth and aggressive curettage were performed until fresh bone was reached. Histological examination revealed spindle cells proliferation presenting with oval nuclei and trabecular bone formation with a superficial osteoblasts layer, with no signs of malignancy. A diagnosis of ossifying fibroma was made. The healing was uneventful after 4 months follow-up period.
Discussion: Ossifying fibroma is a benign fibro-osseous tumor. It is thought to arise from the periodontal ligament and contain varying amounts of bone and fibrous tissue. It is mostly seen in women between the third and fourth decades of life and more common in mandible. The present case was also located in the mandible and showed bucco-lingual expansion. Due to the good delimitation of the tumor, we preferred surgical removal with curettage.
Conclusions/Clinical significance: Ossifying fibroma is generally asymptomatic and may be present for years before discovery. Thus, it is not always easy to diagnose and manage these lesions because of their radiographic and clinical appearance which may cause confusion to clinicians.

Poster Session 20 | 29.08.2017, 14:30–15:30 | Poster Display 4

Theme: Orthodontics

P096
Orthodontic Management of a Class III Patient: Long-Term Stability
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Introduction: The early treatment of Class III malocclusions is of paramount importance since it can minimize or avoid surgeries at a later stage.
Case description: A 9-year-old female patient referred with the chief complaint of poor facial appearance. The extraoral examination showed a concave profile with an acute nasolabial angle. Intraoral examination showed Class III canine and molar relationship with reverse overjet. Cephalometric analysis indicated a retrognathic maxilla, prognathic mandibula and a reduced mandibular plane angle. Phase I treatment included alternate rapid maxillary expansion and constriction (Alt-RAMEC) protocol followed with face mask therapy. Phase II was completed with the leveling and aligning of the arches with fixed appliances. Maxillary incisors were restored with composite resin and an esthetic appearance was gained. Improved facial profile, Class I canine and molar relationship with an ideal overjet and overbite was gained at the end of the treatment. The records taken 6 years after fixed appliance removal showed the stability of the results.
Discussion: The early treatment approach of the Class III malocclusion achieved successful results without the need for surgery during adulthood. The treatment also remarkably improved smile esthetics by optimizing anterior tooth display. When Class III treatment is considered as early before permanent dentition, the chances of relapse can be smaller. The case showed excellent stability associated with appropriate intervention.
Conclusions/Clinical significance: Skeletal Class III malocclusion with maxillary deficiency in a growing individual can be successfully managed using the Alt-RAMEC and facemask procedure followed by fixed orthodontic treatment.

P097
Changes in Soft Tissue Profile after Rapid Maxillary Expansion with Bonded Expander
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Aim or purpose: In this study the mean changes in soft tissue facial profile were measured after rapid maxillary expansion by using bonded expander in growing patients with narrow maxilla and posterior cross bite.
Materials and methods: A total of 40 Patients (21 boys and 19 girls between age of 10–14 years) were included in this study.
Pre-procedural holdaway soft tissue measurements of soft tissue facial angle, H-angle, superior sulcus depth and skeletal profile convexity were measured on lateral cephalogram. Appliance was bonded to maxillary arch with glass ionomer cement and advice was given for twice a day activation until the desired amount of expansion was achieved in patients. After stabilization period of 3 months, Hyrax was removed and lateral cephalogram was repeated for posttreatment measurements of soft tissue profile. All statistical analysis was done using SPSS 20.0. Pretreatment measurements of soft tissue facial angle, H-angle, superior sulcus depth and skeletal profile convexity was calculated by mean±Standard deviation. Mean change in soft tissue facial angle, H-angle, superior sulcus depth and skeletal convexity profile at the end of 3 months after rapid maxillary expansion, was calculated by subtracting mean pre-treatment measurements from mean post-treatment measurements.
Results: There was decrease in soft tissue facial angle superior sulcus depth and skeletal profile convexity (2 mm) while H-angle increases after rapid maxillary expansion.
Conclusions: Rapid maxillary expansion produce beneficial alterations in the soft tissue facial profile at the end of the Treatment period for patients.

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P098

The Evaluation of Mean Gingival Thickness of Mandibular Anterior Region in Individuals with Norm Values of Lower Incisor Position

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Aim or purpose: The present study aimed to evaluate the mean gingival thickness of mandibular anterior region in individuals with norm values of lower incisor position.
Materials and methods: 83 periodontally healthy individuals, with norm values of lower incisor position were enrolled in this study. The gingival thickness of mandibular anterior teeth was determined by the arithmetical mean of gingival thicknesses measured by transgingival probing technique from the coronal mucogingival junction and apical of free gingival sulcus. The mean gingival thickness of mandibular anterior region was determined by the ratio of the sum of gingival thickness of the relevant teeth to the number of teeth.
Results: The gingival thickness of mandibular central, lateral and canine teeth was 0.709 ± 0.180 mm, 0.805 ± 0.211 mm and 0.665 ± 0.192 mm respectively. The mean gingival thickness of mandibular anterior region was 0.692 ± 0.163 mm in females and 0.773 ± 0.137 mm in males. It was observed that the difference between mean gingival thickness of females and males was statistically significant ($p = 0.021$). The mean gingival thickness of mandibular anterior region was 0.723 ± 0.158 mm in both sexes. It was observed that the incidence of thin gingival biotype was % 95.2 in the mandibular anterior region.
Conclusions: It was determined that the mean gingival thickness of mandibular anterior region was less than 1 mm. In order not to face periodontal pathologic problems such as gingival recession in these individuals, tooth movements must be done within the anatomic limits of alveolar bone during the orthodontic treatment.

P099

Dental Transposition of Canine and Lateral Incisor. Case Report

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Introduction: Transposition is an anomaly of the dental eruption, defined as the exchange of the position of two adjacent teeth in the same quadrant of the dental arch. It is generally of low incidence (0.3%) and requires a multidisciplinary approach.
Case description: We report the clinical case of a 12-year-old girl with incomplete unilateral transposition of her right upper canine and the right upper lateral incisor. No personal medical history of local trauma, nor history of dental family transposition.
In order to identify a suitable treatment plan, photos, study models, orthopantomography and lateral teleradiography for cephalometric evaluation were initially performed. A combined surgical-orthodontic treatment was used to correct the transposition and obtain a Class I relationship. This treatment resolved the dental transposition with good functional and aesthetic results.
Discussion: An alternative treatment would have been dental alignment maintaining the transposed initial position. This option would have required less treatment time, but could compromise aesthetics and occlusion. In our opinion, combined orthodontic-surgical treatment was the best option for correcting transposition and aligning the teeth in their correct position.
Conclusions/Clinical significance: The choice of the most appropriate treatment in the transposition will depend on the occlusion, the aesthetics and the position of the root apices. In this case, satisfactory clinical results were obtained, orthodontic treatment reached all our objectives and the patient was satisfied with the aesthetic results.

P100

Maxillary Protraction: Effects on Craniofacial Structures and Upper Airway Dimension

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Aim or purpose: The aim of our study was to evaluate the effect of treatment with a maxillary protraction appliance (MPA) on the development of the craniofacial structures and to describe the correlation between the skeletal changes and the sagittal airway dimension associated with tongue, soft palate, and hyoid bone position in skeletal Class III children.
Materials and methods: A total of 40 patients with Class III malocclusions were evaluated by the use of lateral cephalograms. Pretreatment and posttreatment cephalometric radiographs were analyzed; linear and angular measurements were performed by the same orthodontist. The effects of treatment with a maxillary protraction appliance on the development of the craniofacial structures were evaluated by Pancherz's analysis and the correlation between treatment changes in craniofacial morphology and those in upper airway, tongue, soft palate, and hyoid position were evaluated by a statistical analysis using SPSS software.
Results: A significant increase in maxillary forward growth, inhibition of mandibular forward growth, and clockwise rotation of the mandible were observed. The statistical analysis revealed that maxillary growth had a significant positive effect on the superior upper-airway sagittal dimension.
Conclusions: The nasopharyngeal airway dimensions can be improved in the short term with maxillary protraction in skeletal Class III children.

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Poster Session 21 | 29.08.2017, 15:45–16:45 | Poster Display 1

Theme: Digital Dentistry

P101

Cephalometric Measurements in Different Radiographic Examinations

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Aim or purpose: The aim of this study was to evaluate the accuracy of linear measurements performed in multiplanar reconstructions (RMP) and sagittal reconstructions (RS) from the left hemiface obtained from the CBCT, comparing with the same measurements in cephalometric radiographs.
Materials and methods: Cephalometric radiographs of the lateral view and CBCT (with voxels of 0.25 mm, 0.3 mm and 0.4 mm) in ten dry skulls. Radiographs and data from CBCT were processed to obtain RMP and RS of the hemi-face left. In each image were measured linear distances, using the electronic program rules. Measurements in dry skulls with a digital caliper were considered the gold standard. Two observers, performed the measurements twice, and the data have compared and analyzed statistically.
Results: The results showed no significant differences in measurements performed in different imaging modalities and dry skulls. Regarding the absolute and relative errors, we observed a significant difference between the measurements in lateral cephalometric radiographs and those of the RS, at the three-voxel sizes. The highest average error was observed in the lateral radiograph at normal, then the RMP and the RS.
Conclusions: It can conclude that the cephalometric measurements on the images derived from the CBCT reconstruction, regardless of the voxel size, are reproducible and valid, when compared with the measurements obtained in radiography in lateral view.

P102

Development of Virtual Simulation Contents for Extraction of Third Molar

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Aim or purpose: This study aims to develop 3-dimensional Virtual Simulation models of third molar extraction that can educate and simulate dental treatment through optimized tooth model standardization.
Materials and methods: All the surgical environments including the dentist and the nurse were photographed in 360-degree VR form using three GoproHero Black (4K, 30fps) cameras equipped with an Entaniya lens with a 220-degree angle of view. In order to compensate for the disadvantages of the double image during close-up photography, the camera for patient's face and treatment area was directly attached to the forehead of the operator. A parallel 3D camera was used to acquire close-up images in the oral cavity. 3D image editing was output in side-by-side format through Vegas program. 360-degree VR images were synchronized and photographed by Autopano Videopro and Autopano Giga of Kolor, and color correction was performed to obtain 4K (4096 × 2160, 30fps) resolution. The final 3D images and 360 VR images were reproduced through Samsung Gear VR.
Results: The procedure consisted of the step of demonstrating the procedure without explanation by the instructor and the step of learning the principle of the procedure by the learner listening to the explanation of the instructor. Also, if necessary, the learner can check the concept information, detailed treatment procedure, and step – by – step contents.
Conclusions: This study develops training models and simulation model techniques to propose a new paradigm in the advanced dental industry.

P103

Anticipating Chronological Age Model Based on the Pulp to Dentin Volume Ratio by CBCT

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Aim or purpose: The aim of this study is to evaluate a human dental age estimation method based on the ratio between the volume of the pulp and the volume of its corresponding tooth, calculated on clinically taken cone beam computed tomography (CBCT) images.
Materials and methods: CBCT images of 28 mandibular incisors of 17 female and 11 male patients ranging in age between 16 and 60 years were collected. The teeth had no caries or restorative dental treatment. The pulp/tooth volume ratio of the coronal third of the root was calculated with Ez3D Plus software.
Results: The highest correlation was observed for the males aged under 35 years. The equation of the straight line relating age and ratio of pulp/tooth volume is estimated as: Age = 42 – (22.6 * Ratio) for females and Age = 39.9 – (53.9 * Ratio) for males.
Conclusions: The results of this study confirm those of other authors for the use of pulp/tooth volume measurements from clinically acquired CBCT images for age estimation.

P104

The Knowledge of Digital Radiology among Turkish Pediatric Dental Practitioners

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Aim or purpose: The aim of this study was to investigate the use, knowledge and attitudes of digital radiological imaging and cone-

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beam computed tomography by Turkish pediatric dental practitioners in daily practice.
Materials and Methods: Turkish pediatric dental practitioners responded to a self-administered questionnaire which consisted of 19 questions by mailing. They were asked about sociodemographic factors and their knowledge and use of digital radiographic examinations. Data was evaluated according to descriptive statistics, which is presented as percentages (%). Ethical approval was obtained for the study (with the number of 09.2017.135).
Results: A total of 80 participants responded to the questionnaire. The mean age of the dentists who participated in the study was 32.4 ± 6.7 years. Most of the respondents 51 (63.8%) worked in University, had graduated within the last 10 years, and were between 24 and 50 years old. 47 (92.1%) of academicians used digital radiography and 4 (7.8%) did not use. 75 (93.75%) of all respondents reported having ever used digital radiographic examinations. 24 of pediatric dentist works private practice and 23 (95.8%) of them use digital radiography. Most of the respondents recognized the advantages of digital radiographic examinations, such as image quality, ease of storage, and easier communication between professionals, saving time and lower radiation dose.
Conclusions: We found that pediatric dental practitioners mostly used digital radiography due to their acceptable knowledge about the benefits of digital radiography. But the results still indicated that the need for continued education on this subject.

P105
Effect of Different Box Forms in CAD/CAM Resin Inlays
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Aim or purpose: This study focuses on comparing the marginal adaptation of ceramic inlays in two conditions (Box base, shallow base). The purpose of this study is to assess the marginal adaptations in resin inlays by CAD-CAM system.
Materials and methods: Human mandibular molars were prepared with Class II cavity (N = 38). Only the teeth in the shallow base group were prepared additionally at the axio-pulpal line angle. The resin inlay (mazic duro, vericom) were made using Cerec AC. In the cementation process, the Restorations were sandblasted and rinsed before being applied with silane. For teeth, selective etching process was undergone followed by universal bonding application and light curing. Then, conventional resin cement (Duolink, Bisco) was used. To assess the marginal adaptation, the occlusal and proximal surfaces of teeth were photographed twice using stereomicroscope before and after chewing simulator. The marginal adaptations of the occlusal and proximal pictures were compared. The ratio between the marginal length with imperfect adaptation and the total marginal length were calculated.
Results: The imperfect margin percentage before and after chewing showed no significant difference statistically. Different Base forms showed no significance in the mean percentage of imperfect margin. In other words, the thickness of resin inlays showed no difference mechanically.
Conclusions: The shallow form of base is more recommended for the sake of convenience. Instead, further research is required to establish the optimum thickness of base to protect the pulp from thermal conduction and condensation force in resin inlays.

Poster Session 22 | 29.08.2017, 15:45–16:45 | Poster Display 2

Theme: General Dentistry

P106
Modern Research Methods of Neuromuscular Balance in Periodontal Disease
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Aim or purpose: To apply the method of quantitative measurement of the function – electromyography– to study the nature and extent of changes in the bioelectric activity of the masticatory muscles; to compare the results of electromyographic studies before and after the complex treatment of patients with inflammatory periodontal diseases and functional disorders of occlusion.
Materials and methods: We drew up a plan for the comprehensive treatment of ten patients with inflammatory periodontal disease. At the stage of diagnosis was performed a study of the masticatory muscles, carried out the sample "REST" and sample "COMPRESSION" at the moment of occlusal contact, and electromyographic follow-up after comprehensive treatment.
Results: Traced the asymmetry of the activities of the temporal and masticatory muscles (the coefficient of asymmetry of muscle activities ranged from 50% to 70%). After treatment, periodontal and prosthetic treatment of these patient's indicators of bioelectric activity of masticatory muscles increased significantly (asymmetry factor dropped to 15%).
Conclusions: Electromyography is a reasonable method of diagnosis for the objectiveness of the evaluation of the functioning dentition.

P107
Usefulness of Electronic Stethoscope as Respiratory Monitor for Intravenous Sedation
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Aim or purpose: Arterial oxygen saturation (SpO_2) and breath sound listening are performed for respiration monitor of intravenous sedation(IVS). However, since an anesthesiologist's motion is restricted by the rubber tube of a stethoscope, it is not easy to hear a breathing sound continuously. A wireless stethoscope (Bresco™) is an audiotransmitting stethoscope that uses Bluetooth™, which is a short-distance wireless transmission technology for digital devices. It is possible to measure the respiratory rate for non-invasively and continuously. But there are no reports that

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respiration monitor of Bresco™ under dental treatment. Therefore, we examined the usefulness of Bresco™ in the dental procedures under IVS.

Materials and methods: We performed IVS with propofol or midazolam for 12 subjects scheduled treatments implant surgery under BIS level between 70–80. We measured respiration rate by the Bresco™ (BrRR) and capnogram(RR) same time. The obtained result was authorized using Pearson's correlation coefficient and Bland-Altman analysis.

Results: As a result, RRa and RR showed $r = 0.93$ ($p < 0.01$). The mean ± standard deviation difference (RR−BrRR) was 0.16 ± 1.01, the 95% confidence interval was −0.08 to 0.40 and the limits of agreement for the error were −1.86 to 2.18.

Conclusions: Bresco™ enables measurements to be obtained similar to those with capnography, which is highly reliable, and can be used with orally respiring patients, so it is thought to present an excellent respiratory monitoring technique. Therefore, it was thought that the Bresco™ was useful for respiration rate measurement in intravenous sedation under dental procedures.

P108

Management of Complex Traumatic Dental Injury – Case Report

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Introduction: Dental trauma is probably the most common injury sustained during orofacial damage. It can create serious sequelae, which may limit some orofacial functions, impairing social life and disturbing relationships.

Case description: We report a case of a 12 years old girl who was hit by a four-wheeled vehicle, on her way to school. The traumatic event resulted in hard and soft tissues injuries: chin abrasions with laceration on the lower lip; avulsion of 11, intrusion and enamel-dentin fracture of 21. An imaging examination was performed. Coronal, sagittal and axial slices were registered by cone-beam computed tomography with iCAT equipment® (Pennsylvania, EUA). The software on Demand® was used. The severity and extensions of these injuries allowed us to diagnose: tooth fragments in the anterior region of lower lip. The treatment plan included: 1) removal of dental fragments from the lower lip; 2) observation and control of the eruption of 21 and its vitality; 3) orthodontic traction with placement of fixed braces; 4) placement of supported implant structure.

Discussion: Until the 4th procedure it's a time period corresponding to the evolutionary process of injuries in the sense of healing or consolidation. The child may have limited autonomy in the accomplishment of daily acts, family and social life, as well as in their school activity.

Clinical significance: The diagnosis should be careful and accurate for a valid and successful treatment plan to anticipate future sequelae and oral health-related quality of life, among children and adolescents.

Keywords: Injury, sequelae, impairment.

P109

Evaluation of Musculoskeletal Disorders among Dental Practitioners

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Aim or purpose: The aim of this study was to determine a potential correlation between the subjectively declared MSDs and results of the objective examination of the spine in a group of dental practitioners.

Materials and methods: The study was carried out among 23 dentists (43.5% men and 56.5% women, the average age 38.9 years). All respondents had signed an informed consent before being included in the study. Each participant filled out a questionnaire focused on the subjective complaints in the musculoskeletal system and potential risk factors. All of them were examined with the non-invasive and not requiring ration device to record the shape and mobility of the spine. Furthermore, the Matthiass test was performed to examine the neuromuscular stabilization of the spine. All data was statistically analyzed.

Results: Out of 23 dentists, 78.3% declared various intensity of pain in different parts of the body. None of the followed factors, i.e. age, gender, body height and weight, duration of the clinical practice, presence of systemic diseases, dominant hand, and individual sports activities, revealed any statistically significant influence on the occurrence and severity of MSDs. On the other hand, some of the objective factors, such as lumbar lordosis angle, sacral inclination and T/L ratio, showed significant influence on MSDs.

Conclusions: The results of this study confirmed a high prevalence of MSDs among dentists and proved a statistically significant correlation between the intensity of subjective complaints and some objective factors.

P110

Comparison between Mechanical Axiography and MRI in the Diagnosis of TMJ Disorders

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Introduction: We receive daily patients with signs and symptoms of Tmj disorders, clinical examination does not always make it possible to make the diagnosis, complementary examinations emerge on the surface and make it possible to guide the treatment plan.

Case description: Among the complementary exams we will use the axiograph Quick axis of the firm fag by comparing secondarily the results (condylar path) obtained to images MRI.

Discussion: The axiograph is a functional examination of the tridimensional dynamics of the Tmj. Indeed, its traces recorded on the para-condylar flags make it possible to orient the musculo-

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articular pathology while the MRI allows a structural and anatomical analysis, unfortunately unique, not Repetitive at T given time, occasionally avoiding the opportunity to diagnose a reducible dislocation that does not occur systematically because performed in a static pseudo-dynamic position (BO/BF) however, contraindications of MRI, Apparatus and the cost of the examination are an obstacle to its systematic prescription.
Conclusions/Clinical significance: Will axiography become the indispensable instrument of tomorrow in all diagnostic procedures without using MRI?

Poster Session 23 | 29.08.2017, 15:45–16:45 | Poster Display 3

Theme: Gerodontology

P111
Analysis of the Perception of Pain of Elderly Patients during Surgical Dental Appointment
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Aim or purpose: In the course of the present research clinical rationale for the development of the program of correction of a dentophobia was formulated. The purpose f the present research is to decrease of the level of pain perception of elderly patients during surgical dental appointment.
Materials and methods: The study involved 91 patients, aged 75 to 85 years, living in geriatric center, divided into two groups depending on the level of a dentophobia – an average (1 group) and high level (2 group). All patients were needed the operation of tooth extraction in the maxilla. Patients of the second group additionally took medication MigStress as premedication. Local infiltration anesthesia wa performed in 4% solution of articaine with epi 1:200000. To assess the perception of pain the following methods were used: electronic pulp test and Sound Eyes Motor Scale.
Results: Before the local infiltration anesthesia electroexcitability pulp threshold of patients in group 2 was slightly lower than in group 1. In 4 minutes after anesthesia the results were aligned and it was possible to carry out painless tooth removal surgery. The level of discomfort at the SEMS also tells about less discomfort in the group 2.
Conclusions: The developed algorithm of management for elderly patients has shown its effectiveness. Also effectiveness of medication MigStress was proven.

P112
Study of Selected Properties of Soft Liners Using Gas Chromatography
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Aim: Series of soft lining materials were examined to establish the influence of the humidity on their surface properties.
Materials and methods: Inverse Gas Chromatography (IGC) is an accurate, sensitive technique for studying surface properties at a humidity of 0% and 80%. In the experiment, dispersive component of the surface energy of selected soft liners was estimated as well as the K_A and K_D parameters, determining the ability of the tested material surface to act, respectively, as the electron donor and acceptor.
Results: All studied materials are characterized by relatively high value of which means they have strong ability for dispersive interactions. Much higher value of has Silagum Comfort that can be the effect of the presence of alkyl groups on the surface of silicone. The least changes in the values of all estimated parameters in humidity 80% are observed for Silagum Comfort as well. K_A parameter for this material increased from 0.096 to 0.119 while K_D from 0.494 to 0.677.
Conclusions: IGC turned out to be an appropriate and useful technique for studying surface properties of the prosthetic materials and the stability of their surface under the influence of humidity. On the basis of IGC data obtained at the different humidity Silagum should be the most stable material taking into account the water influence. The most important is the fact that all studied prosthetic materials did not change significantly, statistically surface properties (small or no changes of the values of determined parameters).

P113
Radiographic Findings of Temporomandibular Joint Condyle and Occlusal Support among Vietnamese Elderly
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Aim or purpose: To investigate the associations between the osseous changes of temporomandibular joint (TMJ) and loss of occlusal support among the Vietnamese elderly aged 65–74 years old.
Materials and methods: 392 TMJ of 196 Vietnamese elderly were analyzed based on orthopantomography. The evaluated osseous changes of TMJ included erosion, flattening, osteophytes and sclerosis. An anterior or premolar occluding pairs of teeth was accounted for one functional tooth unit, and a molar occluding pair is two FTUs. The full occlusion consisted of 6 anterior FTUs and 12 posterior FTUs.
Results: Of 392 TMJ condyles, the prevalence of TMJ flattening was 28.6%, 18.6% erosion, 10.5% sclerosis, and 4.3% osteophyte. The mean total number of FTU among 196 elderlies was 10.3 ± 6.2 (6.0 ± 6.2 of posterior FTUs and 4.3 ± 2.3 of anterior FTUs.). 14.3% of elderly remain enough FTU, 15.8% lost bounded FTU, and 69.9% lost extension FTU. No significant differences were found between radiographic findings and the number of FTU. High odds of having sclerosis (OR =1.66, 95% CI =

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0.71–3.83, p = 0.237) and flattening (OR =1.1, 95% CI = 0.50–2.5, p = 0.793) were found among elderly who lost extension FTU.
Conclusions: High prevalence of the osseous changes TMJ was found in the elderly. The impaired occlusion was not associated with TMJ osseous change among the Vietnamese elderly.

P115
Using Extraoral Modified Kazanjian's Technique for Mandibular Vestibuloplasty
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Introduction: The most common procedures in vestibuloplasty have been performed intra-orally. The aim of all techniques is to create adequate vestibular depth and limit the traction of fiber and muscle attachments. The objective of the present study is to present a modified vestibuloplasty technique with extra-oral suturing in the submental region.
Case description: Five patients were included in present study with a mean age of 63. Radiological investigations and vestibular depth were assessed. Mucosal flap was raised from the lip that extends from the right to the left premolar area and the vestibule crest was deepened with supraperiosteal dissection. Kazanjian's technique of vestibuloplasty was performed and tissue attachments were extraorally sutured in submental area with 3-0 prolene sutures. Special care was taken in the post-operative follow-up, and new removable prosthesis was fabricated immediately after the healing process. None of the patients had postoperative drawbacks or pain that could not be controlled effectively with analgesics and desired vestibular depth was accomplished in all patients. No relapse was observed in the first year of follow-up.
Discussion: The most encountered problem in intra-oral vestibuloplasty techniques such as Kazanjian's, Clark's, with or without using soft tissue graft is the remission of the vestibular sulcus depth. Using extraoral modified Kazanjian's technique with submental sutures is a viable and reliable option that promotes early healing and maintains postoperative sulcus depth.
Conclusions/Clinical significance: The present extraoral suturing technique provides sufficient vestibular depth without any complications.

P116
Oral Health-Comorbidity Correlation at Prosthetic Geriatric Population in Macedonia
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Aim or purpose: Health and health condition are basic components of quality of life and oral health as connective part of the general health. Comorbidity is one important factor for perception of oral health. Main purpose of this study was to evaluate the oral health and quality of life at geriatric population aged >65 in relation to the type of oral prosthetic dentures and present comorbidity.
Materials and methods: The survey was a prospective transversal (cross-sectional) study conducted among 165 institutionally sheltered patients at Gerontology Institute (inspected group – IG) and 170 patients from the dental specialist clinics (control group CG) at age 65 and older. Statistical program SPSS for Windows ver 13.0 was used for statistical processing.
Results: Patients with upper and lower total dentures were dominant (43.6% vs. 26.5%). Patients from both groups with positive history of chronic diseases had highly significant higher total mean GOHAI scores than those without. IG patients had significant differences in relation to the physical and physcho-social functioning while CG patients had significant differences in relation to all three dimensions of quality of life.
Conclusions: Quality of life and oral health at geriatric patients are at unsatisfactory level with significant influence of the comorbidity in Macedonia.

Poster Session 24 | 29.08.2017, 15:45–17:00 | Poster Display 4

Theme: Prevention and Periodontal diseases

P117
Effect of Tongue Cleaning on Dental Plaque Accumulation
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Aim or purpose: Previous studies on the effect of tongue cleaning on plaque formation have yielded contradicting results. This study aimed to determine if tongue cleaning could reduce plaque accumulation.
Materials and methods: The study was approved by the Research Committee of the College. This single-blind, randomized clinical trial with crossover design consisted of two phases: the effect of tongue cleaning on *de novo* plaque formation, and tongue cleaning as an adjunct to toothbrushing. Twenty dental students participated, with ten subjects recruited for each study phase. For the first phase, *de novo* plaque formation after 48 hours was compared between no oral hygiene procedure and tongue cleaning as the sole means of oral hygiene. Plaque was assessed using Turesky modification of Quigley and Hein at baseline and after 48 hours. For the second phase, plaque accumulation was observed after 14 days. Another 10 subjects performed either toothbrushing, or toothbrushing with tongue cleaning. For both study phases, the order of group assignment was randomized and a two-week rest period was enforced prior to crossover. A single, calibrated examiner performed assessment of all subjects.
Results: In both study phases comparing plaque accumulation with and without the use of tongue cleaners, analysis revealed no statistically significant difference in plaque indices between groups (p > 0.05).

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Conclusions: Based on the results, tongue cleaning appears to be ineffective in reducing plaque accumulation. However, based on previous researches, the procedure should not be abandoned as part of oral hygiene because of other potential benefits such as halitosis reduction.

P118

Antibacterial Performance of Mouthguard Material Incorporated with Silver-Nanoparticles-Embedded EVA Masterbatch

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Aim or purpose: Despite there is a risk that mouthguard will be contaminated through contact with various oral and soil bacteria, there is still no antibacterial activated mouthguard. The aim of this study was to develop a new mouthguard material that has an antibacterial property on its surface using silver nanoparticles.
Materials and methods: An experimental material was fabricated by thermoforming with a sheet made of EVA co-polymer masterbatch which contains silver nanoparticles at 5,000 ppm (Japan Ion Co., Japan) and a commercial EVA mouthguard sheet (Erkodent Co., Germany). Antibacterial efficacy against *Streptococcus sobrinus, Porphyromonas gingivalis* and *Escherichia coli* was assessed by ISO22196 test with minor modifications. To confirm shock-absorbing capability, impact test was performed by free falling a steel ball (impact load; 648.9N). Peak intensity (PI) and time to PI were analyzed.
Results: *In vitro* the growth of bacteria was suppressed on sheet of an experimental material compared with a commercial EVA mouthguard sheet. PI and time to PI of experimental material was 405.7 N and 0.39 msec respectively. There were no significant differences of the impact test data between the material and commercial mouthguard sheet.
Conclusions: The results suggested that the new-developed experimental mouthguard material had strong enough antibacterial activity, and had equivalent shock absorption to commercial mouthguard sheet.

P119

Clinical Impact of Chlorhexidine-Dexpanthenol-Allantoin Toothpaste and Mouthwash on Periodontal Disease

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Aim or purpose: Periodontal disease (PD) results in the development of inflammation in the tissues surrounding the teeth in response to the deposition of dental plaque. New products with functional ingredients: chlorhexidine for the reduction of dental plaque (antibacterial activity), dexpanthenol, allantoin and bioadhesive excipient (CDAB) for healing effects, were evaluated in volunteers with PD.
This study evaluated the efficacy of two pharmaceutical forms (toothpaste, TP and mouthwash, MW) on the PD index (PDI), acceptability and cosmetic properties.
Materials and methods: 60 subjects with mild-moderate symptoms of gingivitis received randomly fortified either TP (n = 30) or MW (n = 30) t.i.d. Clinical signs were evaluated with PDI at baseline (T0) and after 21 days (T21) of continuous use of the products. Satisfaction questionnaire was evaluated with VAS scale or affirmative/negative answers.
Results: All subjects completed the study. Both groups had a significant improvement of PDI score after treatment (T21/T0) ($p < 0.001$): gingivitis improved from moderate to negative by 20% (TP)/36.66% (MW) and from mild to negative by 56.66% (TP)/50% (MW). After treatment, subjects perceived their teeth healthier/less bleeding (TP 9/9.4; MW 8/8.2) and would recommend the product (TP:100%/MW:96.6%). No change of colour of the teeth was observed.
Conclusions: Subjects having PD, with gingivitis and bleedings receiving either TP or WM oral care containing CDAB, reported a significant improvement of their symptoms and resolution of the gingivitis. The Dentist confirmed the good tolerance of the two products.

P120

Clinical Effect of New Oral Care Regimen Containing Zinc Salt on Volatile Sulfur Compounds

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Aim or purpose: To evaluate the clinical effect of new oral care regimen comprised of toothpaste and mouthrinse containing zinc salt and tongue scraper (Test regimen) on reducing malodorous volatile sulfur compounds (VSCs) when compared to using the toothpaste and mouthrinse containing fluoride (Control regimen).
Materials and methods: Ten subjects with good health were recruited into a 5- step crossover design study with a 7 days washout period. VSCs gases from subjects using toothpaste containing 0.4%% zinc lactate, mouthrinse containing 0.14% zinc lactate and tongue scraper (Test) were tested compared with the gases when using the toothpaste and mouthrinse containing sodium fluoride and sodium monofluorophosphate (Control). The amount of total VSCs comprised of hydrogen sulfide (H_2S), methyl mercaptans (CH_3SH) and dimethyl sulfide ($(CH_3)_2S$ and each individual malodor gas were measured using the gas chromatograph (Oral Chroma™).
Kruskal–Wallis and Mann–Whitney *U* test were used to analyze the percentage differences between the two tests regimens.
Results: There were statistically significant reduction of hydrogen sulfide (H_2S), methyl mercaptans (CH_3SH) and dimethyl sulfide ($(CH_3)_2S$ and total VSCs in the subjects using the test regimen compared to the control regimen ($p = 0.000$, 0.001, 0.012 and 0.001 respectively).

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Conclusions: There were reduction in all three VSCs gases and total VSCs in the group using the test regimen compared the control regimen.

P121

Clinical Efficacy of Toothpaste and Mouthrinse Containing Zinc Salt and Tongue Scraper on Malodorous Gases

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Aim: To evaluate the clinical efficacy of toothpaste and mouth rinse containing zinc salt and tongue scraper on reducing malodorous volatile sulfur compounds (VSCs) at 30, 60 and 120 minutes.
Materials and Methods: A crossover design was used in ten subjects. At the study site, the test group were asked to brush and rinse with toothpaste and mouth rinse containing 0.14% zinc lactate and a tongue scraper. Compared regimen was to brush and rinse with toothpaste and mouth rinse containing fluoride. The amount of total VSCs and hydrogen sulfide (H_2S), methyl mercaptans (CH_3SH) and dimethyl sulfide $(CH_3)_2S$ were measured using the gas chromatograph (Oral Chroma™) at baseline and after using the test and control regimens for 30, 60 and 120 minutes. Friedman test and Wilcoxon rank test were used to analyze the clinical effect of gas reduction among three-time period.
Results: When compared to t, there the control regimen, there were statistically significant reduction of hydrogen sulfide (H_2S) at 30, 60 and 120 minutes ($p = 0.012$, 0.012, and 0.012 respectively). There were statistically significant reduction of methyl mercaptans (CH_3SH) at 30, 60 and 120 minutes ($p = 0.017$, 0.012 and 0.012 respectively). There was statistically significant reduction of total VSCs at 30 and 60 minutes ($p = 0.012$, and 0.025 respectively). There was no statistically significant reduction of dimethyl sulfide $(CH_3)_2S$.
Conclusion: Using toothpaste and mouthrinse containing zinc salt and tongue scraper could reduce hydrogen sulfide (H_2S) and methyl mercaptans (CH_3SH) for the period of 120 minutes when compared with the control regimen.

P122

Short-Term Efficacy of an Occluding Dentifrice on Dentinal Hypersensitivity

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Aim or purpose: To investigate efficacy of an experimental anhydrous 0.454% w/w stannous fluoride dentifrice in relieving dentinal hypersensitivity (DH) after a single use and 3 days' twice-daily 'focused' brushing, compared with a 0.76% sodium monofluorophosphate marketed control dentifrice.
Materials and methods: This was a single-centre, randomized, examiner-blind, two-treatment arm, stratified, controlled, parallel-design study in otherwise healthy subjects with DH. Two non-adjacent teeth with DH were selected and tactile threshold (Yeaple probe) and evaporative air sensitivity (Schiff sensitivity score) were assessed at baseline. Subjects brushed twice-daily for at least 1 minute with their assigned dentifrice; those using the Experimental dentifrice also included an initial focused brushing of 30 sec per test tooth. Schiff sensitivity and tactile threshold scores were re-assessed post-first use and after 3 days twice-daily brushing.
Results: The Experimental dentifrice regimen ($n = 97$) demonstrated a reduction in DH, as assessed by both Schiff and tactile threshold measures, compared to Control regimen ($n = 95$) at both time-points (all $p < 0.0001$). The Experimental dentifrice regimen also reduced DH compared to baseline after first use and after 3 days twice-daily brushing for both measures (all $p < 0.0001$). The Control dentifrice regimen had no significant effect on DH at either time-point for either measure ($p > 0.05$). Study products were generally well-tolerated.
Conclusions: The 0.454% stannous fluoride-containing Experimental dentifrice regimen demonstrated a statistically significant reduction in DH compared to a marketed control dentifrice regimen after 3 days' twice-daily focused brushing. This reduction was significant after a single use.

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