Thursday, 31 August 2017

WDC 2017 – ABSTRACT BOOK

FREE COMMUNICATION SESSIONS 49–72

and POSTER SESSIONS 48–67

FREE COMMUNICATION SESSIONS 49–72

Free Communication Session 49 | 31.08.2017, 09:00–10:00 | Room A9.9

Themes: Oral Health and Systemic Health and Materials

FC193

Stress, Inflammation, and Stomatognathic Pathophysiology

Douglas Chase
Chase Cranialorthopedic Center, Santa Rosa, CA, USA

Aim or purpose: To review selected past research and evaluate hypothesis that anatomical distortions and dysfunction of the craniomandibular cervical complex lead to systemic inflammation affecting neural and hormonal pathways.
Materials and methods: Review of past published research to develop or discount human anatomy and/or dysfunctional processes in their role of systemic inflammation.
Results: Studies support the concept that craniomandibular pain/dysfunction during life affect systemic processes in neural and hormonal pathways. Specific markers such as cortisol, inflammatory cytokines of IL1, IL6, TNFa and substance P provide responses to anatomical change and physiological dysfunction.
Conclusions: Hypothesis demonstrates research support that physiological processes react in an inflammatory response from craniomandibular stresses placed on the system.

FC194

Epidemiology of Pregnancy Gingivitis: Evidence from the OHMOM Study

Robert Gerlach[1], Julie Grender[1], Ohmom-Research Group Uab[2], Ohmom-Research Group Upenn[3]
[1]*The Procter & Gamble Company, Cincinnati, OH, USA,* [2]*University of Alabama Birmingham, Birmingham, AL, USA,* [3]*University of Pennsylvania, Philadelphia, PA, USA*

Aim or purpose: This research assessed relationships of demographic, socio-economic and behavioral factors to the onset, severity and duration of gingivitis during the late first through second trimesters of pregnancy.
Materials and methods: After institutional review and informed consent, over 800 pregnant women were screened for OHMOM study (NCT01549587) eligibility, a large multicenter clinical trial to evaluate relationships of oral health and maternity outcomes. Comprehensive baseline evaluations involved three areas: (1) pertinent demographic, socio-economic and behavioral parameters, (2) medical, pregnancy and medication history, and (3) oral/periodontal health including whole mouth clinical measurement of gingivitis bleeding sites via the Loe-Silness Gingivitis Index. Regression analysis was used to model relationships between baseline parameters and gingivitis status during pregnancy.
Results: The diverse sample consisted of 648 evaluable women (18–46 years) with gestational age at entry ranging from 8–26 weeks. Moderate-to-severe gingivitis occurrence during pregnancy was common, ranging from 30–144 bleeding sites, with an overall mean (SD) of 51.1 (15.9) bleeding sites. While site and maternal age were significant ($p < 0.02$) factors in gingivitis severity, gestational age at enrollment did not significantly ($p > 0.32$) affect gingivitis bleeding, and other evident population differences (ethnicity, socio-economics, behavior) did not contribute to gingivitis differences during the first and second trimesters of pregnancy.
Conclusions: In a large, contemporary, multicenter clinical trial, the occurrence and severity of pregnancy gingivitis substantially exceeded national averages, with evidence of appreciable disease across broad demographic and socio-economic subgroups that persisted throughout the first and second trimesters of pregnancy.

FC195

8-OHdG Levels in The Relationship Between Periodontal Disease and Hypertension

Esra Sinem Kemer Dogan[1], Burak Dogan[1], Ozlem Fentoglu[2], Fatma Yesim Kirzioglu[2]
[1]*Department of Periodontology, Faculty of Dentistry, Mustafa Kemal University, Hatay, Turkey,* [2]*Department of Periodontology, Faculty of Dentistry, Suleyman Demirel University, Isparta, Turkey*

Aim or purpose: Oxidative deoxyribonucleic acid (DNA) damage has an important role in various systemic conditions like periodontitis, hypertension and menopause. The relation between periodontal disease and hypertension was previously indicated. The goal of this study was to evaluate the role of saliva 8-Hydroxy-2′-deoxyguanosine (8-OHdG) levels, an indicator of oxidative DNA damage, in the relationship between hypertension and periodontal disease in postmenopausal women.

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Materials and methods: Ninety participants were included in the study. Sociodemographics (age, education, body mass index, abdominal obesity), oral (brushing, flossing) and systemic status were recorded. Patients were categorized as hypertension (HT) (n = 35) or non-hypertension (noHT) (n = 55). Periodontal parameters were measured and saliva samples were obtained. 8-OHdG levels were analyzed by enzyme linked immunosorbent assay.
Results: No significant difference was shown between sociodemographics ($p > 0.05$) except diabetes. The number of diabetics was more in group noHT than HT ($p < 0.05$). All clinical periodontal parameters were higher in group HT than noHT ($p < 0.05$). However, 8-OHdG levels were similar between the groups HT and noHT ($p > 0.05$). CAL and PD were positively associated to 8-OHdG levels in group HT in adjusted linear regression analysis ($p < 0.05$).
Conclusions: Worsening periodontal status in postmenopausal women with hypertension may be related to an increase in oxidative DNA damage which is indicated by 8-OHdG levels.

FC196
Retention of Glass Fiber Post Using Core Material/Different Adhesives systems
Amal El Shahawi[1], Dalia Zaki[1], Dalia Abdel-Hamid[2], A Nour Habib[2]
[1]*National Research Center, Cairo, Egypt, 33 Al Behous, Ad Doqi, Giza Governorate, Cairo-Egypt, Egypt,* [2]*Faculty of Dentistry, Cairo-Egypt, Egypt*

Purpose: To measure the retentive forces of glass fiber post to root dentin using resin core material as cement with different adhesive systems. To evaluate the bond strength of the resin core material to both glass fiber post and root dentin using different adhesive systems.
Materials: Resin core material (Flow type) and 2 resin cements; conventional and self-adhesive types, glass fiber post and 2 commercial adhesive systems etch-rinse (ER) and self-etch (SE) were used. Different samples were prepared from 70 extracted permanent human central incisors. Pull out test was used to measure the retentive force of the cemented post to root dentin and the bond strength of the post/resin cements. While, push out test was used to measure the resin cements/root dentin bond strength. Data were statistically analyzed using ANOVA and Tukey's post-hoc test.
Results: Posts cemented with the resin core material combined with ER adhesive system showed the highest significant mean retentive force values followed by the use of self-adhesive cement. Similarly, resin core material combined with ER adhesive system showed the highest significant mean bond strength to root dentin followed by its use with the SE adhesive system. The bond strength of the post to both core material and conventional resin cement was not significantly different and was higher than the self-adhesive cement.
Conclusions: Resin core material (flow type) with etch-rinse adhesive system can be used as a post luting agent and core at the same time providing high post retention and fulfilling the mono-block concept.

Free Communication Session 50 | 31.08.2017, 09:00–10:00 | Room A9.10

Themes: Public Health and Caries Prevention

FC197
Sociodemographic Influence on Oral Hygiene Perception among Pregnant Women
Lubna Ali, Ahmed Moiz, Hamna Abdul Samad, Sadaf Saeed, Muhammad Safdar Raza Khan, Rumman Shahid Nizami
Dow University of Health Sciences, Karachi, Pakistan

Aim or purpose: Assess the influence of sociodemographic factors on the knowledge, attitudes & practices of pregnant women regarding oral hygiene, & investigate whether women have any concept of oral health problems related to pregnancy.
Materials and methods: The study design of present research was cross–sectional & non-experimental. Convenience Sampling Technique was used to collect data, after obtaining approval from the Institutional Review Board (IRB), from 571 patients visiting the Gynecology OPD, Civil Hospital Karachi, Pakistan.
Results: Majority (88.3%) of the women belong to a low socioeconomic status. When asked about dental problems during pregnancy, 44.8% experienced dental pain, 36.5% experienced gum bleeding, & 18.7% experienced gum swelling. Approximately two-thirds (62.6%) had never visited a dentist, of which 50.2% perceived that they did not feel the need to go to the dentist, while 47.1 expressed fear & high fees to be a barrier. Another finding was that only 40.8% would refer to dentist if they had any dental problem during pregnancy, while the rest would self-medicate or ask a family member (25.9%), refer to a family doctor (17.6%) or their gynecologist (15.7%). Furthermore, an astonishing 66.9% did not agree that there is a link between oral health & pregnancy.
Conclusions: The education & enlightenment of pregnant woman in terms of oral health & dental care is crucial, for which the preliminary step is to establish a method of spreading awareness regarding the proven relationship between oral health & pregnancy.

FC198
Communication Skills of Dentists in Karachi- Yay or Nay?
Rida Zehra Thaver[1], Saima Butt[2]
[1]*Fatima Jinnah Dental Hospital, Karachi, Pakistan,* [2]*Ziauddin University, Karachi, Pakistan*

Aim or purpose: To assess the satisfaction rate among patients in terms of effective communication skills of dentists in Karachi, Pakistan.
Materials and methods: This semi structured questionnaire based research using convenience sampling was carried out over a period of 12 months on 300 patients. The patients selected had to answer a list of sixteen questions to gauge and evaluate the communication skills of their dentist. Survey information was obtained through a third person and all responses remained confidential. Descriptive statistics were used to analyze the data.

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Results: Failure to show empathy was the most commonly reported complaint (78%). Others included not explaining technical medical terms in plain language (38%), not encouraging them to ask questions/avoiding their questions (65%) as well as not maintaining eye contact during most of their interaction with the patient (32%). However, the section of greetings, active listening, detailed oral examination, giving adequate time and appropriate history taking were areas were the patients appeared more satisfied.
Conclusions: Doctor-patient communication is the key to successful treatment outcomes and is a major component of the process of health care. Most patient's complaint about doctors are related to issues of communication, not clinical competency. Patients appreciate and like doctors who not only can skill-fully diagnose their sicknesses but also communicate with them effectively. This may lead to better satisfaction, economically effective, good quality outcomes and greater patient understanding of their health issues as well as better adherence to the treatment process.

FC199

Dental Anxiety Among the Students of public Sector Medical Colleges of Karachi

Zarah Siddiqui, Mansoor Majeed
Dow University of Health Sciences, Karachi, Pakistan

Aim or purpose: This study intended to gauge the ranks of dental anxiety among medical, dental and pharmacy students at DOW UNIVERSITY OF HEALTH SCIENCES comprising of colleges names as DIKIOHS, DIDC, DDC, DCOP, DIMC and DMC and JINNAH SINDH MEDICAL UNIVERSITY and to discover the bases of dental fear among them.
Materials and methods: This cross sectional descriptive analytical study was carried out among 310 medical, dental and pharmacy students od DUHS and JSMU among which 293 were returned. The questions engendered from standardized questionnaires of DAS (Dental Anxiety Scale) and DFS (Dental Fear Scale). Questions from DAS and DFS along with statistics about age, sex, course of study, year of university admission and history of dental clinic administration were scrutinized by SPSS.
Results: Out of 113 (36.7%) medical, 165 (52.5%) dental and 36 (11.5%) pharmacy students 34.7% were males while 65.3% were females. 41.5% said that they will feel a little uneasy while waiting for their turn. 35.1% will feel a little uneasy while 20.8% will feel tense when the dentist gets the drill ready to start work. Dental students were significantly less anxious than other groups.
Conclusions: Dental students have ominously lower ranks of dental anxiety than medical and pharmacy students. Females presented advanced ranks than male. Drilling of teeth were for most bases of dental anxiety. Deficiency of dental tutoring may perhaps result in elevated level of dental anxiety among non-dental university students.

FC200

Comparative Analysis of Salivary Factors in Caries Free and Caries Active Subjects

Asma Ansari[1], Imtiaz Ahmed[2], Masood Qureshi[3]
[1]*Dr Ishratul Ebad Khan Institute of Oral Health Sciences, Dow University of Health Sciences, Karachi, Pakistan,* [2]*Dr Ishrat Ul Ebad Khan Institute of Oral Health Sciences, Dow University of Health Sciences, Karachi, Pakistan,* [3]*Institute of Basic Medical Sciences, Dow University of Health Sciences, Karachi, Pakistan*

Aim or purpose: Saliva plays a major protective role against dental caries. Adequate salivary flow and composition are recognized as important for lubrication and protection of soft and hard oral tissues. The aim of this study was to compare the salivary flow rate, pH and buffer capacity among the caries free and caries active subjects.
Materials and methods: 700 school children between 6 and 16 years of age after assess dental caries status were selected for the study. The subjects were then grouped as free and active caries group based on their DMFT/dmft score. Saliva was collected via passive drool method for assessing its physicochemical properties. A questionnaire was filled by the participant regarding type and frequency of food along with oral hygiene practices. Results were presented as frequencies and means. Groups comparison was done using Mann Whitney *U*. Logistic regression analysis was used to find the significant risk factor.
Results: The mean value for salivary flow rate were decreased significantly caries active group i.e. $p < 0.001$, Logistic regression analysis showed that, low flow rate, high pH and low buffer capacity could be the positive risk factor in caries development.
Conclusions: It was concluded that caries active group have lower resting salivary flow rates. Caries free subject showed within normal range of salivary pH and better buffering capacity than caries active group.

Free Communication Session 51 | 31.08.2017, 09:00–10:00 | Room A9.11

Theme: Prosthodontics

FC201

Rehabilitation of Lateral Incisors Extracted due to the Impacted Canines

Gulfem Ergun[1], Ayse Seda Ataol[2], Dilek Aynur Ugar Cankal[3]
[1]*Department of Prosthodontics, Faculty of Dentistry, Gazi & Mersin University, Mersin, Turkey,* [2]*Department of Prosthodontics, Faculty of Dentistry, Mersin University, Mersin, Turkey,* [3]*Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Gazi University, Ankara, Turkey*

Introduction: This case report describes implant supported prosthetic rehabilitation of maxillary lateral incisors extracted due to the impacted canines.
Case description: A 15 years old woman was referred to our clinic with a chief complaint of unsatisfactory esthetics due to absences of bilateral canines in maxillary anterior region. Radiographic assessment revealed that maxillary canines were impacted, and

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also it was seen that impacted maxillary canine caused a resorption on the roots of maxillary lateral incisors. Orthodontic therapy was planned and applied to move the impacted canines to the correct positions in dental arch. After that, the maxillary lateral incisors were extracted. Placement of two implants in both lateral incisor regions were planned. After osseointegration was completed, custom titanium implant abutment and metal-ceramic crowns used to replace the missing lateral incisors.
Discussion: The patient who did not accept advanced surgical procedures was rehabilitated with multidisciplinary restorative treatment. Today, single-tooth implants have become one of the most common treatment alternative for the replacement of missing lateral incisors. In this case report, after orthodontic therapy, favorable esthetics could be achieved with single-tooth implant crowns with custom titanium abutments for missing lateral incisors.
Conclusions/Clinical significance: In this case report, lateral incisors extractions were rehabilitated with implant supported restorations with custom titanium abutments. At the end of 3-years follow-up period, the patient was satisfied with esthetics, function and phonation properties of the prostheses.

FC202

Cytokine Gene Polymorphism in Candida-Related Denture Stomatitis

Aysun Coşkun Keşoğlu[1], Canan Bural[1], Hakan Bilhan[2], Fatma Oğuz Savran[3], Zayre Erturan[4], Onur Geçkili[1], Tayfun Bilgin[1]
[1]Department of Prosthodontics, Faculty of Dentistry, Istanbul University, Istanbul, Turkey, [2]Department of Prosthodontics, Faculty of Dentistry, Okan University, Istanbul, Turkey, [3]Department of Medical Biology, Istanbul Medical Faculty, Istanbul University, Istanbul, Turkey, [4]Department of Microbiology, Istanbul Medical Faculty, Istanbul University, Istanbul, Turkey

Aim or purpose: Denture stomatitis (DS) is an inflammatory disease that mainly affects the palatal mucosa when covered by complete dentures. Although the etiology of denture stomatitis is multi-parametric, major factor in the progress of the inflammation is *C.albicans*. Cytokine genotypes are important to understand the host mechanism in the progress of denture stomatitis. This study investigated the association between cytokine gene polymorphism with *Candida* species.
Materials and methods: This clinical study recruited 154 complete denture wearers (76 healthy control and 78 subjects with DS). Saliva samples were taken from all the subjects for yeast identification using the API®/ID32C (Biomerieux, France). Blood samples for each participant were used in gene polymorphism analysis using Cytgen (One Lambda, USA) cytokine genotyping tray. Data were tested for Hardy-Weinberg equilibrium. Mann–Whitney *U* test, Chi-square analysis and Continuity (yates) correction were used for statistical analysis.
Results: *C. albicans* was the most isolated type of *Candida* among all the subjects. *Candida* counts in saliva samples were significantly higher in subjects with DS. Some of the genotypes of Tumor necrosis factor-alpha (TNF-α), tumor growth factor-beta (TGF-β) and Interleukin-6 (IL-6) were statistically higher in subjects with DS ($p < 0.05$).
Conclusions: *Candida* colonization can be the primary etiological factor but isn't the single etiological factor in DS prognosis, it can affect the prognosis together with other predisposing factors. Further studies about the role of cytokine gene polymorphisms in DS may help to understand the host mechanism.

FC203

Comparison of In-Office Bleaching with Nd:YAG and 810 nm-Diode Laser

Nermin Demirkol[1], Ozge Parlar Oz[1], Derya Surmelioglu[2], Aslihan Usumez[3]
[1]Department of Prosthodontics, Faculty of Dentistry, Gaziantep University, Şehitkamil/Gaziantep, Turkey, [2]Department of Restorative Dentistry, Faculty of Dentistry, Gaziantep University, Şehitkamil/Gaziantep, Turkey, [3]Private Practice, İstanbul, Şehitkamil/Gaziantep, Turkey

Aim or purpose: The aim of present study was to evaluate the effect of laser assisted in-office bleaching on color changes and tooth sensitivity clinically.
Materials and methods: In the context of this clinical study, laser assisted in-office bleaching was applied to the teeth of 45 individual patients with a Nd:YAG laser ($\lambda = 1.064$ μm, average power 4 W, pulse repetition rate 10 Hz, pulse duration 320 μs) and a 810 nm diode laser (4 W output power, continuous mode, 20s with 5.85 cm^2 spot size hand piece) and chemical method ($n = 15$). After gingival isolation bleaching agent (intense red in colored and contained 40% HP) applied to the buccal tooth surface in 0.5–1 mm thick layer according to manufacturer instructions and agent activated with three different in-office bleaching procedure. CIE L*a*b* and DE values were measured by a spectrophotometer before and immediately after the treatment, 1 week, 1 and 6 months after the treatment. Tooth sensitivity vas performed with visual analogue scale (VAS) before and immediately after bleaching procedure. $p < 0.05$ was considered statistically significant.
Results: Statistically significant differences were found in DE values of all the groups before and after bleaching procedure however in L* and b* values not found.
Conclusions: This study showed that the additional activation of the bleaching agent by the Nd:YAG and 810 nm diode lasers had produced no significant influence on tooth bleaching procedure.

FC204

Measurement of Dental Implant Stability by Two Different Techniques: A Pilot Study

Gökçe Doğar, Ayşe Koçak-Büyükdere
Department of Prosthodontics, Faculty of Dentistry, Kocaeli University, Kocaeli, Turkey

Aim or purpose: Two non-invasive methods to measure dental implant stability are damping capacity assessment (Periotest) and resonance frequency analysis (Osstell). The objective of this comparative study was to assess the correlation of these 2 techniques in clinical use.

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Materials and methods: Implant stability of 54 clinically stable unloaded 1-stage implants in 10 females (mean age: 54.2) and 10 males (mean age: 50.9) total of 20 patients was measured in triplicate by means of resonance frequency analysis and Periotest. Descriptive statistics as well as Pearson's, Spearman's, and intraclass correlation coefficients were calculated with SPSS 11.0.2.
Results: The mean values were 73.8 ± 9.18 implant stability quotient for the resonance frequency analysis and −5.3 ± 2.34 for the Periotest. Although the biggest values observed at the baseline in male patient for both technique, the smallest values were observed at 4 weeks measurement in male patients on the contrary. However, there is no significant difference in accordance with gender. The correlation of both measuring systems is moderate to good. The intraclass correlation indicated lower measurement precision for the Periotest technique. It seems that the Periotest is more susceptible to clinical measurement variables than the Osstell device. Additionally, the Periotest values differed more from the normal (Gaussian) curve of distribution than the ISQs. Both measurement techniques show a significant correlation to the implant diameter.
Conclusions: Although the both non-invasive technique can be clinically used to measure dental implant stability, resonance frequency analysis appeared to be the more precise technique.

Free Communication Session 52 | 31.08.2017, 09:00–10:00 | Room A9.13

Themes: Oral Medicine and Oral Immunology

FC205
Early Diagnosis and Management of Mucocutaneous Disorders with Oral Signs and Symptoms
Sevim Günday[1], Nermin Yamalık[2], Güliz Güncü[2], Nilgün Atakan[3]
[1]Private Practice, Kyrenia, Cyprus, [2]Faculty of Dentistry, University of Hacettepe, Ankara, Turkey, [3]Faculty of Medicine, University of Hacettepe, Ankara, Turkey

Aim or purpose: The role of dentists in the early diagnosis of MCDs cases with oral signs and symptoms was aimed. Further, the potential impact of supportive oral care on oral discomfort was also analyzed.
Materials and methods: Sixty patients with Lichen Planus (LP) and Pemphigus Vulgaris (PV) were included. Location and type of oral lesions, periodontal health status, and perceived oral discomfort were recorded. Patients were provided with supportive oral care (SOC) consisting of scaling and oral hygiene instructions. Potential relatedness of lesions with oral discomfort and the impact of SOC on oral discomfort was statistically analyzed.
Results: Almost 2/3 of the patients (n = 39) did not have any prior diagnosis of a MCDs, and the diagnosis was achieved during the study. In 40% of the cases dentists were the first healthcare providers patients had preferred to visit. Oral cavity was frequently involved and gingiva was the most affected site (46.5%). Oral discomfort and type of oral lesions, and presence of desquamative gingival lesions (DGL) and oral discomfort was found to be associated ($p > 0.05$). Supportive oral care reduced gingival inflammation at sites with DGL ($\chi^2 = 6.536$, $p = 0.038$), and led to a significant decrease in both pain ($\chi^2 = 6.745$, $p = 0.035$) and burning sensation ($\chi^2 = 10.773$, $p = 0.005$).
Conclusions: The findings of the present study confirm oral cavity and especially gingiva as a site of frequent involvement in MCDs and highlight the potential contribution of dentists for the early diagnosis and successful management of patients with MCDs with accompanying oral/gingival lesions.

FC206
Using Fluorescent Light for Oral Cancer Screening Among HIV Patients
Irene Tami-Maury[1], Mark Nichols[2], Aditi Tomar[1], Sanjay Shete[1], Mark Chambers[1], Ellen Gritz[1], Alexander Prokhorov[1]
[1]The University of Texas MD Anderson Cancer Center, Houston, TX, USA, [2]Bering Dental Clinic, Houston, TX, USA

Introduction: Early detection of premalignant and malignant oral lesions (PMOLs) reduces morbidity and increases patients' survival. However, PMOLs in an early stage of development are hard to detect clinically because these lesions may not be palpable and color of the lesional oral tissue may not necessarily be different from the color of the surrounding mucosa. Our objective was to complement clinical oral examination and facilitate identification of PMOLs during biopsy procedures for improving oral cancer screening among patients seeking care in an HIV-specialized dental care facility.
Case description: Consecutive patients with HIV infection and PMOLs were screened under incandescent operatory light. A subsequent oral examination was performed using a fluorescence light-based hand held device. Intraoral digital pictures were obtained. Demographic information, as well as CD4 counts, viral load, and clinical details were recorded. Participants received oral cancer screening information, recommendations, and referrals for tobacco cessation and alcohol abuse programs.
Discussion: Sixteen HIV-infected patients with suspicious PMOLs were identified (95% male, 58% self-identified as gay, 44% Caucasian, 75% current smokers, 100% on anti-retroviral treatment). During the use of the fluorescent light, the dental clinician reported that 83% of the PMOLs presented dark areas where there was lack of fluorescence. The use of the fluorescent light enhanced the visibility of 50% of the PMOLs during biopsy procedures.
Conclusions/Clinical significance: The observations in this study indicate the usefulness of the fluorescence light-based hand held device for improving screening decisions, guiding biopsy, and identifying resection margins among high-risk individuals.

FC207
Xerostomia in Patients with Rheumatic Diseases
Eugeniy Nasonov[1], Ma Simonova[1], Vsevolod Bulgakov[2], Elena Selifanova[2], Zinaida Aymaletdinova[2]
[1]V.A. Nasonova Research Institute of Rheumatology, Moscow, Russian Federation, [2]Peoples' Friendship University of Russia (RUDN University), Moscow, Russian Federation

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Aim or purpose: Objectivize xerostomia in patients with Sjogren's disease (SD), Sjögren's syndrome (SS) and rheumatic diseases (RD), as well as with rheumatic diseases.
Materials and methods: A total of 242 patients were examined: 27 patients with SD, 40 patients with SS and RD, 40 patients with SS and systemic lupus erythematosus (SLE), 28 people with SS, 46 with RD, 40 with SLE and with systemic scleroderma (SSc) 21 people. The unified examination was carried out by all patients with a survey, examination of the stimulated sialometry of the PSG, sialogram of PSG by iodolipol, immunological examination Rheumatoid and antinuclear factors.
Results: Complaints of patients on dry mouth do not always coincide with the survey data, as there is a mental adaptation in patients with SD, as well as exceeding complaints in patients with SS and RD, which confirms the need for a unified survey. 1 degree of xerostomia 1.6–2.5 ml, is rarely detected with SD, mainly with SS and RD; 2nd degree −0.6 ml −1.5 ml often occurs with SD 29%, SS + RD 28%, SS + SLE 15%; The third degree is 0–0.5 ml, in general, in patients with SD 51%, SS + RD − 33%, SS + SLE-30%, rarely with SS + SSc 3% with RD is not detected.
Conclusions: Thus, objective xerostomia was detected to a different degree in patients with SD, SS, and RD. With SD, the degree of xerostomia predominates, with grade 1 and 2 the degree of xerostomia, with RD 1 the degree of xerostomia.

FC208

MTHFR Gene Polymorphism, and Cardiovascular Risk in Oral Lichen Planus

Rania Abdel Hay
Faculty of Medicine, Cairo University, Cairo, Egypt

Aim or purpose: To detect methylene tetrahydrofolate reductase (MTHFR) C677T gene polymorphism, and its association with cardiovascular risk, homocysteine and folic acid levels in patients with oral lichen planus.
Materials and methods: This case-control study included 110 patients (18 females, 16.4% and 92 males, 83.6%) with lichen planus (LP); 70 with cutaneous lichen planus (CLP) and 40 with oral lichen planus (OLP). 120 age and sex-matched healthy subjects (24 females, 20% and 96 males, 80%) were controls. Three ml venous blood sample was taken for detection of MTHFR gene polymorphism by PCR RFLP technique and for measurement of the lipid profile. Hcy and folic acid were measured by ELISA. Hypertension was evaluated. This study has been approved by the ethical committee in the Medical Biochemistry Department.
Results: There were significantly higher prevalence of hypertension with higher Hcy, triglycerides and cholesterol levels and lower folic acid and HDL levels among patients. Hypertension with higher Hcy and cholesterol levels together with lower folic acid and HDL levels have been found in OLP when compared to CLP. Patients showed significant higher percentage of the MTHFR 677 TT genotype ($p = 0.003$) and of the MTHFR 677 T allele ($p = 0.042$) compared to controls. Moreover, there was higher prevalence of MTHFR 677 T allele in patients with CLP.
Conclusions: MTHFR 677 gene polymorphism may be a risk factor for the development of LP particularly TT genotype, these patients are more predisposed to severe form of LP and are more prone to cardiovascular risk.

Free Communication Session 53 | 31.08.2017, 10:15–11:15 | Room A9.9

Themes: Special Care Dentistry, Epidemiology and Endodontics

FC209

ADHD Patients among Israeli Pediatric Dentists and Behavioral Management Aspects

Benjamin Peretz, Rula Shehadi, Sigalit Blumer
School of Dental Medicine, Tel Aviv University, Tel Aviv, Israel

Aim or purpose: There are no clear guidelines for managing the dental treatment of children with attention deficit hyperactivity disorder (ADHD). The use of sedation in combination with chronic ADHD medication use is also not well defined. This study surveyed the prevalence of ADHD children, management techniques and knowledge of pharmacologic therapies of these children among Israeli dentists.
Materials and methods: A specially designed questionnaire was distributed to all Israeli dentists attending a national conference in 2016.
Results: Of the 160 dentists who attended the conference, 96 completed the survey (60% response rate), and they included 46 (51%) pediatric dental specialists and 50 (49%) general dental practitioners. The medications Ritalin and Concerta were most familiar to the respondents (98.9%). Eighty-seven (91.1%) of the practitioners responded that their ADHD patients take their usual doses of any drug for treating ADHD symptoms, regardless of whether or not the dentists intended to use sedatives. The practitioners invented their own behavior management techniques with varying degrees of success.
Conclusions: There are no specific guidelines for the most effective pharmacologic protocol (co-administration of ADHD drugs and dental sedatives) or behavior management techniques for the provision of optimal dental care to children with ADHD.

FC210

Dental and Skeletal Anomalies in Down Syndrome

Maria Angela Mayoral, Montse Artés, Javier Fernandez Bozal, Nuria Molina, Andreu Puigdollers
Universitat Internacional de Catalunya, Sant Cugat, Spain

Aim: This retrospective cross-sectional study compared dental and skeletal anomalies from panoramic radiographs and lateral cephalograms of age-matched individuals with and without Down Syndrome (DS).
Materials and methods: 41 patients with DS, mean age 10.46, and 42 non- DS patients, mean age 11.1, were studied. The medical history, a panoramic and cephalometric radiographs of each patient were assessed. The groups were compared using Mann–Whitney and Wilcoxon non-parametric tests and *T*-Student ($p < 0.05$). Through a principal component analysis (PCA) main sources of variation were found.

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Results: Agenesis of one permanent tooth was found in 73% of DS subjects and two or more permanent teeth in more than 50% while only 7.14% and 2.4% respectively in controls ($p < 0.001$). Significant differences were found for size and shape anomalies of maxillary lateral incisors, as well as for canine eruption anomalies ($p < 0.05$). BaS and SN were higher in controls whereas BaSN was higher in DS subjects. In sagittal dimensions CoA, A-N perp, ANB, convexity, Wits were lower in DS subjects. SNB and B-N perp were significantly higher in DS subjects. Vertical dimensions (SN-MP, PP-MP, N-Me, N-ENA, ENA-Me) were lower in Ds subjects. Overjet and overbite were higher in controls. In addition, L1-NB was higher in DS subjects.
Conclusions: Significant differences between DS subjects and controls can be found when studying panoramic and cephalometric radiographs. Hypodontia is widely prevalent in DS subjects. Size and shape anomalies of maxillary lateral incisors and canine eruption anomalies are also more prevalent in DS subjects. Dento-maxillofacial morphology is significantly different in DS subjects.

FC211

Dental Visits and Barriers of Institutionalized Adults with Intellectual Disability

Edward Lo, Rita Suen, Chun-Hung Chu
University of Hong Kong, Hong Kong, Hong Kong

Objectives: To describe the dental visit behaviors and barriers for dental care of the adults with intellectual disability (ID) residing in institutions in Hong Kong.
Methods: Residential care institutions for adults with ID in Hong Kong were selected by systematic sampling. All residents in the institutions were included and their parent/guardians were asked to complete a questionnaire with questions on the dental visit behavior of and barriers for dental care encountered by the adults with ID.
Results: A total of 458 completed questionnaires were collected from 16 institutions. Mean age of the ID adults included was 44.1 years and 49.6% were men. Around half (55%) of these adults had regular dental check-up but for around 80% of these adults the interval was once every 12 months or longer. For the adults with severe ID the most common dental care received in their last dental visit was examination only (63.5%) while for the adults with mild or moderate ID around 40% had received scaling. The main barrier for dental care among the adults with severe ID was that they could not cooperate with the dentist (52.5%) while those for the other adults were no one accompany them to visit a dentist (23%) and high treatment fee (27%).
Conclusions: Most Hong Kong institutionalized adults with ID had dental care. The type of dental service received and the main barriers vary between the adults with different severity of ID.

FC212

Management of Incidents Occurred During Endodontic Treatment

Andreea Oana Roșu[1], Dana Cosac[2], Cristina Gabriela Andrei[2], Claudiu Ciortea[3]
[1]*Department of Prosthodontics, Faculty of Dentistry, "Titu Maiorescu" University, Bucharest, Romania,* [2]*Department of Endodontics, Faculty of Dentistry, "Titu Maiorescu" University, Bucharest, Romania,* [3]*Department of Oral Implantology, Faculty of Dentistry, "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania*

Introduction: The most common incidents and accidents that can occur during endodontic instrumentation are represented by: inadequate access cavity in terms of location and size, crown and root perforations, ledge formation and endodontic instrument fracture. Even if it's an unpleasant situation, a very important aspect is to inform the patient about the accident that occurred during root canal treatment. The patient should be informed about the incident, the necessary procedures to resolve the incident, alternative treatment solutions and the factors that may influence the overall prognosis of the tooth.
Case description: A selection of clinical cases that point out different treatment approaches and strategies for incidents occurred during endodontic treatment.
Discussion: There are many different treatment solutions available in case of an endodontic mishap, depending on the clinical situation. Early and correct diagnosis of the procedural accidents is important to determine the best treatment plan as soon as possible.
Conclusions/Clinical significance: Despite technological progress and procedural changes in root canal treatment, endodontic mishaps are still common.
Complications such as root perforations during access cavity preparation and root canal instrumentation, ledge formation or fractured instruments, are often difficult to avoid because of the variations in the root canal morphology, accentuated curvatures and the presence of calcified canals.
A careful approach to the endodontic system, after establishing a correct diagnosis based on a judicious interpretation of all clinical and paraclinical data, will significantly decrease the occurrence of accidents during endodontic treatment.

Free Communication Session 54 | 31.08.2017, 10:15–11:15 | Room A9.10

Themes: Public Health and Prevention & Periodontal Diseases

FC213

The Beliefs about Pain Control and State of Oral Cavity

Katarzyna Białoszewska[1], Artur Białoszewski[2], Krzysztof Owczarek[1]
[1]*Medical Psychology Department, Medical University of Warsaw, Warsaw, Poland,* [2]*Department of Prevention of Environmental Hazards and Allergology, Medical University of Warsaw, Warsaw, Poland*

Aim or purpose: Evaluation of the relationship between patients' pain control beliefs and objective and subjective assessment of oral health.

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Materials and methods: 78 first-time dental patients from Warsaw were included in the study. The Beliefs about Pain Control Questionnaire (BPCQ) and self-reported health and oral hygiene statement were administered prior to treatment. DMF index, dental treatment index (DTI), and Approximal Plaque Index (API) were assessed in clinical examination. Data were analyzed using IBM SPSS Software ($p \leq 0.05$).
Results: A significant positive correlation was found between internal factors of BCPQ scores and number of decayed teeth ($r = 0.248$ $p = 0.28$). Internal Factor of pain control also correlates with declared level of hygiene ($r = -0.195$; $p = 0.03$). Level of internal factor is higher with the decrease of frequency of visits and in case of pain symptoms being the reason of dental visit. ($F = 6.013$, $p = 0{,}001$). There was a significant correlation between influence of doctors' interventions and the number of missing teeth ($r = 0.315$; $p = 0.0005$) and negative correlation between the number of filled teeth ($r = 0.20$; $r = -0.222$ $p \leq 0.05$).
Conclusions: Patients beliefs about pain control depends on objective state of oral cavity, declared level of hygiene and frequency of dental visits. Presence of pain symptoms is related to internal factors of pain control and number of filled teeth.

FC214

Dentists' Involvement in Identifying Child Abuse in United Arab Emirates

Raghad Hashim, Samar Al-Dallal
Ajman University, Ajman, United Arab Emirates

Aim or purpose: The aim of this study was to investigate dentists' perception, knowledge, attitude and experience about child physical abuse in United Arab Emirates and factors affecting the recognition and reporting of abuse cases.
Materials and methods: A cross-sectional survey was conducted among dentist working in the Emirate of Dubai; the data were collected by self-administered structured questionnaire completed by 124 dentists working in private practice in United Arab Emirates. Data analyzed using descriptive analyses for responses to each question.
Results: The response rate was 69%. Most dentists were aware of their ethical obligations (84%) than their legal responsibilities (49%) to report child abuse cases. One quarter of the dentists know where to report suspected cases. Although (25%) of the dentists reported encountering a suspicious child abuse cases at least once in their career, but only (11%) of those reported their suspicion. The most frequently cited reason for hesitation to report such cases were lack of uncertainties about diagnosis (43%) in addition to the lack of knowledge regarding referral procedures. Reporting was significantly associated with suspicion of child abuse cases as well as the belief of legal responsibilities.
Conclusions: The finding of the current study revealed that there was a low reporting rate of child abuse among dentists in UAE. They lack the adequate knowledge about recognition and reporting issues of suspected cases. Therefore, specialized training in this area is highly recommended.

FC215

Dental Avulsion Management and Mouthguard Use Among Teacher Candidates

Gülsüm Duruk, Burçin Acar
[1]*Inonu University Faculty of Dentistry Department of Paediatric Dentistry, Malatya, Turkey*

Aim or purpose: The aim of this study was to evaluate the knowledge of emergency management of avulsed permanent teeth among the teacher candidates, and the awareness of *using mouthguards during physical activities*. Teacher candidates can play an important role in improving the prognosis of avulsed permanent teeth of children in the future.
Materials and methods: The 539 teacher candidates from different departments of Inonu University in Malatya, Turkey were included in this study (63.1% female, 36.9% male; age 21.35 ± 1.1 years). An 18-*item questionnaire* was filled by the students. The data were collected and the frequencies were obtained. The Chi-Square test was used for statistical analysis.
Results: This study showed 53.8% of the students had some experience of dental trauma in their lives. 43.6% of the participants believed avulsed tooth can be replanted. 45.3% of the participants would hold the tooth from the crown. For storage medium, a few number of participants (1.7%) opted for milk, while a large number of participants (64.2%) opted for dry storage such as a handkerchief, napkin etc. 48.2% of them had never received any advice on using mouthguard. Approximately, half of the participants (50.3%) reached no knowledge about emergency management of dental trauma.
Conclusions: A large number of students (87.4%) were dissatisfied with their knowledge of dental trauma. Little was known about the reasons and the awareness of emergency management in a dental trauma and the use of protective devices such as mouthguard.

FC216

Lipoxin Levels in Periodontal Disease Related to Body Mass Index

Burak Dogan[1], Esra Sinem Kemer Dogan[1], Fatma Yesim Kirzioglu[2], Ozlem Fentoglu[2]
[1]*Department of Periodontology, Faculty of Dentistry, Mustafa Kemal University, Hatay, Turkey,* [2]*Department of Periodontology, Faculty of Dentistry, Suleyman Demirel University, Isparta, Turkey*

Aim or purpose: Previous researches have reported positive correlations that have been indicated between obesity and periodontal disease. Lipoxin (LX), a proresolving lipid mediator, has a protective role in various inflammatory diseases including periodontal disease and obesity. The objective of this study was to investigate the role of serum LX levels in the relation between periodontal disease and Body Mass Index (BMI).
Materials and methods: One hundred and five individuals (36 men and 69 women) were enrolled in the study. Sociodemographics were recorded via questionnaire. Periodontal parameters (plaque index [PI], gingival index [GI], probing pocket depth [PD], and clinical attachment level [CAL]) were recorded. Individuals whose BMI were measured were classified as healthy (<25 kg/m^2, $n = 46$), over weight (25–30 kg/m^2, $n = 29$), and obese (>30 kg/

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m^2, n = 30). Serum LX levels were determined by enzyme linked immunosorbent assay.
Results: Women and individuals with lower education level, brushing frequency and monthly income had higher BMI. LX levels were negatively associated with BMI, PI, PD and CAL when adjusted for age, gender, education, monthly income, brushing, flossing, and hyperlipidemia, whereas BMI was positively associated with PI and CAL.
Conclusions: Present findings indicating the higher BMI the more periodontal breakdown and negative relationships between LX and both BMI and periodontal parameters suggested that LX may be used as a biomarker in the relation between periodontal disease and obesity.

Free Communication Session 55 | 31.08.2017, 10:15–11:15 | Room A9.11

Theme: Periodontics

FC217
Effect of Astaxanthin on Alveolar Bone Loss in Experimental Periodontitis
Hatice Balci Yuce[1], Aysan Lektemur Alpan[2], Fikret Gevrek[3], Hulya Toker[2]
[1]*Faculty of Dentistry, Gaziosmanpasa University, Tokat, Turkey,*
[2]*Faculty of Dentistry, Cumhuriyet University, Sivas, Turkey,*
[3]*Faculty of Medicine, Gaziosmanpasa University, Tokat, Turkey*

Aim or purpose: Astaxanthin is a keto-carotenoid which has strong antioxidant effect. The purpose of this study was to evaluate effects of astaxanthin on alveolar bone loss and histopathological changes in ligature-induced periodontitis in rats.
Materials and methods: Wistar rats were divided into four experimental groups: non-ligated (C, n = 6) group; ligature only (L, n = 6) group; ligature and astaxanthin group (1 mg/kg/day astaxanthin, AS1 group, n = 8); ligature and astaxanthin group (5 mg/kg/day astaxanthin, AS5 group, n = 8). Silk ligatures were placed at the gingival margin of lower first molars of mandibular quadrant. The study duration was 11 days and the animals were sacrificed at the end of this period. Changes in alveolar bone levels were clinically measured and tissues were immunohistochemically examined, osteocalcin (OCN), bone-morphogenic protein (BMP)-2, inducible nitric oxide synthase (iNOS), bax and bcl-2 levels in alveolar bone and tartrate resistant acid phosphatase (TRAP)+ osteoclast cells were also determined.
Results: Alveolar bone loss was highest in L group and the differences among L, AS1 and AS5 groups were also significant ($p < 0.05$). Both doses of astaxanthin decreased TRAP+ osteoclast cell and increased osteoblast cell counts ($p < 0.05$). The inflammation in L group was also higher than those of C and AS1 groups ($p < 0.05$) and OCN and BMP-2 levels increased and bax/bcl ratio decreased ($p < 0.05$) with AS administration while iNOS levels did not change ($p > 0.05$).
Conclusions: Within limits of this study, it can be suggested that astaxanthin administration may reduce alveolar bone loss, increase osteoblastic activity and decrease osteoclastic activity in experimental periodontitis model.

FC218
Oral Flurbiprofen Spray for Mucosal Graft Harvesting at the Palatal Area
Sila Cagri Isler, Nihal Eraydin, Habibe Akkale, Burcu Ozdemir
Faculty of Dentistry, Gazi University, Ankara, Turkey

Aim or purpose: Connective tissue graft (CTG) and free gingival graft (FGG) harvesting from the palatal area has been used frequently in the periodontal mucogingival surgery and reported to provide higher predictability and success regarding esthetic outcomes. The aim of the study was to evaluate the effects of oral flurbiprofen spray on wound healing, postoperative patient morbidity and discomfort after palatal graft harvesting.
Materials and methods: Forty patients (22 females, 18 males, mean age 42 ± 7.3), scheduled for CTG and FGG requiring periodontal plastic surgeries were selected. The study approval was granted by the Institutional Review Board at Ankara University (Protocol ID: 36290600/66). The patients were randomly assigned to each group, and used oral spray of flurbiprofen or placebo 3 times a day for a week. The palatal donor area was evaluated at 1 and 3 days and 1, 2, 3, 4, 6 and 8 weeks postsurgery for postoperative pain, complete epithelization, feeding habits, color match, and total number of analgesic pills taken. The Wound-Healing Index (WHI) was recorded at 2-week follow up.
Results: The prevalence of complete epithelization was significantly higher in the placebo-FGG group then flurbiprofen-FGG group at the third postoperative week ($p < 0.05$), while there was no statistically significance for both flurbiprofen-CTG and placebo-CTG groups. Although flurbiprofen-CTG had the higher prevalence of epithelization, no significant differences were observed for WHI scores between any of the groups.
Conclusions: Our results suggested that oral flurbiprofen spray might have negative effects on epithelization of secondary wound healing after FGG operations.

FC219
Efficacy of Alternative Antimicrobial Therapies in Non-Surgical Treatment of Peri-Implantitis
Nihal Eraydin, Gonen Ozcan, Sila Cagri İsle
Periodontology Department, Dentistry Faculty, Gazi University, Ankara, Turkey

Aim or purpose: The aim of this prospective, parallel group designed, randomized controlled clinical study was to evaluate the efficacy of either conventional mechanical treatment or alternative antimicrobial therapies in non-surgical treatment of initial to moderate peri-implantitis on clinical outcomes.
Materials and methods: Study protocol was approved by the ethics committee of the Ankara University Dentistry Faculty. Thirty patients (80 implants) with initial to moderate peri-implantitis were randomly assigned to five treatment groups. The implants were instrumented with conventional mechanical treatment (MT) with titanium curettes and mechanical debridement followed by 0.2% chlorhexidine digluconate irrigation (CMT), gaseous ozone therapy (OMT), glycine-based powder air polishing (AMT) or glycine-based powder air polishing alone (AT). Clinical parameters

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were measured at baseline and 3 months after the treatment. In this prospective study, probing pocket depth (PPD), bleeding on probing (BOP) and clinical attachment level (CAL) were analyzed.
Results: After 3 months, all of the treatment groups demonstrated that similar limited clinical changes. However, mechanical debridement followed by glycine-based powder air polishing group (AMT) revealed that significantly higher changes in BOP reductions when compared with the other groups.
Conclusions: The present study has indicated that all treatment groups showed similar clinical results except BOP values at 3 months.

FC220
Effect of Intracoronal Splints in the Treatment of Advanced Periodontal Diseased Teeth
Fadime Kaya Dadas, Gozde Veyisoglu, Seckin Ertugrul
Katıp Celebi University, Izmir, Turkey

Introduction: The teeth with advanced periodontal destruction have chewing difficulty, secondary trauma, and migration. The current case series examines the application of permanent intracoronal splint to teeth with advanced periodontal destruction with indications of extraction in the lower anterior region.
Case description: Ten patients were enrolled in this case series. We decided to perform an intracoronal splint in the sub-anterior region after detailed clinical examination of patients who were referred to our clinic with indications of extraction from the first examination. Plastic wire splints were made and panoramic x-rays were taken. In the third, sixth and 12th months patients were recalled. At the 12th month of follow-up, again clinical measurements were recorded and radiographs were obtained. On the radiograph, the change in alveolar bone height were examined with using shei ruler. At the end of the 12-month follow-up period, there was no statistically significant change in alveolar bone height. Although there is an overall increase in keratinized tissue height. At pocket depth, only 22, 24, and 25 teeth showed statistically significant decrease.
Discussion: For reduced periodontal tissue support, splinting after periodontal treatment may be more appropriate method to regain good function without bone loose. Also, more preferable esthetic results can be achieved. But, very good oral hygiene motivation must be given to patients.
Conclusions/Clinical significance: An appropriate treatment option should be chosen for a successful periodontal treatment and satisfaction of patients. For mobile teeth with advanced bone loss in the lower anterior region, splint therapy can be preferred.

Free Communication Session 56 | 31.08.2017, 10:15–11:15 | Room A9.13

Theme: Oral Surgery

FC222
Submucosal Versus Intramuscular Injection of Dexamethasone after Third Molar Surgery
Amine Derbel, Hajer Hentati, Radhia Ben Ali, Adel Bouguezzi, Abdellatif Chokri, Sameh Sioud, Jamil Selmi
Research Laboratory LR12ES11; Faculty of Dental Medicine; University of Monastir, Monastir, Tunisia

Aim or purpose: The objective of this study is to compare the efficiency of submucosal versus intramuscular injection of dexamethasone in reducing edema, pain and trismus following surgical extraction of mandibular third molar.
Materials and methods: A randomized, double blind, double dummy clinical trial was conducted involving 60 surgical extraction of mandibular third molar. The patients were randomly assigned to receive submucosal injection of 8 mg of dexamethasone and intramuscular injection of saline solution or conversely immediately after the surgery. Edema and the maximum of mouth opening were assessed at baseline and in the second and the seventh postoperative day. Pain was evaluated on visual analog scale (VAS) and the number of analgesics consumed. Descriptive statistics and the independent sample *t*-test were used to compare the two groups at $p < 0.05$.
Results: Six patients did not attend all the follow-up and were excluded from the final statistic analysis. There were 15 males and 39 females. The mean age was 22.31 ± 3.1 years. No statistically significant difference was detected between the two groups in all parameters.
Conclusions: The submucosal injection of 8 mg dexamethasone is an effective alternative to the intramuscular route after the surgical extraction of mandibular third molar.

FC223
Central Giant Cell Lesion of the Mandible: Uncommon Case Report
Mounir Omami, Radhia Ben Ali, Rachid Hammami, Adel Bouguezzi, Abdellatif Chokri, Sameh Sioud, Hajer Hentati, Jamil Selmi
Department of Oral Surgery, University Dental Clinic, Monastir, Tunisia

Introduction: Central giant cell lesion (CGCL) is a localized benign but sometimes aggressive osteolytic proliferation consisting of cellular fibrous tissue with multiple foci of hemorrhage and hemosiderin, presence of multinucleated giant cells and reactive bone formation. This report details the clinical, radiographic, and histologic features of a rare case of CGCL of the mandible.
Case description: A 50-year-old male patient with no medical history presented at our department of oral surgery with a quick growing, painful swelling of the left anterior mandible for 2 months. Cone-beam computed tomography (CBCT) showed a

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poorly defined multilocular radiolucent lesion. The patient underwent surgical curettage, and the subsequent histopathological examination showed multinucleated giant cells in a fibrous stroma which confirmed the diagnosis of CGCL. Parathyroid hormone, alkaline phosphates and calcium levels were normal. There was no clinical or radiographic evidence of recurrence at 6 months after surgery.

Discussion: CGCL is a rare bony lesion with an incidence of 1.1/million population / year and the etiology is unknown. It is classified as aggressive or non-aggressive based on clinical and radiological findings. The histological and radiographic appearance is similar to brown tumors observed in hyperparathyroidism, which should be excluded by performing differential diagnostic laboratory analysis. Simple curettage is the traditional and most accepted form of treatment for CGCL.

Conclusion: The diagnosis and treatment of CGCL pose a major challenge because of their similar clinical presentation and radiologic appearance with other jaw tumors. Thus, accurate diagnosis is essential for definition of appropriate management.

FC224

Postextraction Alveolar Osteitis: About 68 Cases

Rachid Hammami, Abdellatif Chokri, Ameni Aroua, Radhia Ben Ali, Adel Bouguezzi, Sameh Sioud, Hajer Hentati, Jamil Selmi
Oral Surgery Department, Monastir, Tunisia

Aim or purpose: The aim of this study was to determine the incidence of alveolar osteitis (A.O) following extraction and the potential risk factors attributed to its occurrence across.

Materials and methods: In this work, 11 risk factors for alveolitis development were studied in 68 patients: gender, age, general health, oral hygiene, operator, type of extraction, mining sector, arch, smoking and taking antibiotic after surgery.

Results: This study showed that women are more exposed to alveolitis after tooth extraction than men, the most predisposed patients to have a dry socket after extraction are those aged 40 to 60 years, more than half of patients with alveolitis had poor oral hygiene, diabetics are not especially predisposed to alveolitis, smoking is not a risk factor for alveolitis and Molars and premolars are most affected by alveolitis. The operator and the type of extraction play a key role in the occurrence of alveolitis. Regarding the type of alveolitis we noticed a marked predominance of suppurative alveolitis with 78% of cases and use of antibiotics after extraction does not show its role in the prevention of alveolitis.

Conclusions: Since A.O is the most common postoperative complication after extraction, many researchers have attempted to find a successful method for prevention.

The most popular of these techniques are: good surgical procedure, a postoperative appropriate behavior, a motivation of the patient on the oral hygiene may prevent this infection and use of chlorhexidine.

Free Communication Session 57 | 31.08.2017, 11:30–12:30 | Room A9.9

Theme: Caries Prevention

FC226

Study of SDF and NaF on the Remineralization of Enamel

David González Alarcón[1], Antonio Castaño Seiquer[2], Manuel Bravo Pérez[3], David Ribas[4], William Ndjidda Bakari[5], Trinita Yano Inrombe[6], Hissein Amazia[7], Alicia Masa Otero[5], Natalia Moraga Miranda[8]
[1]Director of the Mindja Paul Oral Health and Emancipation Research Centre; Zerca y Lejos NGO, Republic of Cameroon, Yaounde, Spain, [2]Associate Professor of Preventive and Community Dentistry, University of Seville, Spain; The University of Seville, Spain, [3]Professor of Preventive and Community Dentistry, University of Granada, Spain; University of Granada, Spain, [4]Associate Professor of Preventive and Community Dentistry. University of Seville, University of Seville, Spain, [5]Coordinator of the Public Oral Health Program of Zerca y Lejos NGO, Republic of Cameroon, Yaounde; Zerca y Lejos NGO, Cameroon, [6]Coordinator of the Public Oral Health Program of Zerca y Lejos NGO, Republic of Cameroon, Yaounde; Zerca y Lejos ONGD, Cameroon, [7]Responsible of the Public Oral Health Program of Zerca y Lejos NGO, Republic of Cameroon, Yaounde, Zerca y Lejos NGO, Cameroon, [8]Assistant Professor of Endodontics, University of Viña del Mar / Coordinator of the Public Oral Health Program Zerca y Lejos NGO Latin America Area, Republic of Chile, University of Viña del Mar./Zerca y Lejos NGO, Chile

Aim or purpose: The objective was to gain knowledge about the efficacy of 38% silver diamine fluoride (SDF) (solution) and 5% sodium fluoride (NaF) (varnish) by analyzing the presence of remineralization on early caries lesions by means of a laser diode, after the topical application of these solutions. (only one time)

Materials and methods: Randomized clinical trial (n 417). Approved by the Ethics Committee. Use of ICDAS-II and Diagnodent® laser diode to quantify lesions before and after the application of SDF and NaF. Assessment of trends at the moment of application and 6, 18, 30 and 42 months later.

Results: Random group assignment (SDF and NaF). Both groups were homogenous with no significant differences (Diagnodent®, p 0.086; and ICDAS-II, p 0.126).

–30 months: full remineralization was increased by 7.2% in caries lesions treated with SDF and by −0.8% in caries lesions treated with NaF. Demineralization decreased by 23.5% for SDF and by 29.9% for NaF p (0.039).

–42 months: full remineralization was increased by 29.3% in caries lesions treated with SDF and by 10.9% in caries lesions treated with NaF. Demineralization decreased by 50% with SDF and by 53.1% with NaF p (0.060).

Intense demineralization had a negative association with SDF, with an odds ratio of 0.53 (0.31–0.92), while the odds ratio for NaF was 1.00.

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Conclusions:
–Those teeth treated with SDF showed higher remineralization rates.
–The use of SDF for ICDAS 1234 caries lesions produces a higher increase in remineralization than the use of NaF.

FC227

One Year Clinical Performance of Nanofilled-Flowable-Composite and Giomer-Fissure-Sealant in Adolescents

Bilal Yasa, Ekin Gorkem Uysal Uzel, Esra Uzer Celik
Department of Restorative Dentistry, Faculty of Dentistry, Izmir Katip Celebi University, İzmir, Turkey

Aim or purpose: Pit and fissure-sealant application is still one of the most effective methods for preventing complex pit and fissure morphology from carious process in adolescence as well as childhood. The aim of this study was to compare the 1-year clinical performance of a nanofilled-flowable-composite as a sealant to giomer-based fissure-sealant in adolescents.
Materials and methods: A-hundred-ninety-two, non-cavitated, permanent lower premolars or molars in 38 patients, ranging in age from 14 to 22 years, were included in this study and were randomly assigned into two groups according to the split-mouth design. The fissures in first group were sealed with a nanofilled-flowable-composite, while giomer-based fissure-sealant was used in the second group. Clinical evaluation was performed after 6 months and 1 year in terms of surface luster, surface staining, fracture and retention, marginal adaptation, wear and caries recurrence according to FDI criteria. Data were statistically analyzed with Mann–Whitney-*U* and Friedman One-way ANOVA tests ($p < 0.05$).
Results: The retention rates of nanofilled-flowable-composite (92% and 85%) at both 6-month and 1-year were significantly lower than that of giomer-based fissure-sealant (97% and 93%) ($p < 0.05$). There were significantly differences between two materials surface luster, surface staining, wear marginal adaptation scores at 1-year ($p < 0.05$), however, all scores of both restorative materials were clinically acceptable. No secondary caries was observed in both group.
Conclusions: Giomer-based fissure-sealant revealed better retention as a sealant compared to nanofilled-flowable-composite with higher but clinically acceptable surface staining and wear in adolescents after 1-year clinical service.

FC228

Remineralizing Efficacy of Ozone & Fluoride Gel on Artificial Caries In-Vitro

Esra Karaalioğlu[1], Nurhan Öztaş[2]
[1]*Faculty of Dentistry, Okan University, Istanbul, Turkey,* [2]*Faculty of Dentistry, Gazi University, Ankara, Turkey*

Aim or purpose: The aim of this study was to investigate the effect of ozone, fluoride gel and ozone/fluoride gel combination on remineralization of artificial caries-like enamel lesions in vitro with evaluation of surface microhardness and Quantitative Light-Induced Fluorescence (QLF).
Materials and methods: Artificial caries lesions were created on buccal surfaces of 72 extracted human premolars. Specimens were assigned according to remineralizing agent into six groups: (Group 1) Control group, (Group 2) ozone for 30 seconds, (Group 3) ozone for 60 seconds, (Group 4) %1.23 APF gel for 60 seconds, (Group 5) ozone for 30 seconds combined with APF gel for 60 seconds and (Group 6) ozone for 60 seconds combined with APF gel for 60 seconds. Specimens then were subjected to the pH cycle for 14 days. Assessments of the specimens were carried out after demineralization and after pH cycle with Vicker's microhardness testing and Quantitative Light-Induced Fluorescence (QLF).
Results: All of the experimental groups have revealed statistically significant difference compared to the control group ($p < 0.05$). Although there was no significant difference, the remineralization pattern of %1.23 APF gel for 60 seconds was the greatest for both tested parameters. Ozone for 30 seconds was effective as %1.23 APF gel, but there was no additional effect of ozone when it combined with high concentrated fluoride gel.
Conclusions: Ozone and APF gel have increased remineralization potential of initial caries. %1.23 APF gel is the considerable choice for remineralization, but ozone for 30 seconds is also a promising alternative.

Free Communication Session 58 | 31.08.2017, 11:30–12:30 | Room A9.10

Themes: Interceptive Orthodontics, Esthetics and Pedodontics

FC229

Comparison of Ibuprofen with Chewing Gum on Pain Reduction after Initial Arch Wire Placement in Orthodontic Patients

Faizan Ali, Javeria Asif Cheema, Rabia Aziz, Khurram Shahzad
The Children Hospital and Institute of Child Health Lahore, Lahore, Pakistan

Aim or purpose: The objective of this study was to ascertain whether chewing gum provide pain relief of equivalent or greater magnitude to ibuprofen after initial arch wire placement in orthodontic patients.
Materials and methods: This randomized clinical trial study included 42 patients, 21 girls and 21 boys, between the ages of 12 and 17 years classified into 3 groups of 14 each: group A (placebo treated). Group B (ibuprofen treated) and group C (given chewing gum). The patients in each group were treated after placement of the initial arch wire and every 8 hours if they experienced pain. Visual analog scale was used to record pain perception at 2 hours, 6 hours, bedtime, 24 hours, 2 days, 3 days, and 7 days after arch wire placement during chewing, biting, fitting front and posterior teeth. Analysis of variance (ANOVA) and Tukey tests were used for data analysis.
Results: There were significant decrease in pain perception of chewing function between the placebo group and the chewing-gum group at 6 hours and 3 days ($p < 0.05$), between the placebo group and chewing gum group in pain severity when fitting posterior teeth at 24 hours ($p < 0.05$) and between chewing gum group

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and ibuprofen group during biting and fitting anterior teeth at 24 hours and 7 days. No significant differences were recorded at other times and with other functions.
Conclusions: Chewing gum is effective for pain reduction in orthodontic patients and can be recommended as suitable substitutes for ibuprofen.

FC230

Malocclusion Prevalence in 3–5-Year-Old Children in Shanghai, China

Yuehua Liu[1], Xinhua Zhou[2], Ying Zhang[3]
[1]*Shanghai Somatological Hospital, Fudan University, Shanghai, China,* [2]*Dept. of Orthodontics, School & Hospital of Stomatology, Tonngji University, Shanghai, China,* [3]*Shanghai Somatological Hospital, Fudan University, Shanghai, China*

Aim or purpose: To investigate the prevalence of malocclusion in preschool children in Shanghai, China.
Materials and methods: A cross-sectional survey was conducted among 2,335 children aged 3–5 years from kindergartens. Several occlusan parameters were clinically assessed, including second deciduous molar terminal plane, canine relationship, degree of overjet and overbite, anterior and posterior crossbite, and the presence or absence of physiologic spaces and crowding. All parents of the subjects were asked to fill in the oral health knowledge questionnaires.
Results: The prevalence of malocclusion in primary dentition in Shanghai was 83.9%, and no significant differences were found in genders. The prevalence of deep overbite (63.7%) was the highest in children with malocclusion, followed by overjet (33.9%), midline deviation (26.6%), anterior crossbite (8.0%) and anterior crowding (6.5%). The results revealed a high prevalence of malocclusion in primary dentition in children aged 3–5 years old of Shanghai, especially in vertical anomalies.
Conclusions: The need for preventive orthodontic therapy is extremely desired and oral health education about malocclusion should be strengthened.

FC231

Minimally Invasive Treatment of an Amelogenesis Imperfecta Case

Rasha Owda[1], Hande Sar Sancaklı[1], Taner Yucel[2]
[1]*Restorative Dentistry Department, Faculty of Dentistry, Istanbul University, Istanbul, Turkey,* [2]*Faculty of Dentistry, Istanbul University, Istanbul, Turkey*

Introduction: Amelogenesis imperfecta (AI) is a hereditary disorder caused by mutations of genes primarily involved in the enamel formation. Several different types of AI have been identified, based on the phenotype and on the mode of inheritance. Regardless of the type, the dental treatment tends to be the same, favoring the complete removal of the compromised enamel late in the patient's life. With the new dentistry guidelines that orient clinicians toward minimal invasiveness, it should be mandatory to intercept patients affected by AI earlier, not only to protect the dentition from further degradation but also to help patients improve their self-esteem.
Case description: 16-years-old female suffering from discolored and irregular-shaped teeth was referred to improve the appearance of her smile. The clinical examination revealed hypoplastic type of AI. Enamel surface discolorations were only pretreated by air abrasion without any rotary instrumentation prior to direct composite veneers to enhance the rough, irregular and pitted enamel using a universal adhesive bonding with selective-enamel-etch technique to re-create the esthetic appearance of the sound teeth.
Discussion: A biomimetic restoration with esthetics, mechanics, biological compatibility and function was achieved and maintained during the 12-months follow-up without any degradation.
Conclusions/Clinical significance: Clinically durable bonding performance was achieved by a universal bonding agent with a minimal invasive approach using air abrasion for a reliable substrate to treat hypo plastic AI.

FC232

Comparative Evaluation of MTA, PRF and Pulpotec as Pulpotomy Agents

Anju Jorwal, Afroz Alam Ansari, Rakesh Kumar, Vijay Kumar Shakya
KGMU, Lucknow, India

Aim or purpose: Various materials have been tried in pulpotomy procedures till date like Mineral Trioxide Aggregate (MTA), Pulpotec and Platelet Rich Fibrin (PRF). This study envisages to compare and evaluate the efficacy, both clinically and radiographically, of MTA, PRF and Pulpotec as pulpotomy medicaments in deciduous teeth.
Materials and methods: The eighty-one deciduous molars were randomly divided into three groups (A, B, and C) depending on the type of pulpotomy medicament used. Each group consisted of twenty-seven deciduous teeth in the age group from 4 to 9 years. Group A was treated with MTA while Group B and Group C were treated with PRF and Pulpotec respectively. The teeth were evaluated at 3, 6, and 9 months both clinically and radiographically. Finally, all the groups were compared statistically to get results.
Results: On the basis of statistical analysis it was found that the clinical and radiographic success rates of MTA group over nine-month period of observation were 100% and 92.6% respectively while they were 100% and 88.9% respectively in PRF group and 100% and 88.9% respectively in Pulpotec group.
Conclusions: The overall success rates of all the medicaments following order of performance was concluded: Clinical performance: MTA group = PRF group = Pulpotec group.
Radiographical performance: MTA group > PRF group = Pulpotec group.

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Free Communication Session 59 | 31.08.2017, 11:30–12:30 | Room A9.11

Theme: Periodontics

FC233

Interleukin-1ß And Prostaglandin E_2 Levels During Fixed Orthodontic Treatment in Smokers Versus Non-Smokers

Ozer Alkan[1], Yesim Kaya[1], Eylem Ayhan Alkan[2], Nazli Zeynep Alpaslan Yayli[2], Sıddık Keskin[3]
[1]*Department of Orthodontics, Faculty of Dentistry, Yuzuncu Yil University, Van, Turkey,* [2]*Department of Periodontics, Faculty of Dentistry, Yuzuncu Yil University, Van, Turkey,* [3]*Department of Biostatistics, Faculty of Medicine, Yuzuncu Yil University, Van, Turkey*

Aim or purpose: The present study aimed to compare prostaglandin E_2 (PGE_2) and interleukin-1ß (IL-1ß) levels, which are the indicators of bone resorption and found in the gingival crevicular fluid (GCF), between smokers and nonsmokers who were under fixed orthodontic treatment.
Materials and methods: A total of 30 subjects (15 smokers and 15 nonsmokers), who had different types of dental malocclusion and applied to the Yüzüncü Yıl University Faculty of Dentistry, Department of Orthodontics for treatment, were enrolled in the study. After placing orthodontic brackets, leveling stage was completed using 0.12, 0.14 and 0.16 Ni-ti arch wires. In the stage where 16 × 22 steel arch wires have been used, GCF samples were collected from the distal aspects of maxillar incisors using periopaper. IL-1β and PGE_2 levels in GCF were analyzed by ELISA method.
Results: It was determined that gingival index and bleeding on probing parameters were lower but pocket depth was higher in smokers as compared to nonsmokers. The difference between the groups was statistically not significant. Total and concentration levels of IL-1ß and PGE_2 were higher in smokers versus nonsmokers. However, the difference between the groups was not found statistically significant.
Conclusions: The results of the study revealed no statistically significant difference between smokers and nonsmokers in terms of GCF cytokine levels during orthodontic treatment. Further studies that investigate GCF cytokine levels during orthodontic treatment performed with different forces in larger series are required.

FC234

Audit on Record Keeping in Relation to Periodontal Disease

Chuen Albert Yeung[1], Aileen Ross[2]
[1]*NHS Lanarkshire, Bothwell, UK,* [2]*Hamilton Road Dental Practice, Motherwell, UK*

Aim or purpose: To audit the standard of record keeping in relation to periodontal disease.
Materials and methods: All dentists in Lanarkshire Health Board were invited to participate in this audit. A data collection form was developed and rolled out to six groups of dentists. A number of key areas in patient records such as basic periodontal examination, oral hygiene status, patient's self-reported oral hygiene habits, diagnosis and treatment plan were reviewed. Data for the first round (R1) of audit were collected retrospectively by each dentist for 30 dentate patients aged over 18. Results for R1 were analyzed and discussed by each group. The second round (R2) of audit was carried out prospectively with results analyzed and compared with those from R1.
Results: A total of 69 dentists took part in R1; while two dentists withdrew in R2. Over 2000 patient records were audited in each round. After R1, the groups agreed that it is important to record patient's self-reported oral hygiene habits and to explain to patients their role in improving their periodontal health. A diagnosis is required, as without diagnosis treatment plan could not be formulated. Comparison of data between R1 and R2 showed an increase in all areas, especially: oral hygiene status from 81% (R1) to 95% (R2); patient's self-reported oral hygiene habits from 47% (R1) to 82% (R2); diagnosis from 58% (R1) to 85% (R2).
Conclusions: The audit was successful in improving the standard of record keeping in relation to periodontal disease.

FC235

Effectiveness of Different Methods on Wound Healing After Free Gingival Graft

Miray Cakiroglu, Sila Cagri Isler, Deniz Cetiner, Ahu Uraz
Faculty of Dentistry, Gazi University, Ankara, Turkey

Aim or purpose: After the free gingival graft is removed from the palate, the wound area is left for secondary healing; and depending on the size of wound, the healing takes at least 2 to 4 weeks. The aim of this study was to evaluate the effects of platelet rich fibrin (PRF), collagen sponge, ozone and low-level laser therapy (LLLT) and essix retainer on wound healing at free gingival graft (FGG) donor site.
Materials and methods: Sixty patients requiring FGG were randomly assigned into six groups. An approval from the institutional ethics committee (3620600/114) was achieved. In the first group, the palatal wounds were left to secondary healing without any of the applications (control group). In the other groups, the procedures were applied to FGG donor sites respectively; PRF, collagen sponge, essix retainer, LLLT and ozone therapy. Patients were asked to come for follow-up in the first three, 7^{th} and 14^{th} days, 1^{st} and 3^{rd} months after the operation. The pain, changes in the eating habits, burning sensation, erythema, edema and inflammation were evaluated through visual analogue scale (VAS). Epithelization was examined through hydrogen peroxide (H_2O_2) decomposition method.
Results: At the end of 7^{th} day, the most epithelization was observed in the PRF group. The highest number of analgesics used was found in the control group. No statistically significant differences were found between the groups in terms of bleeding, edema and inflammation.
Conclusions: Regarding the patients' comfort, PRF group was found to be most effective in this study.

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Free Communication Session 60 | 31.08.2017, 11:30–12:30 | Room A9.13

Theme: Oral Surgery

FC237

Cone Beam Computed Tomographic Analysis of Maxillary Premolars and Molars

Tuba Talo Yıldırım[1], Tolga Tozum[2]
[1]*Fırat Üniversity, Elazığ, Turkey,* [2]*University of Illinois, Chicago, IL, USA*

Aim or purpose: The purpose of this study was to determine the association between root apices and the inferior wall of the maxillary sinus and to identify pulpoperiapical condition 2nd premolar, 1st molar, 2nd molar, 3rd molar using cone beam computerized tomography (CBCT).
Materials and methods: This cross-sectional study was conducted on a retrospective evaluation of CBCT images of 1000 maxillary sinus with 500 subjects who visited the Department of Dento-Maxillofacial Radiology. The relationship of each root with maxillary sinus and pulpoapical condition were classified. The differences among gender, age, left and right side of maxillary sinus were statistically analyzed.
Results: A total of 602 2nd premolars, 500 maxillary 1st molars, 623 2nd molars and 402 3rd molars were observed. There were no significant differences between pulpoapical condition of teeth and gender or left and right sides ($p > 0.05$). There were significant association between pulpoapical condition of teeth and age ($p < 0.05$), the relationship of each root with maxillary sinus and age ($p < 0.05$). However, there was no significant association between the relationship of each root with maxillary sinus and gender or left and right sides ($p > 0.05$).
Conclusions: Age may have an association with pulpoapical condition of teeth and the relationship of each root with maxillary sinus.

FC238

Presence of Toxic Heavy Metals in the Platelet-Rich Fibrin

Emre Yaprak[1], Irfan Yolcubal[2], Esra Guzeldemir-Akcakanat[1]
[1]*Department of Periodontology, Faculty of Dentistry, Kocaeli University, Kocaeli, Turkey,* [2]*Department of Geological Engineering, Faculty of Engineering, Kocaeli University, Kocaeli, Turkey*

Aim or purpose: It is a well-known fact that various toxic heavy metals (HMs) may exist in the blood depending on the exposition state of the individuals. It has been also reported that tobacco smoking, as being a major heavy metal source, significantly increase HM levels in the blood. Since platelet-rich fibrin (PRF) is a blood-derived product, the presence of some HMs in its content is highly possible. The aim of this study was to investigate the existence of HMs in PRF and to compare their concentrations among smoker and non-smokers.
Materials and methods: Peripheral venous blood specimens were obtained from current-smoker (n = 30) and non-smoker (n = 30) volunteers to generate PRF. Fibrin and exudate parts of the PRF samples were separated immediately after the preparation to analyze them separately. The samples were analyzed by inductively coupled plasma mass spectrometry in terms of 26 metals and metalloids, including the toxic HMs.
Results: The results of this study indicated the presence of various toxic HMs including cadmium, lead, arsenic and mercury in PRF samples of both groups within various concentrations. Smokers exhibited statistically high levels of some HMs in the fibrin and liquid parts of the PRF samples comparing with smokers.
Conclusions: According to the results of this study, it can be concluded that PRF contains various toxic HMs and smoking significantly increase their concentrations. Further studies are required to reveal whether PRF application really lead accumulation of considerable amounts of HMs in the applied tissues which are at toxic levels or not.

FC239

Is Maxillary Sinus Septa Correlated with Residual Alveolar Bone Height?

Mehmet Demirkol[1], Nermin Demirkol[2], Seda Ozer[3]
[1]*Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Gaziantep University, Şehitkamil/Gaziantep, Turkey,* [2]*Department of Prosthodontics, Faculty of Dentisty, Gaziantep University, Şehitkamil/Gaziantep, Turkey,* [3]*Department of Oral and Maxillofacial Radiology, Faculty of Dentisty, Gaziantep University, Şehitkamil/Gaziantep, Turkey*

Aim or purpose: The exact mechanism of maxillary sinus floor septa (MSFS) is still controversy. We aimed to determine whether the residual alveolar bone (RAB) height could influence the MSFS height.
Materials and methods: Present study included 149 maxillary sinus cone beam computerized tomography (CBCT) scans diagnosed with MSFS in either complete posterior edentulous or dentate patients. Localization of each septum in maxillary posterior region was recorded by dividing into three regions; anterior region (mesial to the distal aspect of the second premolar, mesial to 5D), middle (from the distal aspect of the second premolar to the distal aspect of the second molar; 5D–7D), and posterior (distal to the distal aspect of the second molar; distal to 7D). The maximum height of septa that located sinus floor and residual alveolar dimension were measured in sagittal plane. $p < 0.05$ was considered statistically significant.
Results: In CBCT results, no anterior MSFS in either posterior edentulous or dentate patients were found. The mean MSFS height differed significantly between males than females ($p = 0.008$). In edentulous patients, the mean MSFS height was higher in posterior region (8.37 ± 2.98 mm) than middle (6.93 ± 2.59 mm). This difference is statistically significant ($p = 0.037$). In dentate patients, the mean MSFS height was almost similar in middle (6.97 ± 2.24 mm) and posterior (6.38 ± 2.27 mm) regions. There is no significant correlation was observed between MSFS and RAB heights in all regions.
Conclusions: The results of present preliminary study suggested that there is no association between MSFS and RAB heights.

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FC240

Traumatic Neuroma of the Mandibular Nerve: A Case Report

Cigdem Kose, Nazife Begüm Karan, Aysenur Nergiz Tanidir
Recep Tayyip Erdogan University, Rize, Turkey

Introduction: Traumatic neuroma is a benign lesion, that involves peripheral nerves and occurs following trauma or surgery. Clinically, soft tissue traumatic neuromas mostly seen in the mental foramen, lower lip, tongue and present as a smooth-surfaced, non-ulcerated nodules. The treatment of traumatic neuroma is surgical excision and no incidence of recurrence was reported.
Case description: A 63-year-old female patient referred to the clinic with complaints of pain and tenderness associated with removable denture on the inferior left buccal region. Clinical examinations revealed a slight expansion covered by normal mucosa in the left mandibular premolar side. Radiographic examination showed no abnormality; however, magnetic resonance imaging revealed an expansion of the soft tissue around mental nerve (MN) foramen. MN was exposed and dissected from the mucosa. Many other branches of the MN were observed and 6–7 mm of round, solid lesion was identified on one of them. Excisional biopsy was performed. Histopathological and immunohistochemical examination of the specimen was reported as traumatic neuroma.
Discussion: No complications was observed and all the complaints of the patient were relieved after the procedure. Traumatic neuroma originates from the nerve itself. After trauma neuroma develops in a nerve bundle as a reactive lesion. Traumatic neuromas histopathologically present as non-encapsulated lesions in general and contains a large amount of casually arranged nerve fascicles, within a densely collagenous stroma.
Conclusions/Clinical significance: The pain and sensitivity of oral tissues are not always easy to understand. By the right imaging and treatment techniques, complaints of the patients can easily be eliminated.

Free Communication Session 61 | 31.08.2017, 12:45–13:45 | Room A9.11

Theme: Materials

FC241

Clinical Evaluation of Two Types of CAD/CAM Ceramic Endo-Overlays for Endodontically Treated Molars

Ahmed El-Kady
Faculty of Dentistry, University of Alexandria, Alexandria Governorate, Egypt

Aim or purpose: The purpose of this study was to evaluate the clinical success rate of endodontically treated molars restored with two CAD /CAM endo-overlays systems.
Materials and methods: Ten patients were included in this study each had 2 molars for which endodontic treatment and coronal restoration were indicated. Subjects were randomly assigned to 1 of the following 2 groups: 110 teeth endodontically treated and restored with katana zirconia HT endo-overlays 2 10 teeth endodontically treated and restored with zirconia reinforced lithium disilicate (Vita suprinity) endo-overlays. The crowns and pulp chambers were prepared. The impressions and master casts were gained. Endo-overlays were fabricated with CAD/CAM system and cemented with resin cement. The restorations were assessed according to the modified United States Public Health Service (USPHS) criteria after 6 months and 1 year.
Results: Wear of restoration and antagonist, recurrent dental caries, gingivitis and anatomic form for all restorations received Alfa rating at recall periods. Marginal integrity: all restorations received Alfa rating except 1 vita suprinity endo-overlay received Bravo ratings after 12 months but there was no statistically significant difference ($p = 1$). Fracture of restoration: all restorations received Alfa rating except 1 Katana zirconia HT endo-overlay received Charlie ratings after 12 months but there was no statistically significant difference ($p = 1$). Cavosurface margin discoloration: all restorations received Alfa rating except 2 Katana zirconia HT endo-overlays received Bravo ratings after 6 months but there was no statistically significant difference ($p = 0.474$).
Conclusions: Endo-overlay is a strong conservative and esthetic procedure used to restore posterior endodontically treated molars.

FC242

Aging Effect on Hydrolytic-Resistance, Flexure-Strength and Translucency of Some CAD/CAM-Blocks

Mariam Hosny, Ahmed Nour El Din Habib, Rasha Mohamed
Faculty of Dentistry, Cairo University, Giza, Egypt

Aim: Investigate aging effect of three ceramic CAD/CAM block materials: lithium disilicate (LD), translucent zirconia (TZ) and zirconia reinforced lithium silicate (ZLD) on their hydrolytic resistance, microstructure, flexure strength and translucency.
Materials and methods: Fourteen disk shaped specimens were prepared from each material (12 mm diameter and 1.2 mm thickness). Seven specimens per material were subjected to accelerated aging according to ISO standard:6872 which specifies boiling in 4% acetic

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acid at 80 °C for 16 hours. While the other seven were considered as control. Weight loss was measured by weighing specimens before and after aging. Crystalline structure was investigated before and after aging by x-ray diffraction (XRD) while microstructure by scanning electron microscope (SEM). All specimens were subjected to translucency parameter testing using spectrophotometry then biaxial flexure strength testing. Statistical analysis performed with IBM®SPSS®Statistics, Windows Version20.

Results: No significant percentage loss of weight after aging of the three materials. LD had the highest translucency followed by ZLD and TZ was the least, in addition, LD translucency decreased by aging while translucency of the others was not affected. TZ had the highest flexure strength while there was no difference between the others. Flexure strength of the three materials was not affected by aging and XRD graphs showed no change after aging of the three materials.

Conclusions: Aging did not affect the hydrolytic resistance of the three materials. The translucency of LD which contains more glassy phase was decreased by aging. Aging did not affect the flexure strength and there was neither phase transformation nor change in the crystalline structure.

FC243

Depth of Cure and Micro-Hardness of Bulk-Fill and Conventional Composite

Marwa Salmoon[1], Fatma Abdelgawad[1], Dalia Saba[2], Nevine Waly[1], Mervat Rashed[1]

[1]Pediatric Dentistry and Dental Public Health Department, Faculty of Dentistry, Cairo University, Giza, Egypt, [2]Biomaterial Department, Faculty of Dentistry, Cairo University, Giza, Egypt

Aim or purpose: With advancement of dental materials, application of single bulk-fill increment up to 4 mm can be time saving. This study aims to evaluate the depth of cure and micro-hardness of bulk-fill and conventional composite according to ISO (4049:2009).

Materials and methods: Cylindrical stainless-steel specimens were prepared and divided into two groups. Group I: bulk-fill composite and group II: conventional composite. Then filled with bulk-fill and conventional composite. The specimens were cured from the top surface. The depth of cure was measured using electrical digital caliper and micro-hardness of restorations was measured using Vickers hardness test in each group. Student's *t*-test was used to compare between both groups.

Results: Mean depth of cure for group I was 3.99 ± 0.11 (mm) which is significantly higher than mean depth of cure for group II which was 1.86 ± 0.15 (mm) with $p = 0.001$. Mean Vickers hardness for group I was 114.92 ± 12.19 and 126.34 ± 12.06 for bottom and top respectively, while for group II, it was 93.66 ± 20.67 and 108.74 ± 20.67 for bottom and top respectively. The difference between both groups for micro-hardness at top surface was not statistically significant with $p = 0.077$ while at bottom surface, it was statistically significant with $p = 0.037$. The ratio between bottom and top surfaces of the specimens cured was 90.964% and 86.132% for group I and group II respectively.

Conclusions: Bulk Fill composite can be cured effectively to at least 4-mm depth and composite materials must be used according to manufactures' instructions concerning the depth of cure and type of materials used.

FC244

Resistance of Endodontically Treated Premolars Restored with Bulk-Fill Composites

Nicole Bergés[1], Jafrayra Galván[2], Angely Hernández[1], Elvin Mancebo[1], Leandro Feliz-Matos[1]

[1]Biomaterials and Dentistry Research Center, CIBO-UNIBE, Santo Domingo, Dominican Republic, [2]School of Dentistry, Universidad Iberoamericana, UNIBE, Santo Domingo, Dominican Republic

Aim or purpose: To evaluate fracture resistance of endodontically treated premolars restored with different bulk-fill resin composites techniques.

Materials and methods: Thirty endodontic first upper premolars were selected. Standardized occlusal-distal cavities were made. The selection was divided in two groups of 15 samples, G-1: Bulk-Fill resin composite (Shofu, Japan) of high viscosity, G-2: Bulk-Fill resin composite (Shofu, Japan) of low viscosity, this was used as base, and the Bulk-Fill (Shofu, Japan) resin composite of high viscosity in the occlusal surface. The samples were subjected to compressive forces using the universal testing system (MTI-2K).

Results: The difference between the mean of the maximum strength was not statistically significant, the mean force and resistance to fracture for group G-1 was 561.32N, and for the group G-2 was 567.17N.

Conclusions: The restoration technique recommended when using Bulk-Fill resin composites related to fracture resistance is the technique that uses Bulk-Fill resin composite of low viscosity flow type as base, and high viscosity composite resin in the occlusal surface.

Free Communication Session 62 | 31.08.2017, 12:45–13:45 | Room A9.13

Theme: Oral Surgery

FC245

Similarities and Differences in Proteomic Profiles Between the Platelet Rich-Fibrin and Blood Serum

Emre Yaprak[1], Mehmet Sarihan[2], Murat Kasap[2], Gurler Akpinar[2], Gizem Komurlu[1]

[1]Department of Periodontology, Faculty of Dentistry, Kocaeli University, Kocaeli, Turkey, [2]Department of Medical Biology, Faculty of Medicine, Kocaeli University, Kocaeli, Turkey

Aim or purpose: As being a blood-derived biomaterial, the platelet-rich fibrin (PRF) may carry various blood proteins. The contribution of proteins in serum to various biological processes including the wound healing is already known. The beneficial effects of PRF on the healing has also been reported. However, there is no study underlining the similarities or the differences between these two important biological materials. In this study,

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we compared the proteomic profiles of the PRF and serum using a 2D-based approach.
Materials and methods: PRF and blood serum samples were systemically collected from healthy and non-smoker volunteers. The PRF and serum samples were subjected to albumin/IgG reduction prior to 2D gel electrophoresis. A master gel was created from every-member-matching spots to eliminate individual differences. Then a quantitative analysis was performed to determine the differently expressed proteins among the samples. The proteins were then identified by MALDI TOF/TOF analysis.
Results: Based on the two-fold regulation criteria, at least 16 regulated protein spots were detected identified among 350 every-member-matching spots.
Conclusions: Proteomic profiling of the PRF and blood serum displayed similar protein profiles. Accordingly, it can be speculated that various blood proteins may contribute to regenerative capacity of PRF. Further studies are required to analyze the proteome content of the PRF in detail to reveal its undisclosed potential in wound healing.

FC246

Decompression of Dental Cysts with Modified Insulin Injector: 5 Cases

Mehmet Kemal Tümer[1], Esengul Sen[1], Nihat Akbulut[1], Akgül Arıcı[2]
[1]*Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Gaziosmanpasa University, Tokat, Turkey,*
[2]*Department of Pathology, Faculty of Medicine, Gaziosmanpasa University, Tokat, Turkey*

Introduction: Decompression of dental cysts is a conservative technique which create a surgical window into the cavity of the cyst and maintaining the continuity between the cyst and the oral cavity, maxillary sinus, or nasal cavity.
Case description: These clinical cases emphasizes conservative management of 3 dentigerous cysts, 1 radicular cyst and 1 residual cyst. The treatment of the cysts was performed by using decompression. The insulin injector was modified and used as decompression tube and sutured to the mucosa for stabilization. If necessary orthodontic treatment was also performed. After follow up, the cysts healed uneventfully.
Discussion: Large odontogenic cysts can be treated with decompression method and several decompression tubes have been used for the maintenance of surgical opening. Some complications can occur as soft tissue trauma, malpositioning of the tube, inappropriate tube size, loosening of sutures, mastication interference, and difficult oral hygiene. Oral hygiene can be easily performed by modified insulin injector we used, because the piston of the injector was placed to the entrance of the cavity when the patient was not irrigating the cavity. In this way, food remnants cannot enter the cavity. Also, the size of the injector is suitable for the intraoral approach.
Conclusions/Clinical significance: Modified insulin injector can be used as a useful decompression device for cystic lesions. Because it is cheap, small and easy to manipulate.

FC247

Closed Treatment of Mandibular Condyle Fracture in Children: Case Report

Erdinc Sulukan, Nazife Begüm Karan, Neziha Kececioglu, Aysenur Nergiz Tanıdır
Recep Tayyip Erdoğan University, Rize, Turkey

Introduction: Mandible fractures are one of the most common facial fractures. One out of three mandibular fractures is composed of the mandibular condyle. Treatment options for mandibular condyle fractures include either closed method or open reduction with internal fixation. According to meta-analysis the best treatment strategy remains controversial between closed or open reduction.
Case description: Systemically healthy eleven year-old female patient referred to our clinic with a history of trauma. Swelling and erythema was present in the left temporomandibular joint (TMJ) area and mouth opening was limited with deviation to the affected side. Pain was noted on lateral and protrusive movements. Radiographic examination and computed tomography (CT) scan disclosed left mandibular medially-displaced condyle neck fracture. Closed reduction and intermaxillary fixation was decided to be performed for two weeks in combination with physiotherapy and exercises. Interocclusal distance was increased gradually and at the latest follow up visit, nor deviation nor occlusion problem was present.
Discussion: Physiotherapy and exercises are the cornerstones of the treatment of condyle fractures and are recommended immensely in young patients to prevent TMJ ankylosis. In present case 1-year of radiographic follow-up was excellent. It was ascertained that the fractured bone was resorbed and the new condylar bone regeneration was occurred. The patient was conveniently able to perform all kinds of jaw movements.
Conclusions/Clinical significance: The present case represents that mandibular condylar fractures in children can be treated easily with closed reduction but subsequent physiotherapy and exercises are vital to gain the optimal occlusion and function of TMJ.

FC248

Smoldering Multiple Myeloma Presenting as Gingival Mass: Uncommon Case Report

Mounir Omami, Adel Bouguezzi, Radhia Ben Ali, Abdellatif Chokri, Sameh Sioud, Hajer Hentati, Jamil Selmi
Department of Oral Surgery, University Dental Clinic, Monastir, Tunisia

Introduction: Smoldering multiple myeloma (SMM) is an asymptomatic clonal plasma cell (PC) disorder. It is defined by the presence of a serum monoclonal (M) protein of ≥3 g/dl and/or 10% to 60% clonal bone marrow PCs (BMPCs) with no evidence of end-organ damage (CRAB criteria: hypercalcemia, renal failure, anemia, or lytic bone lesions) or other myeloma defining events. The typical age at SMM diagnosis is 50 to 70 years. Oral lesions rarely occur as the first sign of the disease. We report a case of SMM presenting as a mandibular gingival mass.

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Case description: An 82-year-old man with no medical history presented with a chief complaint of mandibular gingival mass for two months. Intraoral examination revealed a firm pedunculated mass of the anterior mandibular gingiva with hypermobility of the adjacent dental bridge. Panoramic radiograph showed a radiolucent lesion in relation with the mass. We had removed the lesion with the adjacent teeth. The histopathological investigation of the specimen revealed immature plasma cells. The analyses showed a 10% to 12% clonal bone marrow PCs with no sign of CRAB. A final diagnosis of SMM was confirmed.
Discussion: The standard of care for SMM remains observation until development of symptomatic multiple myeloma (MM). However, early therapy can be potentially beneficial to patients to limit the risk of progression of the disease to a MM.
Conclusion: To ovoid overlooking this disease, SMM should be borne in mind as a differential diagnosis when considering a patient whose chief complaint is unusual gingival mass.

Free Communication Session 63 | 31.08.2017, 14:00–15:00 | Room A9.11

Theme: Materials

FC249
An Analysis of Enamel Remineralization in Eggshell Using *Energy Dispersive X-Ray Spectroscopy* (EDS)
Asmawati Amin, Bahruddin Thalib, Rafikah Hasyim, Alqarama Mahardika Thalib
Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

Aim or purpose: Many patients suffer from sensitive teeth after bleaching that can cause demineralization of enamel and widening of dentinal tubules. Therefore, researchers are looking for alternative materials for use as a dental enamel remineralization ingredients include chicken egg shells containing calcium carbonate that can restore lost inorganic compounds. This study aimed to analyze the remineralization of tooth enamel using chicken egg shells gel after bleaching.
Materials and methods: This study was a laboratory experimental research design with the post test only control group design. The research sample was five maxillary central incisor that has been applied materials 35% hydrogen peroxide bleaching at different time range is 1 hour, 1 hour 30 minutes, 2 hours, 2 hours 30 minutes and 3 hours. After the gel is applied samples of chicken egg shells for 14 consecutive days. Analysis remineralization of tooth enamel was analyzed using Energy Dispersive X-ray Spectroscopy (EDS). Analysis of data using non-parametric test (Kruskal Wallis).
Results: The results of this study, obtained p-value = 0.987 ($p < 0.05$; significant) which means tooth remineralization gel made from chicken egg shells not cause a significant difference in the average content of tooth enamel elements between the control group and the group receiving treatment gel application of chicken egg shells.
Conclusions: It can be concluded egg shells gel cannot increase the remineralization of tooth enamel.

FC250
Effect of Storage Acidity and Duration on Surface Characteristics of PMMA Denture Base Material
Isra Al Bakri[1], Micheal Swain[2], Ayman Ellakwa[2], Wojciech Chrzanowski[2]
[1]*Jordan University of Science and Technology, Irbid, Jordan,*
[2]*University of Sydney, Sydney, Australia*

Aim or purpose: To investigate the effect of storage medium acidity and the storage duration on the surface topography, surface roughness on atomic scale and nanoindentation assessment of hardness for reinforced polymethylmethacrylate (PMMA) denture base material.
Materials and methods: Disks of PMMA uploaded with different concentration of glass fillers were prepared (0, 1, 2.5, 5, and 10% wt), then aged in deionised water (PH 7.0) (n = 5) and in lactic acid (PH 4.0) (n = 5). Evaluation of surface roughness for the testing intervals (0, 3, 6, 12 months) was performed using atomic force microscope (AFM) in a tapping mode with the R_a measured on the scan of 25 × 25 μm images. Evaluation of the nanohardness of the specimens was carried out using Ultra Micro Indentation System, utilizing a three-sided Berkovich indenter tip. Three-way factorial analysis of variance was used to assess the influence of filler uploading, storage media and storage duration on both surface properties.
Results: Compared with the control group, the tested groups showed no significant difference ($p > 0.05$) in surface roughness and hardness pre and post storage over 12 months in either media. However, all testing groups presented slight decrease in surface hardness and roughness post storage in both media, excluding the control and 1% resin bases which became rougher in lactic acid.
Conclusions: Storage time and storage medium acidity have negative but not significant influence on surface topography and hardness of the denture base material.

FC251
Baseline Data Preceding Implementation of Amalgam Phase-Down in Nigeria
Donna Chioma Umesi[1], Omotayo Adebola Oremosu[2], John Oluwatosin Makanjuola[3]
[1]*Department of Restorative Dentistry, Faculty of Dental Sciences, College of Medicine, University of Lagos, Lagos, Nigeria,*
[2]*Restorative Dentistry Department, Faculty of Dental Sciences, College of Medicine, University of Lagos, Lagos, Nigeria,*
[3]*Department of Restorative Dentistry, Lagos University Teaching Hospital, Lagos, Nigeria*

Aim or purpose: The Minamata convention requires that amalgam be phased-down and eventually phased-out in dentistry. It is important to have a baseline data of current use of amalgam in a locality prior to implementing a phase-down, which will aid its subsequent evaluation.
Materials and methods: Patients' records over a five-year period from January 2011 to January 2016 were analyzed to determine and compare the frequency of fillings employing amalgam to other restorative materials for restoring carious teeth in a teaching

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hospital. Classes of cavities restored and cadres of operators who used the different materials were also noted. Approval for the study was obtained from the institution's ethics research committee.
Results: A total of 2058 patients' records were retrieved, 59% females and 41% males. Age range was 19–80 years, mean 33.5 ± 12.7 years, majority (62.9%) were young adults of 20–39 years. Materials used for fillings comprised 57.5% Amalgam, 24.9% resin composite and 17.6% glass ionomer cement. Class I fillings accounted for 69.9% of amalgam restorations, followed by Class II restorations (29.7%) while Classes III, IV and V fillings combined was less than 1%. Undergraduate students were most likely to place amalgam fillings, having placed 60.5% of the Amalgam restorations, house officers placed 14.4% and resident doctors placed the rest of amalgam fillings.
Conclusions: Amalgam fillings accounted for about 60% of restorations on teeth in the last five years. Efforts should be intensified at Amalgam phase-down and ultimately Amalgam phase-out, in Nigeria, in line with the Minamata Convention.

FC252
The Effect of Two Lining Materials on Share Bond Strength
Vasilka Rendzova, Sonja Apostolska, Marina Eftimoska
Faculty of Dentistry, Skopje, The Former Yugoslav Republic of Macedonia

Aim or purpose: The aim of the study was to evaluate the influence of two different liners on bonding ability of resin composite (RC) to dentin using self etching dentin adhesive.
Materials and methods: A total of thirty extracted human molars were ground to expose a flat dentin and divided in three groups according to tested liners. Additional In the samples of group A and B a cavity of 2 mm depth and 6 mm in diameter was prepared to retain the liners: group A used Biodentine™, Group B used TheraCal LC and the samples of the group C used no liner (a control group). Furthermore, four –mm- thick buildups of resin composite was bonded to each sample using One Coat universal adhesive. Share bond strength analysis was performed using a universal testing machine. Statistical analysis was performed with one-way analysis of variance (ANOVA).
Results: A significant difference ($p < 0.05$) was observed between group A and group B with the control group C. Group B showed better bond strength values with a significant difference than group A.
Conclusions: Studies have shown that both testing materials have influence on bonding ability of resin composite when they are used as liners. TheraCal LC shows a better bond- strength than the Biodentine™ when the composite material is applied in one session.

Free Communication Session 64 | 31.08.2017, 14:00–15:00 | Room A9.13

Theme: Oral Medicine

FC253
Plasma Level Formaldehyde in Children Receiving Pulpotomy under General Anesthesia
Majid Bargrizan, Pouya Pourgolshani, Sepanta Hosseinpour, Golnoush Jalalpour, Mostafa Zahmatkesh
Dental Research Institute, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran

Aim or purpose: Formocresol has long been used by dentists for pulpotomy of primary teeth. Due to some concerns regarding its possible carcinogenicity, formocresol has been the topic of numerous studies. This study sought to assess the changes in plasma level of formaldehyde of children after receiving pulpotomy under general anesthesia.
Materials and methods: Following approval by ethics committee of dental research institute of Shahid Beheshti university of medical science, twenty-five children between 2–6 years requiring dental treatments under general anesthesia were studied. Blood samples were taken of children before and after the procedure. Plasma level of formaldehyde was measured using high performance liquid chromatography (HPLC).
Results: A total of 106 pulpotomy treatments were performed in 25 children using 126 cotton pellets dipped in formocresol. An increase and a decrease in plasma level of formaldehyde were noted in 5 (20%) and 20 (80%) children, respectively post-operatively compared to baseline. The *t*-test showed no significant difference in plasma level of formaldehyde pre- and postoperatively ($p = 0.12$). the plasma level of formaldehyde in children who had higher levels of formaldehyde prior to the operation was also higher than that of others after the operation and this association was statistically significant ($p = 0.001$, $r = 0.64$).
Conclusions: The results showed no significant change in the mean plasma level of formaldehyde in the children compared to its baseline value.

FC254
Impact of Anxiety and Depression on Temporomandibular Joint Disorders among Sample of Dental Undergraduates of Karachi
Kiran Fatima[1], Affaf Fatima[1], Farnaz Ilyas[1], Muhammad Wasay Ali Khan[2], Zubair Ahmed Abbasi[1]
[1]*Bahria University Medical and Dental College, Karachi, Pakistan,* [2]*Zia Uddin University, Karachi, Pakistan*

Aim or purpose: To evaluate the impact of anxiety and depression on clinical features of TMDs among junior and senior years dental undergraduates of two private dental Institutions of Karachi.
Materials and methods: It was a cross sectional study conducted in two private dental colleges of Karachi from January 2016 to May 2016. Total 295/300 undergraduates completed the questionnaires from junior years and 246/300 undergraduates from senior years of dentistry through convenience sample technique. The required

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information was gathered through two validated questionnaires (AKUADS and DC/TMDs). Data was entered and analyzed on SPSS version 23. Descriptive analysis and Pearson Chi square test was performed.
Results: This study estimated the significant impact of anxiety and depression on TMDs among junior and senior year's dental undergraduates as 282/541 respondents had TMDs and 52.1% prevalence of TMDs was estimated. Students with TMDs (107/140) from junior and (115/142) senior were score more than 19 in AKUADS which was found to be statistically significant among both groups (p value = 0.004 and <0.001) respectively. There was not a significant difference between anxiety and depression and TMDs among male and female respondents. AKUADS was significantly associated with jaw joint noises and history of lock jaw when comparing junior and senior group (jaw joint noises, p value = 0.007 and 0.001) and (history of lock jaw, p value = 0.011 and 0.001) respectively.
Conclusions: It is concluded from this study that there is an association between anxiety and depression and symptoms of TMDs among junior and senior dental undergraduates.

FC255
Oral Findings in Patients with Dyspeptic Disturbances
Mirjana Popovska[1], Vera Radojkova Nikolovska[1], Bruno Nikolovski[2], Lindita Zendeli-Bexheti[3], Spiro Spasovski[1], Kristina Mitic[1]
[1]*Faculty of Dentistry UKIM, Faculty of Dentistry Skopje, The Former Yugoslav Republic of Macedonia,* [2]*Faculty of Dentistry, Skopje, The Former Yugoslav Republic of Macedonia,* [3]*University Dental Clinical Center Skopje, Skopje, The Former Yugoslav Republic of Macedonia*

Aim or purpose: To record oral symptoms, signs and lesions in patients with dyspeptic disturbances caused by *H. Pylori.*
Materials and methods: In total 60 patients with dyspeptic symptoms and indication for endoscopic intervention-gastroscopy were examined and divided in two groups as follows: the first group (n = 30) comprised patients with dyspeptic symptoms without *H. Pylori* and the second one (n = 30) comprised patients with dyspeptic symptoms with *H. pylori. H. Pylori* was detected after endoscopic examination, taken biopsy and conducted urease test (CLO test−). Oral clinical findings were registered in all participants. During endoscopic examination, few biopsy samples were taken, one of which was used for rapid urease test (RUT). The test is performed during gastroscopy by using the Pronto Dry test.
Results: In patients with dyspeptic symptoms with *H. pylori*, were registered: halitosis in 21 (35.00%), hypertrophy of tongue papillae in 16 (26.67%), burning symptoms and aphthous ulcers in 4 (6.67%) and sour taste in 4 (6.67%). The group without *H. pylori* revealed mouth burning symptoms in 2 (3.33%), aphthous ulcers in 2 (3.33%); hypertrophy of tongue papillae in 1 (1.67%) and tongue hypertrophy with sour taste in 1 (1.67%) participant. Patients with *H. pylori* had an average of 2,999 times ($B = 2{,}999$) higher values of IgG compared to patients with a negative diagnosis of gastric biopsy (patients without *H. pylori*), ($p < 0.001$). Used statistical method is the percentages of structure and univariate regression analysis Bx.
Conclusions: In patients with dyspeptic symptoms with H. pylori dominate symptoms and lesions of the tongue and aphthous ulcers.
Keywords: Oral findings, H. pylori, dyspeptic disturbances.

FC256
Oral Mucositis: A Retrospective Study of 40 Cases
Narjiss Akerzoul, Saliha Chbicheb, Wafaa El Wady
Oral Surgery Department, Consultation Center of Dental Treatment, School of Dental Medicine of Rabat, Mohammed V University of Rabat, Morocco

Aim or purpose: To carry out a state of the management of chemo-induced mucositis.
Materials and methods: Our study is a retrospective observational one, carried on 40 patients in two departments: dental service, and radiotherapy service of the National Institute of Oncology (INO) of Rabat, as well as in the Oral Surgery department of the Consultation Center of Dental Treatment of Rabat. The included patients were treated with radiotherapy ± highly mucitogenic chemotherapy. The evaluation criteria were: Age, sex, living environment, oral health, type of cancer treatment and others. The analytical analysis was done using the IBM SPSS Statistics and Microsoft Excel Software. The qualitative data was expressed in effects and percentage, while the quantitative data was expressed in mean and standard deviation.
Results: Among the 40 patients included, 5 subjects developed mild grade 1 mucositis, grade 2 interested a group of 17 subjects, 14 patients developed grade 3 mucositis, and finally 4 subjects developed severe grade 4 mucositis. Preventive treatment was introduced in only 11 patients. of the 40 cases, 33 were treated with curative treatment.
Conclusions: Although the results were very disparate, they will enable us to evolve the practices, validating proposals of protocols of care in a multidisciplinary working group. A new study could then be carried out to evaluate the effectiveness of these protocols.

Free Communication Session 65 | 31.08.2017, 15:15–16:15 | Room A9.9

Theme: Caries Prevention

FC257
Fissure Sealing Results in 12–23-Month-Olds with High Caries Risk
Elena Maslak[1], Anastasia Osokina[1], Natalia Matvienko[1], Bakhtinur Khudaqnov[2]
[1]*Volgograd State Medical University, Volgograd, Russian Federation,* [2]*Tashkent State Dental Institute, Tashkent, Uzbekistan*

Aim or purpose: To study the results of fissure sealing in primary molars in 12–23-month-old children with high caries risk.

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Materials and methods: Prospective cohort study was conducted in municipal dental clinics after Regional Ethics Committee approval. 150 children were included in the study. The criteria for inclusion were the following: first or second molars in the process of erupting; one or more caries risk factors (incisors with carious or non-carious defects; bad oral hygiene; etc.); parent's informed consent. All children received necessary dental treatment. Their mothers were educated in oral hygiene and healthy diet. Fissures were sealed (non-invasive method) with glass ionomer cement (GIC) immediately after every first and second molar's eruption. Follow-up visits were provided every 3 months. Re-sealing was applied in case of partial or complete sealant loss. After 2 years the data of 124 (82.7%) children with 992 sealed primary molars were available. The percentage of re-sealed, non-carious and carious occlusal surfaces of primary molars with 95% confidence interval (CI) was calculated.
Results: During 2 years 30.9% (CI 28.0%–33.8%) of primary molars with GIC were re-sealed because of partial or complete loss of sealants. After 2 years 96.1% (CI 94.9–97.3%) primary molars had occlusal surfaces without caries signs. The percentage of molars with fissure caries was 3.9% (CI 2.7–5.1%).
Conclusions: In 12–23-month-old children with high caries risk the fissure sealing with GIC immediately after eruption prevented occlusal caries in 96.1% of primary molars. However, during 2 years 30.9% of molars needed re-sealing.

FC258

Effect of Toothpastes and Dental Varnishes on Enamel Remineralization

Yolanda Martinez Beneyto[1], Cristina Martinez Ortiz[1], Patricia Gatón Hernandez[2], Clara Serna Muñoz[1], Ana Hernandez Fernandez[1], Antonio Jose Ortiz Ruiz[1]
[1]*University of Murcia, Murcia, Spain,* [2]*University of Barcelona, Barcelona, Spain*

Aim or purpose: The objective of this study was to compare the remineralizing capacity of eight commercial products: MI Varnish™ (CPP-ACP), Clinpro™ White Varnish, Bifluorid 12, Tooth mouse™, MI Paste Plus, Remin Pro®, Clinpro™ Tooth Crème y Colgate® Sensitive Pro-Alivio.
Materials and methods: For the attainment of the study, 280 bovine teeth were used and mineral content was evaluated before and after being demineralized and after the application of the remineralizing products. Samples were randomly divided into eight groups, five treated with toothpaste and three with varnishes: Remineralization analysis was performed 7, 14 and 28 days after their application by the use of Energy Dispersive X-ray (EDX) and Scanning Electron Microscope (SEM).
Results: The results of EDX analysis showed a significant decrease in Ca and P levels after application of the demineralizing agent. A significant increase in Ca and P concentrations after 14 and 28 days was observed in paste and varnish groups, with small variations according to the study group. The Ca/P ratio showed a decrease after demineralization, followed by a progressive increase toward day 28, significant in some cases. In the SEM images, microporosities were observed after demineralization and characteristic images of the different pastes and varnishes on the enamel surface showed a progressive coating of the demineralization microwells.
Conclusions: The products studied "in vitro", show a high remineralizing capacity, allowing to recover mineral values similar to the basal ones after their application during a period of application of four weeks.

FC260

The Diagnostic Effectiveness of a Pen-Type Laser Device in Detecting Caries Lesions in Permanent Teeth

Anastasia Osokina
Volgograd State Medical University, Volgograd, Russian Federation

Aim: To investigate the diagnostic effectiveness of a pen-type laser (Lpen) device in detecting caries lesions in permanent teeth in compare with conventional visual method (WHO).
Methods: 1487 surfaces of 297 permanent teeth (mean patient age 18–22) were investigated by the same dentist using conventional visual method (WHO) and using Lpen. Informed consents were obtained. The status of investigated surfaces was recorded as intact/sound, with white/brown spots (non-cavitated lesions) or cavitated lesions. Statistical analysis was performed by STATISTICA-6, indexes mean score and 95% was calculated.
Results: 1309 dental surfaces (88.0%) were caries free. Using only conventional visual method 49 cavitated dental surfaces (3.2%) were revealed. Using pen-type laser 49 cavitated and 74 non-cavitated white and brown spots lesions 74 (4.9%) were recorded. The other surfaces had fillings. All of revealed white spots were invisible with naked eyes. The diagnostic accuracy of the LFpen was significantly higher than that of WHO criteria ($p < 0.001$).
Conclusions: The caries status assessment by LFpen revealed more carious lesions in permanent teeth than assessment by WHO criteria; the assessment caries on non-cavitated level by LFpen may assist practitioners to promote comprehensive treatment plan for patients; number of children needed treatment was higher according Lpen diagnosis compared with WHO criteria.

Free Communication Session 66 | 31.08.2017, 15:15–16:15 | Room A9.10

Theme: Periodontics

FC261

Effects of Platelet Rich Plasma on Free Gingival Graft Procedures

Necla Asli Kocak[1], Derya Erbil Emes[2], Aslan Yasar Gokbuget[2]
[1]*Department of Periodontology, Istanbul University, Istanbul, Turkey,* [2]*Private Practice, Istanbul, Turkey*

Aim or purpose: Healing may be compromised in free gingival graft (FGG) operations, which is one of the most common used techniques in order to increase the width of attached gingiva. Platelet rich plasma (PRP) can accelerate soft tissue healing. Aim of the present study is to evaluate the clinical effects of PRP on wound healing quality of FGG.

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Materials and methods: 36 defects in which 18 were split-mouth are included. The patients in experimental group were treated using FGG+PRP, the patients in control group were treated using FGG alone. Plaque index (PI), gingival index (GI), recession width (RW), recession height (RH), probing depth (PD), clinical attachment level (CAL), vertical level of keratinized gingiva, graft dimensions (height and width), graft thickness (GT) and palatinal tissue thickness (PTT) were recorded at operation day, 1st, 3rd, 6th and 12th months.
Results: GT, PTT were significantly higher and shrinkage of graft dimensions was significantly lower in the PRP group. Gain of CAL significantly higher in the PRP group. There were no significant differences between the groups for PI, GI and PD.
Conclusions: Our findings suggest that the use of PRP in the FGG procedures have a positive effect on graft shrinkage.

FC262

Glyoxalase1 Inducer Protects hPDLF From Dicarbonyl Stress In Vitro

Amal Ashour[1], Paul Thornalley[2], Naila Rabbani[2]
[1]*Taif Dental School, Taif University, Taif, Saudi Arabia,* [2]*Warwick Medical School, University of Warwick, Coventry, UK*

Aim or purpose: Glyoxalase1(Glo1) is part of the glyoxalase pathway which catalyses methylglyoxal (MG) to D-lactate and thereby prevents formation of advanced glycation endproducts (AGEs). High glucose concentration induced decrease activity of Glo1, increased MG or dicarbonyl stress, MG modification of collagen-IV and cell detachment. We reasoned that PDLFs may suffer dicarbonyl stress in high glucose concentration. The aim of this study was to assess if high glucose concentration induces dicarbonyl stress in human PDLFs in vitro and collagen detachment, and if this could be prevented by Glo1 inducer.
Materials and methods: hPDLFs were cultured in MEM supplemented with L-glutamine and 10%FBS at 37 °C. Culture media was supplemented with 8 mM (low glucose, LG) and 25 mM (high glucose, HG) and incubated for 3 days. Glo1 activity was assayed by conventional spectrophotometric assay, Glo1 protein by Western blotting with beta-actin as reference standard. Concentrations of MG and AGEs were assayed by stable isotopic dilution analysis liquid chromatography-tandem mass spectrometry. Glo1 inducer were added at 10 micromolar concentration. Binding of hPDLFs to collagen-I was investigated.
Results: The activity of Glo1 in LG was 985 ± 148 mU/mg protein ($n = 5$) and was decreased ca. 45% by HG ($p < 0.001$). Glo1 protein was decreased. MG concentration of the medium and cells was increased *ca.* 41% and 60%, respectively, in the HG, compared to LG ($p < 0.01$). Cellular protein content of MG-derived AGE, MG-H1, was also increased: 0.330 ± 0.163 versus 0.763 ± 0.201, $p < 0.01$. There was a ca.30% decrease in adhesion of the hPDLFs to collagen-I in HG ($p < 0.05$). Glo1 inducers corrected all of these changes.
Conclusions: Dicarbonyl stress is induced in hPDLFs by HG and contributes to cell dysfunction. This was prevented by Glo1 inducer.

FC263

Buccal Gingival Recession: Techniques for Predictable Root Coverage

Anas Jan[1], Terrence Griffin[2]
[1]*King Fahad Armed Forces Hospital, Jeddah, Saudi Arabia,* [2]*N/A, Boston, MA, USA*

Background: The subepithelial connective tissue graft (SCTG) is currently the golden standard in the treatment of gingival recession when the objective is root coverage. Recently, the use of allogenic freeze-dried dermis (AFDD) has been proposed as an alternative grafting material, but data on its efficacy are still limited. The objective of this study was to compare the SCTG and AFDD procedures in the treatment of gingival recessions as it relates to clinical soft tissue coverage, post-operative pain and esthetic outcome.
Material and methods: Fifty Miller's Class I or II bilateral symmetrical areas of gingival recession were treated in eleven patients. All clinical measurements were performed for the selected teeth 2 weeks after initial therapy (baseline) and again 6, 12 and 20 weeks after surgery. Clinical photographs were taken at the same visits. Patients were asked to evaluate post-operative discomfort separately on each side one week after the procedure.
Results: Both procedures gave comparable results in terms of clinical root coverage (both vertically and horizontally), increase in keratinized gingiva, as well as matching adjacent tissue color and consistency. However, the use of the AFDD resulted in reduced postoperative pain and generally fewer postoperative complications.
Conclusions: Our study demonstrated that the AFDD could serve as a good alternative to SCTG for root coverage procedures with the added advantage of fewer post-operative complications.

FC264

A Fem Study Regarding the Influence of Mesial Angulation and Periodontal Status on the Second Mandibular Molar Uprighting

Ionut Luchian[1], Ioana Martu[1], Ioana Vata[1], Cristel Stirbu[2], Monica Tatarciuc[1], Silvia Martu[1]
[1]*Grigore T. Popa University of Medicine and Pharmacy, Iasi, Romania,* [2]*Ghe. Asachi Technical University, Iasi, Romania*

Aim or purpose: The study intended to evaluate comparatively if there are significant changes in stress parameters between the patients with periodontitis and the ones with no periodontal disease.
Materials and methods: Using the Finite Elements Method (Catia and Abaqus softwares) we created a valid model of a mandibular arch, alveolar bone, PDL and a mandibular second molar with mesial inclinations of 20 degrees and 30 degrees. We created two situations: one with no periodontal disease and another one with a 5.5-mm horizontal bone loss (HBL). In both cases we applied on the mesial surface an optimum force with the magnitude of 1N. We evaluated the equivalent von Mises tensions inside the complex tooth-PDL-alveolar bone (σ eqv), the tensions on the direction of the applied force (σc) and tooth movement (f).
Results: Our findings emphasized that the evaluated parameters stay relatively constant both in the case of healthy periodontium and in the situation of 5.5 mm HBL, regardless the angulation. In the case of healthy periodontium versus affected one we noticed

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an increasing tendency of all parameters. This tendency is exponential with the degree of bone loss.
Conclusions: We can state that any the angulation under 45 degrees is not a restrictive aspect for the molar uprighting and has no different influence at the periodontal level regardless the periodontal status. The exponential increase of the evaluated parameters along with the degree of bone loss can be associated with the reduced size of the PDL.

Free Communication Session 67 | 31.08.2017, 15:15–16:15 | Room A9.11
Theme: Materials

FC265
Methodological Evaluation of Research Publications in the Main Dental Journals of Restorative Dentistry and Dental Materials Indexed in the Last 5 Years
Marcos Moradas, Sofia Blanca Cabezas Hernández, Beatriz Álvarez López, M Alfonso Villa Vigil
Universidad de Oviedo, Clínica Universitaria de Odontología de Oviedo, Spain

Aim or purpose: Scientific communication is traditionally carried out through the publication of articles in specialized journals, which constitute the vehicle par excellence for the communication of scientific knowledge. In recent years there has been an exponential growth of scientific publications, number of journals accompanied by the scientific advances of the profession. In many cases, hypotheses or data about dental procedures, techniques or materials are asserted, criticized or argued without sufficient methodological validity. Therefore in this review we have proposed to evaluate through a descriptive study the methodology applied in the main publications of the field of conservative dentistry in the last 5 years.
Materials and methods: For this, 3 journals and their publications were randomly selected in the last 5 years. Using a technical file, the different parameters were evaluated, whose data set was subjected to descriptive statistical analysis.
Results: Finally, as a result, type I (significance level), type II (incontinence clumsiness inconclusive results) and type III (methodological defect of methodological) errors were obtained with a high percentage of errors (35–65%) that demonstrate the lack of a systematic methodological protocol standardized when carrying out a study.
Conclusions: It's so necessary a best degree in methodological procedure. And the dentists we cannot believe everything we read.

FC266
Wear Resistance of Bulk-Fill Composite Resin Polymerized under Different Curing Intensities
Fahad Alkhudhairy
College of Dentistry, King Saud University, Riyadh, Saudi Arabia

Aim or purpose: The aim of this study was to assess the wear resistance of 4 bulk-full composite resin cured under different intensities
Materials and methods: Twenty-four samples were prepared from each composite resin material (Tetric N-Ceram, SonicFill, Smart Dentin Replacement, Filtek Bulk-Fill) resulting in a total of 96 samples and were placed into a mold in a single increment. All of the 96 samples were cured using the Bluephase-N light curing unit for 20 seconds. Half of the total specimen (N = 48) were light cured using High intensity output (1,200 mW/cm^2) while the remaining half (N = 48) were light cured using Low intensity output (650 mW/cm^2). Wear was analyzed by a three-dimensional non-contact optical profilometer (Contour GT-I, Bruker, Germany).
Results: The least mean surface loss was observed for Sonic Fill (186.52 μm) cured using low intensity light. No significant difference in the mean surface loss was observed when comparing the 4 tested materials with each other without taking the curing light intensity into consideration ($p = 0.352$). A significant difference in the mean surface loss was observed between Sonic Fill cured using high intensity light compared to that cured using low intensity light ($p < 0.001$).
Conclusions: Higher curing light intensity (1200 mW/cm^2) had no positive influence on the wear resistance of the 4 bulk-fill composite resin restorative materials tested compared to lower curing light intensity.

FC267
Effect of Finishing with a Reciprocating System on Surface Roughness of Composite Resins
Gianina Iovan, Simona Stoleriu, Irina Nica, Sorina Solomon, Sorin Andrian
Faculty of Dental Medicine, "Grigore T. Popa" University of Medicine and Pharmacy, Iasi, Romania

Aim or purpose: The purpose of this study was to investigate the surface roughness of several composite resins when a reciprocating handpiece with diamond and carbide insertions was used for finishing.
Materials and methods: Four commercially light-cured composite resins were tested. For each material, the control group consisted of specimens polymerized through Mylar matrices. The study groups consisted of composite specimens finished with oscillating movements using either diamond instruments in multi-step procedure or tungsten carbide instruments in one-step procedure. The surface roughness (Ra; μm) was evaluated using a profilometer and scanning electron microscopy.
Results: The results indicated that the surface roughness depended on both material and type of instrument used for polishing. The smoothest surfaces were created by using Mylar matrices for all the tested materials. The average values of surface roughness have been higher than threshold value of 0.2μ for several groups.
Conclusions: Using reciprocating movement with diamond and carbide instruments seems to be a promising technique for shaping and finishing composite restorations in areas with restricted access. However, additional polishing procedures is necessary. The characteristics of the composite resin should be considered when choosing between diamonds and carbide instruments for polishing procedures.

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FC268

Cytotoxicity of New Bioceramic Materials on Human Dental Stem Cells

Christopher Joseph Tomás-Catalá[1], Maria Del Mar Collado-González[2], Francisco Javier Rodríguez-Lozano[1], Ricardo Elías Oñate-Sánchez[1]
[1]*School of Dentistry, University of Murcia, Murcia, Spain,* [2]*Cellular Therapy and Hamatopoietic Transplant Unit, Hematology Department, Virgen de la Arrixaca Hospital, Murcia, Spain*

Aim or purpose: To evaluate the biological effects *in vitro* of White MTA-Angelus (MTA-Ang; Angelus, Londrina, PR, Brazil), MTA Repair HP (MTA-HP; Angelus, Londrina, PR, Brazil) and NeoMTA Plus (NeoMTA-P) (Avalon Biomed Inc, Bradenton, FL, USA) on human dental pulp stem cells (*h*DPSCs).
Materials and methods: Cell viability and cell migration assays were performed using eluates of each bioceramic material. To evaluate cell morphology and cell attachment to the different materials, hDPSCs were directly seeded onto the material surfaces and analyzed by immunocytofluorescence and scanning electron microscopy, respectively. The chemical composition of the materials was determined by energy dispersive X-ray (EDX) and eluates were analyzed by inductively coupled plasma-mass spectrometry (ICP-MS). Statistical differences were assessed by ANOVA and Tukey's test ($\alpha = 0.05$).
Results: Undiluted MTA-Ang, MTA-HP and NeoMTA-P presented significant increase in cell viability higher that obtained using complete medium alone (control) respectively ($p < 0.001$; $p < 0.01$; $p < 0.05$). A cell migration assay revealed adequate cell migration rates for MTA-Ang, MTA-HP and NeoMTA-P, similar to control group rates. In addition, stretched stress fibers and cytoskeletons were detected in the cells treated with the three material extracts. SEM studies showed a high degree of cell proliferation and adhesion on all three material disks. EDX pointed to similar weight percentages of C, O and Ca in all three materials, while Al, Si and S were also found.
Conclusions: MTA-Ang, MTA-HP, and NeoMTA-P promoted adequate biological response on *h*DPSCs in terms of cell proliferation, morphology, migration and attachment.

Free Communication Session 68 | 31.08.2017, 15:15–16:15 | Room A9.13

Theme: Oral Medicine

FC269

The Influence of Ozone therapy on the Lipid Peroxidation in Patients with Burning Mouth Syndrome

Natalia Tiunova, Claudia Kontorshchikova, Ludmila Vdovina, Nikolay Saperkin, Svetlana Tolmacheva
Nizhny Novgorod State Medical Academy, Nizhny Novgorod, Russian Federation

Aim or purpose: To study the effect of ozone therapy on pain level and content of products of lipid peroxidation in blood serum in patients with burning mouth syndrome.
Identified disorders of microcirculation in patients with burning mouth syndrome (BMS) justify the inclusion in the scheme of treatment of ozone therapy.
Materials and methods: 50 women (42–59 years) with BMS were researched. The control group–20 healthy women aged 35 ± 2.3 years. The level of pain was assessed by verbal descriptive scale pain assessment. In the treatment, we included intravenous drip infusion of ozonized physiological solution with a dose of 350 mg ozone, 10 treatments, subcutaneous injection of ozone-oxygen mixture with ozone concentration of 2500 mg/l in the cervical-collar zone and submucosal introduction to projection of pain points of the tongue. The content of lipid peroxidation (LPO): diene conjugates (DC), triene conjugates (TC), and Schiff bases (SB) was determined by I. A. Volchegorsky method. Statistical processing of results was performed using Statistica 10 using student's *t*-test.
Results: Pain level – 8.2 ± 1.1 before treatment, after – 4.1 ± 1.4 points ($p < 0.001$). The initial level of LPO products: DC 0.262 ± 0.006 rel. units, of TC 0.344 ± 0.040, SB 143.922 ± 3.45 exceeded readings of LPO in the control group of 0.234 ± 0.013 of 0.236 ± 0.028, 40.654 ± 4.08, respectively. After the therapy, there is a decrease in the concentration of DC- 0.261 ± 0.006 ($p > 0.05$), significantly reduced levels of TK to 0.256 ± 0.038 ($p < 0.001$) and SB to 87.240 ± 5.51 ($p < 0.001$).
Conclusions: The use of ozone therapy in complex therapy of BMS contributes to a reduction in intensity of LPO and reducing pain.

FC270

Selected Organic Salivary and Serum Components in Diabetic Patients

Malgorzata Klichowska-Palonka, Paulina Wieczorek
Chair and Department of Conservative Dentistry and Endodontics, Medical University, Lublin, Poland

Aim: Diabetes is one of the most common chronic diseases characterized by chronic hyperglycemia associated with disorders of carbohydrate, protein and fat metabolism, which results from defective secretion or insulin activity. In the course of type 1 diabetes, along with destruction of the pancreatic tissue, the salivary glands are also damaged which results in their morphological and functional disorders.

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The aim of the study was to evaluate the correlation of lipid, protein and glucose concentrations in saliva and serum in diabetic patients.
Materials and methods: The study included 44 patients with type 1 and 2 diabetes aged 27–87 years. An oral and periodontal study was performed after blood and saliva collection for laboratory testing. In serum and saliva total cholesterol, triglyceride, glucose and total protein levels were determined using Cormay reagents and Cobas-Mira S analyzer. The data was analyzed using the χ^2 and the odds ratio. The p values $p < 0.05$ were considered statistically significant.
Results: The glycated hemoglobin concentration in the study was 8.58 on average, and mean serum glucose was 148.09 mg/dl. Mean total cholesterol and triglycerides serum levels were slightly elevated. The salivary protein concentration showed a statistically significant relationship with the serum glucose concentration.
Conclusions: These findings suggest that the concentration of serum glucose, cholesterol and triglycerides has not correlation with salivary levels of these compounds. Positive correlations between salivary triglycerides level and total cholesterol, protein and glucose levels were found. This result should encourage further investigations on the relationship between salivary organic compounds in disorders related to metabolism like diabetes.

FC271
Hemangioma Mimicking an Oral Squamous Cell Carcinoma
Carmen Martín Carreras-Presas[1], Juan Amaro Sánchez[2], Antonio Francisco López Sánchez[2], María Luisa Somacarrera Pérez[1]
[1]Universidad Europea de Madrid, Madrid, Spain, [2]Universidad Rey Juan Carlos, Madrid, Spain

Introduction: Hemangiomas are benign tumors composed of blood vessels whose nature is not fully established. Hemangiomas are one of the most frequent congenital lesions, with a predilection for female patients (2:1). Although head and neck is a common location for hemangiomas, their intraoral incidence is not very high.
Case description: A 28-year-old, male patient was referred to our Oral Medicine Department. Upon oral examination, we found a 1 cm ulcer located on the right side of the hard palate, 1 cm away from the gingival margin of tooth number 15. The borders of the ulcer were elevated, and the lesion was asymptomatic. Our differential diagnosis included squamous cell carcinoma and chancre. We asked for a blood test, VDRL and RPR tests. Due to the malignant aspect of the lesion, we performed an incisional biopsy. Blood tests were normal and VDRL and RPR tests were negative. The histopathological result was Thrombosed Capillary Hemangioma. The patient was sent to a Maxillofacial Surgeon who removed the lesion completely.
Discussion: The classical differential diagnosis should include all dark-purple-blue- lesions, from vascular malformation, to Kaposi's Sarcoma and Malignant Melanoma. An estimated 10–20% of true hemangiomas incompletely involute and require surgical removal. Other therapeutic alternatives are discussed.
Conclusions/Clinical significance: The dentist must be able to recognize aspects of malignancy in oral lesions. Oral biopsy is the gold standard to establish the definitive diagnosis of oral lesions.

FC272
Minor Salivary Gland Biopsy for the Diagnosis of Systemic Amyloidosis
Raouâa Belkacem Chebil, Eya Moussaoui, Maroua Marzouk, Iyadh Abidi, Lamia Oualha, Nabiha Douki
Monastir University School of Dentistry, Sousse- Sahloul Hospital, Tunisia

Introduction: Amyloidosis is a systemic or localized accumulation of insoluble fibrillar proteins. Oral manifestation of amyloidosis is well recognized. The most frequently reported location for intraoral amyloid deposition is the tongue.
Objective: The aim of this study was to present clinicopathological data from oral amyloidosis-affected patients to whom the systemic disorder was not recognized.
Materials and methods: A retrospective study was conducted based on the records of oral amyloidosis-affected patients diagnosed in our institution between 2013 and 2017. The diagnosis was confirmed by minor salivary gland biopsy. The clinical and histopathological features were carried out and analyzed.
Results and conclusion: Four patients were diagnosed with systemic amyloidosis; the tongue and men (1 female and 3 males) in their sixth decade of life were mostly affected. The histopathology of the salivary glands confirmed glandular amyloid deposits in all lesions with apple-green birefringence under polarized light.
Tongue infiltrate may be the first sign of systemic amyloid deposition.
Minor salivary gland biopsy may help confirm the diagnosis in symptomatic cases, as it is noninvasive, easy to execute, and causes minimal discomfort to patients.

Free Communication Session 69 | 31.08.2017, 16:30–17:30 | Room A9.9 Theme: Caries/Caries Prevention

FC273
Effectiveness of Different Forms of Topical Fluorides In Vitro
Svetlana Granko, Irina Lutskaya
Belarusian Medical Academy of Postgraduate education, Minsk, Belarus

Aim or purpose: Was to study the effectiveness of different forms of topical fluorides in vitro.
Materials and methods: The object of study was the intact first premolars extracted due to orthodontic indications. The teeth were brushed with fluoride-free paste and washed with water. The first group contained teeth covered with the Flairesse fluoride foam (DMG, Germany), the second – with Flairesse fluoride gel (DMG, Germany), the third – with Flairesse fluoride varnish (DMG, Germany), the fourth one was control group. The teeth were sawed and analyzed on X-ray energy dispersive spectrometer (INCA 350, OXFORD INSTRUMENTS). The subject of research was determination of fluorine content at different depths from the enamel surface (number of measurements = 3220).
Results: The use of fluoride varnish leads to increase of fluorine concentration at the distance up to 7 μm from the enamel surface. This increase is more expressed in comparison with fluoride gel, fluoride foam and the control group. The use of fluoride gel leads

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to significant increase of fluorine concentration at the distance 1.01–5.00 μm from the surface of enamel, but it's significantly lower at the distance 1.01–3.00 μm of this range in comparison with fluoride varnish. The use of fluoride foam leads to significantly lower increase of fluorine concentration at the distance 2.01–6.00 μm in comparison with the gel.
Conclusions: The fluoride varnish is most effective form of topical fluoride in vitro studies, it penetrates enamel up to 7 μm.

FC275
Needs for Oral Care of Rural Population Versus Urban Population in Côte d'Ivoire
Yolande Koffi Gnagne, Stephane Xavier Djole, Chantal Avoaka Boni, Sonia Thiemele Yace, Aminata Kone Kane
Abidjan School of Dentistry, Abidjan University Felix Houphouet Boigny, Ivory Coast

Aim or purpose: The aim of this study is to highlight the existence of disparity as to the rural and urban populations in the ivorian context. The main objective of the national program for the promotion of oral health in Côte d'Ivoire is to reduce the prevalence of oral diseases. This requires a variety of awareness-raising campaigns among populations and other health professionals.
Materials and methods: Subjects from rural and urban area were asked about their oral hygiene behaviors. The clinical examinations were performed to collect oral health criteria.
Results: Subjects living in urban area visited steadily the dental centers (71%). In the same proportion, they perform at least two daily brushings, respecting the time allowed for at least three minutes (78%). The quality of oral hygiene is satisfactory at 84% in urban population. A relative similarity of prevalence of caries has nevertheless been observed: 0.9 in rural areas compared to 0.86 in urban. Finally, the average CAD index decreases from rural to urban area, from 4.9 to 3.6.
Conclusions: These differences appear to be related to low availability of rural population to dental centers. Strategies for motivation and increase of dental structures must be developed in order to promote oral health.

FC276
Resin Infiltrating Fluorosed Enamel with a Less Abrasive Pretreatment
Hande Sar Sancakli, Rasha Owda, Taner Yücel
Istanbul University Faculty of Dentistry, Istanbul, Turkey

Introduction: Fluorosed enamel shows discoloration and disturbed enamel surface leading to unesthetic appearance. Treatment plan usually includes removal of problematic enamel surface followed by composite restoration. Resin infiltration constitutes a novel non-invasive treatment choice for fluorosed enamel surfaces.
Case description: A 26-year-old woman was referred reporting dissatisfaction with the appearance of her smile. At the initial clinical examination and anamnesis, generalized fluorosis spots in the maxillary and mandibular arches were observed. The pattern of the demineralization was intense white spots and diagnosed as moderate fluorosis (Dean's index 3) suggesting that infiltration of low-viscosity resins preceded with bleaching would be a reliable option for this case. In-office bleaching was applied using 35% Hydrogen Peroxide bleaching gel for 40 m for camouflage effect. Following matching the opacity difference, resin-infiltration was applied according to the producer's instructions; following etching the enamel with 35% H3PO4 gel for 30s scrubbing with brush. Rinsed surface was then dehydrated with 100% ethanol to check the visual aspect. Insufficient lesions were re-etched and hydrophobic infiltration resin was carefully applied and rubbed 3 m light-cured.
Discussion: Resin infiltration using 37%H_3PO_4 when combined with bleaching is a conservative approach to mask and improve the esthetic appearance of white spots of mild to moderate fluorosis cases. Furthermore, esthetic results showed adequate stability over 14-months-follow-up.
Conclusions/Clinical significance: 35% Phosphoric acid can be used as a safe, less abrasive, conservative but effective alternative to 15%HCl for enamel conditioning before resin infiltrating the mild fluorosis cases.

Free Communication Session 70 | 31.08.2017, 16:30–17:30 | Room A9.10

Theme: Periodontics

FC277
Smart Liposomal Chitosan-Based Autogel with Ofloxacin, A New Controlled Release Device for Treatment of Chronic Periodontitis. A Randomized, Double-Blind Controlled Clinical Trials
Abeer Gawish
Sinai University, Sinai, Egypt

Aim or purpose: To evaluate the clinical and microbiological effect of a smart controlled-release liposomal autogel system of ofloxacin in adjunct to non- surgical therapy in the management of chronic periodontitis patients.
Materials and methods: In a split mouth design, twenty patients suffering from chronic periodontitis and displaying at least two contra-lateral intrabony defects were randomly selected. Non-surgical treatment (root planing and subgingival scaling) was performed in all sites. Each of the two forms of ofloxacin liposomal autogel was applied in twenty of the pockets once a week. The other twenty pockets were received non-surgical periodontal therapy with ofloxacin solution and act as the control sites. The autogels based on chitosan neutralized by β- glycerophosphate was prepared. The systems were characterized for mucoadhesion, syringibility and gelation onset. The gel, liposomes afforded 80% of drug release in 7 days.
All patients received a clinical parameters were recorded which includes: plaque index, gingival bleeding index, probing depth, clinical attachment level (PI, BI, PI and CAL) at base line and 3 months following the non- surgical periodontal therapy. In addition, microbiological examination at the baseline 1, 3 and 7 days after were done.

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Results: The microbiological assessment reveals the ofloxacin liposomal autogel demonstrated markedly lower anaerobes bioburden in subgingival samples than ofloxacin solution after 7 days. Moreover, the liposomal autogel formula showed significant improvement in the different clinical parameters evaluated.
Conclusions: The developed ofloxacin liposomal autogel is promising in the management of chronic periodontitis.

FC278
Histological Features of Aberrant Mandibular Labial Frena
Francisco Otero, Rani Kanthan, Kayla Cardiff, Daniel Salloum, Genevieve Braganza
College of Dentistry, University of Saskatchewan, Saskatoon, SK, Canada

Introduction: Labial frena attached at the level of keratinized gingiva close to the gingival margin and at the papillary level seem to cause pulling of the gingival margin and midline interdental papillae. This is not an infrequent finding which appears associated with gingival recession. The literature regarding the histological composition of frena is scarce and contradictory especially when reporting the presence or absence of skeletal and striated muscle fibers. This case series study examined the histological features of aberrant midline mandibular labial frena associated with gingival recession.
Case description: Samples of the midline mandibular labial frena were obtained from 7 patients referred for treatment of gingival recession involving the central incisors. These frena appeared to be causal in the gingival recession. The patients (5 females and 2 males) with an age range of 19 to 61 years consented to be part of the study. The frena were excised along with the surgical technique selected to treat the gingival recession. Each frenum specimen was stored in 10% neutral buffered formalin solution and submitted to the department of laboratory medicine to be processed and analyzed histologically.
Discussion: Results showed the presence of squamous epithelium with underlying vascularized fibrocollagenous tissue with small to medium sized vessels and a clear absence of stromal muscle fibers.
Conclusions/Clinical significance: Within the limits of this case series study, it is suggested that the mechanism of a pulling action of the gingival margin by an aberrant frenum is based on a collagen tissue fiber component.

FC279
Effect of Collagen-Activated Platelet-Rich Plasma to the Fibroblast Migration
Kosno Suprianto[1], Kwartarini Murdiastuti[2]
[1]University of Andalas, Padang, Indonesia, [2]Department of Periodontology, Faculty of Dentistry, Universitas Gadjah Mada, Yogyakarta, Indonesia

Aim or purpose: Periodontal surgery is regenerative procedure that purposes to improve the structure and function of the periodontium to be strong enough to support the teeth. Growth factor is absolutely necessary in the process of tissue regeneration can be generated from the PRP activation. In this study collagen was used as PRP activator. The purpose of this study was to determine the effect of PRP activation using collagen to the migration of fibroblasts in the periodontal ligament.
Materials and methods: Six treatment groups consisted of control, PRP, collagen – activated PRP during a day, 2 days, 3 days and 7 days applied to a group of cell cultures in 24 well microplate, each group composed 10 wells are wounded by a sterile pipette tip. Then it was incubated at 37 °C and observed at 12, 24, 48 and 72 hours. All wells were captured by using an inverted microscope with the objective lens of 4 times magnification and program optilab viewer program installed on the ocular lens. The percentage of cell migration was calculated and analyzed by two way ANOVA followed by LSD test with confidence level of 95%.
Results: The result showed significant difference between time and treatment groups. There were significant difference between the control, PRP and collagen – activated PRP groups.
Conclusions: The activation of collagen – activated PRP can improve the migration of fibroblasts in the periodontal ligament.

FC280
The Effects of Estrogen Hormones on Periodontal Health in Menopause
Vera Radojkova Nikolovska[1], Mirjana Popovska[1], Ana Minovska[2], Aneta Atanasovska Stojanovska[1], Bruno Nikolovski[3]
[1]Faculty of Dentistry, Skopje, The Former Yugoslav Republic of Macedonia, [2]Faculty of Medicine, Stip, The Former Yugoslav Republic of Macedonia, [3]Eterna Dent, Skopje, The Former Yugoslav Republic of Macedonia

Aim or purpose: During menopause, there are reduced estrogen levels associated with the decreased production of sex steroid hormones in women, which results in increased gingival inflammation, moderate or severe periodontitis, changes in crevicular fluid flow, microbial and pathohistological changes. Some of them may experience burning sensations, along with irritation. Aim: to establish serum and salivary levels of 17β-estradiol in women in the postmenopausal period; to determine its influence on periodontal tissue complex, followed by indices of periodontal health; by immunohistochemical analyzes to determine the presence of sex hormones 17β-estradiol in gingival tissue.
Materials and methods: 30 post-menopausal women were examined clinically and laboratory examination of serum and salivary levels of 17β-estradiol were performed using the DRG Estradiol Elisa (EIA-2693) technology. Pathohistological and immunohistochemical analyzes were performed on biopsy material taken from the gingival tissue.
Results: The average values of periodontal indices demonstrated moderate form of periodontal disease with moderate to strong correlative value between indices of periodontal status, ranged from r = 0.26 to 0.57. Although gingival tissue is not included in the classical target tissues undergoing sex hormone action, in immunohistochemical analysis using antibodies directed to the estrogen receptors, we were able to detect nuclear and cytoplasmic

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positivity for estradiol, as in the epithelium and in the connective tissue of gingiva.
Conclusions: The results of hormone concentrations show potent impact they manifest on periodontal health, which suggests the role of dentists in treatment modalities in postmenopausal period in women.

Free Communication Session 71 | 31.08.2017, 16:30–17:45 | Room A9.11

Themes: Materials and Esthetics

FC281
Comparison of Cigarette and Different Beverages Effects on Refractive Index and Color Stability of Composite Resins Which Made with Different Layering Techniques
Alperen Değirmenci[1], Emine Kara[2]
[1]*Yüzüncü Yil University Faculty of Dentistry, Van, Turkey,* [2]*Bursa Oral Health Care Center, Bursa, Turkey*

Aim: The main aim of this study is in vitro evaluation of composite resin's the refractive index and color changes due to poor oral hygiene, diet, smoking and beverages.
Materials and methods: Totally 500 composites and 50 teeth samples were prepared. For this study, composite samples were prepared with two different layering techniques (one or multilayer technique) and 5 different composite brands, teeth samples were prepared which were including both enamel and dentine layers. Both of the samples were immersed into 4 different coloring agents (tea, coffee, coke and cigarette) and artificial saliva. After immersion, the samples were evaluated with spectrophotometer and refractometer. Samples were divided 50 subgroups according to coloring agents, brands and layering techniques (n:10).
Results: According to the results of this study, no difference was detected between layering techniques and teeth samples ($p > 0.05$). In the all coloring agents, coffee made the most detectable color change at the composite resins but for the teeth samples coke made the biggest color change. Evaluation due to the brands showed that G-ænial and IPS groups had the similar color change with the teeth groups, but Clearfil and Filtek groups had less color change than teeth samples. In our study, a negative correlation was detected between color changes and refractive index after coloring agents of composite and teeth samples ($p < 0.0001$).
Conclusions: There is a literature lack about refractive index of restorative materials and effecting factors which are the starting points of our study and there is a need of the new researches for the comparison.

FC282
HPLC Analysis of Eluted Monomers Released from Dental Composites Containing Bioactive Glass
Fatih Tulumbacı[1], Onur Gezgin[2], Emre Korkut[2], Hazal Özer[2], Yağmur Şener[2]
[1]*Ankara Yıldırım Beyazıt University, Ankara, Turkey,* [2]*Necmettin Erbakan University, Konya, Turkey*

Aim or purpose: The aim of the present study is to evaluate the released residual monomers from composite resins that contain different proportions of bioactive glass (BAG).
Materials and methods: Experimental resin composites were prepared by a resin matrix (50% BisGMA and 50% TEGDMA) and inorganic filler with BAG (5%, 10% and 30%). Each resin composite was placed in the tooth cavity (n = 5). After polymerisation, samples were immediately immersed in 75% ethanol and 25% deionised water (6 ml) at 37 °C. Residual monomers (Bis-GMA, TEGDMA, HEMA and UDMA) that were eluted from the composites for 10 minutes, 1 hour, 1, 7 and 30 days were analysed by high-performance liquid chromatography (HPLC). The data were analysed with one-way ANOVA and Tukey HSD at a $p < 0.05$ significance level.
Results: Among the time periods, the fastest released residual monomer was observed in the 10 m elution. The highest amount of released residual monomer from all groups (except the control group) was TEGDMA, whereas this was HEMA for the control group. The amounts of residual monomers eluted from BAG30 were significantly higher than other groups ($p < 0.05$).
Conclusions: The release of the monomer increases in accordance with the increased BAG addition to the composite resins.

FC283
Evaluation of Marginal Adaptation and Fracture Strength of Laminate Veneers Produced by CEREC Omnicam System and Hot-Pressed Technique
Fatma Oz, Burcu Altun, Sukran Bolay
Hacettepe University, Ankara, Turkey

Aim or purpose: The aim of this in vitro study is to evaluate the fracture strength and marginal adaptation of the veneers produced by CAD/CAM system (CEREC Omnicam) and compare them with those produced by hot-pressing technique.
Materials and methods: Sixty sound human central teeth were divided into 5 groups (n = 12). These groups were as follows: CAD/CAM system and Vita Mark II blocks. EC:CAD/CAM system and IPS e.max CAD blocks. LU: CAD/CAM system and Lava Ultimate blocks. PC:CAD/CAM system and IPS Empress CAD blocks. EP:IPS Empress Esthetic ingots and hot-pressing technique. The technique of incisal bevel preparation was used for laminate veneers. Marginal gaps were measured vertically by stereomicroscope from the mesial, distal, incisal and cervical. Then the veneers were cemented using Variolink Veneer and stored in distilled water at 37 °C for 24 hours. All samples were subjected to thermocycling. The fracture strength values (N) were measured using a universal testing machine at a crosshead speed of 1 mm/minute. A load was applied with an angle of 135° and their fractural

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resistance was recorded. Fracture modes were determined. Statistical analyses were performed using Kruskal-Wallis for fracture strength data and one-way analysis of variance for marginal gap data.
Results: The mean marginal gap size of VM, EC, LU, PC and EP were 33.88, 34.08, 32.24, 33.61 μm and 73.78 μm respectively. EP had statistically higher values than other groups. There were no significant difference in the fracture strength values among groups (VM: 224.08 ± 99.16N; EC: 265.66 ± 120.43; LU: 233.33 ± 60.52N; PC: 248.04 ± 63.92N ve EP: 252.59 ± 70.19N).
Conclusions: Veneers fabricated using Cerec Omnicam demonstrated better marginal fit but fracture strength values of different materials were similar.

FC284
Microtensile Bond-Strength of CAD/CAM Hybrid Ceramics to Self-Adhesive Resin-Cements
Elif Ozturk Bayazit
Hacettepe University, Ankara, Turkey

Aim: To evaluate the microtensile bond strength (μTBS) of different CAD/CAM hybrid blocs to a self-adhesive resin cement using different surface protocols.
Materials and methods: Two different CAD/CAM hybrid ceramics (i. LAVA-Ultimate [LV], ii. Vita-Enamic [VE]) were selected. Two ceramic slices (12 × 14 × 5-mm) were prepared from each bloc. The following surface treatments were used on the bonding surfaces of each group: 1. Etching with 9.5% hydrofluoric-acid-gel; 2. Sunblasting with 30-μm aluminum oxide particles. A universal adhesive (Scotchbond-Universal, 3M-ESPE) was applied on the surfaces. No surface treatment was applied for the control group. A self-adhesive resin-cement (Set-PP, SDI-Dental-Limited) applied 5 mm in thickness onto the ceramic slices and light-cured with a LED Unit. Each specimen was mounted on a cutting machine and serially sectioned with a water-cooled diamond blade to obtain multiple beam-shaped sticks with dimensions of approximately 1.0 × 1.0 × 10 mm (n = 10 for each-group). The μTBS test was performed at a cross-head speed of 1 mm/minute until failure. Data were statistically analyzed using Kruskal Wallis and Dunn-Bonferroni post-hoc tests.
Results: Significant differences were found between the study groups according to the Kruskal Wallis test ($p = 0.001$). For LV ceramic, there was statistically no difference between etching and sunblasting techniques ($p > 0.05$). However, there were statistically significant differences between etching and sunblasting techniques for VE ceramic ($p < 0.05$).
Conclusions: Even if a self-adhesive resin cement is to be used, ceramic surface must still undergo a procedure. Both surface treatments can be sufficiently used for LV ceramic. Acid etching can be more preferable than sunblasting for VE ceramic.

FC377
Resin Infiltration in White Spot Lesions Stability – In Vitro Study
Carlos F. Almeida[1], Ruben Silva[2], Mário Jorge Silva[2], Teresa Oliveira[2]
[1]*Instituto de Ciências da Saúde da Universidade Católica Portuguesa, Viseu, Portugal,* [2]*FMDUP, Porto, Portugal*

Aim or purpose: To evaluate the colorimetric improvement of resin infiltration in White Spot Lesions and to verify the stability of color when submitted to extrinsic pigmentation.
Materials and methods: WSL were artificially created in a sample of seventy-eight extracted bovine teeth (n = 78). The specimens were randomly divided in three study/treatment groups (n = 26, per group): Resin Infiltration (Icon®, DGM, Hamburg, Germany); Fluoride (Elgydium Junior Protection Caries®, Pierre-Fabre, France) and Control (remain untreated). All the specimens were immersed in a pigmenting solution for fifteen days. The color of each specimen was measured in seven moments: initial [1]; after the formation of WSL [2]; after the treatment [3]; after 24 hours of staining [4]; after 48 hours of staining [5]; after 72 hours of staining [6]; and after 15 days of staining [7].
Results: The Resin Infiltration group presented the smaller ΔE (total color variation) between the start and the immediate treatment, this variation is significant ($p = 0.003$ and $p = 0.0015$) when compared with the Fluoride and Control groups. No major differences in ΔE are visible between groups when comparing the immediate treatment and after 15 days of staining ($p = 0.180$).
Conclusions: The resin infiltration is an option for aesthetic treatment of WSL, allowing for an important enhancement in color able to camouflage the WSL appearance. During the protocol of pigmentation, the lesions treated with resin infiltration suffered a considerable color change, being, for that, susceptible to pigmentation. Its ΔE did not statistically differ from Fluoride and Control groups.

Free Communication Session 72 | 31.08.2017, 16:30–17:30 | Room A9.13

Theme: Oral Surgery

FC285
Dynamics of Infrared Thermometry with Using Local Anesthetics with a Different Concentration of Vasoconstrictors on the Mandible
Solomon Ravinovich[1], Yuriy Vasiliev[2], Natalia Tiunova[3], Maria Zhdanova[3]
[1]*A.I. Evdokimov Moscow State University of Medicine and Dentistry, Moscow, Russian Federation,* [2]*I.M. Sechenov First Moscow State Medical University, Moscow, Russian Federation,* [3]*Nizhny Novgorod state medical academy, Nizhny Novgorod, Russian Federation*

Aim or purpose: To examine how local anesthetics with different concentration of vasoconstrictors influence on dynamics of infrared thermometry in the mandible.
Adding a vasoconstrictor to the local anesthetic solution prolongs the time of anesthesia, weakens the resorptive and toxic action of the anesthetic. At the same time, the use of high concentrations of

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vasoconstrictors causes a sharp disruption of microcirculation and tissue ischemia.
Materials and methods: Totally 30 patients aged 22 to 34 years were under observation. They underwent dental caries treatment and endodontic treatment of the teeth on the mandible (molars). They were administered infiltration anesthesia using 4% articaine with epineurium of 1: 100000 (n = 15) and 1: 200,000 (n = 15). All patients were taken temperature in the injection site prior to injection 1, 3, 5 minutes after injection and after the end of treatment (in 1 hour) using an infrared thermometer "CEM-Thermo-Diagnostics".
Results: The use of a 4% articaine with epineurium 1: 100,000 is followed by the following dynamics of temperature indices: before injection 35.2 °C, after 1 minute – 31.4 °C, after 3 minutes – 29 °C, after 5 minutes – 29.2 °C, after treatment 32.2 °C, 4% articaine with epineurium 1: 200,000 – before injection 35.2 °C, after 1 minute – 32.2 °C, after 3 minutes – 29.8 °C, after 5 minutes – 29.2 °C, after treatment 34.4 °C.
Conclusions: The use of 4% articaine with epineurium 1: 200,000 less inhibits microcirculation and causes less significant tissue ischemia than 1: 100,000.

FC286

Pre-Surgical Management of Infants with Unilateral and Bilateral Cleft Lip & Palate Older Than 4 Months

Mosleh S. Alharbi
National Guard, Riyadh-King Abdulaziz Medical Center, Saudi Arabia

Background & Aim: In the 19th century McNeil (prosthodontist) used an oral prosthesis to approximate the cleft alveolar segments and thus initiating the concept of modern presurgical infant orthopedics. More recently (1994) Barry Grayson developed a new technique that not only it approximates the alveolar segments but it also reshapes the nose in order to perform primary nose surgery, this technique is called Nasoalveolar molding (NAM).
The aim of presenting this is to demonstrate the sequence of alveolar and nasal changes following the use of nasoalveolar molding.
NAM has very poor prognosis for patients older than 6 weeks.
Materials and methods: Four Patients (one male & three female) aged 16–20 weeks old with nonsyndromic complete unilateral and bilateral cleft lip and palate. Nasoalveolar molding was performed for each patient and treatment time took 8–12 weeks. A serial of standard basilar view 1:1 photographs were taken for each patient. Each patient was photographed at the initial visit and after the nasoalveolar molding. Digital caliper was used to measure the cleft size on the study model at the initial visit and after nasoalveolar molding.
Results: Patients expressed good improvement. The cleft size was reduced significantly. Improved both the columella deviation and length as well as the nostril width and height in the cleft side.
Conclusion: NAM is an effective procedure in reducing the alveolar cleft size and it also improves the nasal architecture. This will facilitate the work of the plastic surgeon during the lip adhesion and primary nose surgery.

FC287

Influence of Anxiety and Stress on Post-Surgical Pain Through Knowledge of the Technique

Lucía López-Chaichío, Laura Torrecillas-Martínez, Miguel Padial-Molina, Francisco O'Valle, Andrés Catena, Pablo Galindo-Moreno
University of Granada, Granada, Spain

Aim or purpose: To evaluate the role of anxiety and stress manipulated through knowledge of the surgical technique in the processing of peri and post-operative pain.
Materials and methods: Seventeen participants were divided into two groups according to their knowledge of the surgical procedure: with no knowledge (not related to the dental profession) and with knowledge (dentists/dental students). They were subjected to functional/spectroscopy magnetic resonance (fMRI/MRS) prior and after the surgical removal of an impacted lower third molar. Levels of gamma aminobutyric acid (GABA), n-acetyl aspartate (NAA) and phosphocholine (PCh) were measured. Subjective pain after surgery was evaluated using the VAS scale (Visual Analogue Scale).
Results: There was a reduction in the levels of GABA during anesthesia and analgesia. This reduction was lower, although not statistically significant, at the stage of analgesia. Patients with no knowledge of the surgical technique underwent a minor reduction of subjective pain during anesthesia and analgesia.
Conclusions: The brain levels of GABA, NAA and PCh are lower in the phases of anesthesia and analgesia. Handling of anxiety/stress is essential for the modification of the subjective pain in patients undergoing surgical procedures in the oral cavity.

FC288

Evaluation of Transversal Changes in Segmented Maxillary Surgery

Núria Clusellas Barrionuevo[1], Joan Rossell[2], Fernando De La Iglesia[3], Marcos Costa[3], Eduardo Espinar[4], Jose Maria Barrera Mora[4]
[1]*Universitat Internacional de Catalunya, Barcelona, Spain,* [2]*Universidad Internacional Catalunya, Barcelona, Spain,* [3]*UIC, Barcelona, Spain,* [4]*Universidad de Sevilla, Sevilla, Spain*

Aim or purpose: To determine transversal changes and stability of maxillary fragments after segmented Le Fort I.
Materials and methods: Group 1: 10 patients with transversal problems treated with segmented Le Fort I, Group 2: 10 patients with no transversal problem (monobloc Le Fort I) and Group 3: 10 control group. Upper jaw records were taken in: T0: pre-treatment orthodontic stage. T1: Preoperative stage. T2: End stage of treatment. T3: Post-treatment retention stage (1 year).
Results: Transverse changes in stage T1-T2 were statistically significant and stable in T3. Between T0 and T1 there were no quantifiable changes.
Conclusions: The segmented Le Fort I osteotomy allows transverse correction. It is possible to quantify the mean range of change and to establish a modification protocol with this type of treatment, and it is stable over time.

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POSTER SESSIONS 48–67

Poster Session 48 | 31.08.2017, 09:30–10:30 | Poster Display 1

Theme: Prosthodontics

P239

Prosthodontic Management of the Patient with Severely Worn Dentition

Nazlı Hilal Güvener, Işıl Turp
Bezmialem Vakıf Univercity, İstanbul, Turkey

Introduction: The severe wear of teeth results in the loss of normal occlusal plane and the reduction of the vertical dimension. The loss of anterior guidance effects the harmony of functional jaw movements, phonation and esthetic.
Case description: This paper describes 60-years-old male who had bruxism associated with acid feeding and digestive disorders which is caused severe tooth wear and loss of anterior guidance.
Discussion: A systematic approach in managing these patients can lead to a predictable and favourable prognosis. The treatment entailed using multiple posts and cores and metal-ceramic restorations.
Conclusions/Clinical significance: The multidisciplinary treatment is important for a satisfactory clinical result of severe cases of dental wear involving the association of different health disorders.

P241

Accuracy of Implant Abutment Level in Two Different Impression Techniques

Yousef Jahandideh[1], Samira Jamali[2]
[1]*Depatment of Prosthetics, School of Dentistry, Guilan University of Medical Sciences, Rasht, Islamic Republic of Iran,* [2]*Student Research Center, School of Dentistry, Guilan University of Medical Sciences, Rasht, Islamic Republic of Iran*

Aim or purpose: This study was performed to compare two kinds of abutment level implant impression methods (direct & indirect) on two parallel implants.
Materials and methods: In this experimental study, an acrylic model was produced with 2 holes devised inside to stabilize 2 implants' fixtures. The two implants placed 4 and 11 mm distances from canine tooth. Two impression techniques were used (direct & indirect each with two steps) by using polyvinyl siloxane (putty & light body) and stock tray. Overall, ten impressions were taken to produce a total number of 10 stone casts (high strength, type IV). The two impression techniques (direct & indirect) were compared by evaluating position of the abutment analogues and using CMM device in 3 dimensions (x, y & z). Differences in the measurements obtained from final casts & laboratory models were analyzed using independent *T*-test.
Results: There were no significant differences between the direct (without impression copying) and indirect (with impression copying) techniques in z & y axis & Δr except for x axis. In direct technique, dimensional changes in x axis were 0.155 ± 0.647 mm more than indirect technique.
Conclusions: Based on results, indirect abutment level impression technique had less dimensional changes and seems to be more accurate. Although there is not much difference in total, clinician can use the simple method of direct in construction of implants prosthetic

P242

Accuracy of Different Impression Techniques in "All-on-4" Concept

A. Oguz Hamis, Oguz Ozan
Near East University, Mersin10, Turkey

Aim or purpose: The aim of this study was to evaluate four different impression techniques used in 'All-on-4' treatment protocol with distal implants positioned in four different angles.
Materials and methods: Four master cast models were fabricated according to All-on-Four treatment protocol. In anterior region, the implants were positioned in a parallel direction whereas in posterior region they were positioned in different angulations (0-,10-,20-,30- degrees) in order to simulate various clinical situations. A hundred and sixty models were obtained with the use of four different impression techniques (n = 10) (closed-tray without plastic cap, closed-tray with plastic cap, splinted open-tray, sectioned splinted open-tray) using polyvinyl siloxane impression material. Master models and duplicate models were scanned by a modified laser scanner and data were transferred to a software. Master and duplicate model scans were digitally aligned observing the superposition of anatomic markers. Angular and linear deviations of the implants between master and duplicate models were calculated and data were statistically analyzed.
Results: Mean angular and linear deviations were in a range of 0.011–0.752° and 16-92 μm, respectively. Statistical analysis revealed that the angulation between the implants affected both linear and angular deviations of the implants ($p < 0.05$).
Conclusions: Less linear and angular displacements were obtained from the open-tray impression techniques when compared with the closed-tray impression techniques in angled groups. Angular and linear deviations were increased with the increase in the angulation of the posterior implant.

P243

Do Surface Treatments Affect the Flexural Strength of Monolithic Zirconia?

Oguz Ozan, Sevcan Kurtulmus-Yilmaz, Huseyin Aktore
Near East university Faculty of Dentistry, Mersin 10/Lefkosa, Turkey

Aim or purpose: The aim of this study was to evaluate the effect of mechanical surface treatment methods on the flexural strength of monolithic zirconia treated at pre-sintered and sintered stage.
Materials and methods: Seventy bar-shaped specimens with dimensions of 2 × 4 × 20 mm were milled from zirconia disks. Specimens were divided into 3 groups as control (no treatment, n = 10), pre-sintered and post-sintered. Pre-sintered and post-

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sintered groups were further divided into 3 subgroups according to the surface treatment method applied as: 4W Er,Cr:YSGG laser irradiation; sandblasting with 120 μm Al_2O_3; grinding with diamond bur (n = 10). All specimens were immersed into coloring liquid (A2) prior to sintering and sintered at 1,450 °C for 8 hours. Four-point bending test was performed to evaluate the flexural strength of the specimens and data were statistically analyzed.
Results: All of the surface treatment methods applied after sintering statistically increased the flexural strength of zirconia specimens in comparison to control group. The highest strength values were detected at post-sintered sandblasting group, whereas the lowest values were determined at pre-sintered sandblasting group ($p < 0.05$).
Conclusions: Within the limitations of this study, it can be concluded that performing surface treatment methods after sintering process may be advantageous in order to increase mechanical strength of zirconia. However, sandblasting at pre-sintered stage is not recommended since it may weaken the structure of zirconia.

Poster Session 49 | 31.08.2017, 09:30–10:30 | Poster Display 2

Theme: Interceptive Orthodontics

P244
Interception of Class II Divison 1 Malocclusions Using Orthodontic Trainers
Fouzi Boukhazani[1], Abdelhak Bennara[1], Nelson Oppermann[2], Fatma Si Ahmed[1]
[1]*Mustapha Pacha University Hospital, Algiers, Algeria,* [2]*Chicago University, Chicago, IL, USA*

Introduction: Various appliances have been proposed for the interception of Class II division 1 malocclusions in order to eliminate existing interferences with normal dental development and growth. In this context, orthodontic trainers are claimed to unlock mandibular growth and to correct functional associated disorders.
Case description: This is a case report of 10-year-old girl diagnosed as Class II division 1 malocclusion. The diagnosis steps and the Visualised Treatment Objectives are shown. An interceptive approach has been decided using an orthodontic trainer with mandibular propulsion. At the end of this interceptive treatment, treatment changes have been evaluated with lateral cephalograms superimposition between T1 and T2 Cephalograms.
Discussion: The orthodontic trainer showed a good dento-squeletal results and a after one year wearing. The appliance was modified in the molar region to have better control of the occlusion plane. It needs also a good patient and parents' cooperation.
Conclusions/Clinical significance: The orthodontic trainers can be very useful for interceptive procedures if a proper case and appliance selection is made and a good patient cooperation is obtained.

P245
Comparative Study Between Two Types of Mandibular Expansion Appliance
Dallel Ines[1], Jerbi Med Ali[1], Daeoudi Safa[1], Tobji Samir[1], Ben Amor Adel[1], Asma Kassab[2]
[1]*Dental Clinic, Monastir, Tunisia,* [2]*Dental Medicine Faculty, Monastir, Tunisia*

Aim or purpose: The transverse mandibular malocclusion specifically the deficiencies are often treated by the dentist in daily practice; but, generally, they are underestimated or isolated of the therapeutic flow. The aim of this study is to analyze the intercanine, the inter-premolar and the inter-molar width by the comparison of the quantity of expansion on the mandibular dental casts before and after treatment by Bihelix and plate with jack.
Materials and methods: In this interventional study, we selected 44 patients divided into two groups, each one including 22 subjects:

- The first group was treated by mandibular plate cylinders and the second was treated by Bihelix. Two dental casts were taken to the two experimental groups: the first one at the beginning of the expansion (T0) and the second was taken after six months as end of treatment (T1). Statistics were performed using the software StatView. The tests were considered significant if $p < 0.05$.

Results: The bihelix gives us a significant expansion in the posterior sectors at the inter-premolar distance and inter-molar one. However, the mandibular plate cylinder gives us a gain in intercanine level higher than that obtained by bihelix.
Conclusions: Regardless expansion means used to correct mandibular deficiencies, the key is to have good positive diagnosis, focus on etiology and follow the patient during and after the correction for better stability of results.

P246
Planas Direct Tracks Interceptive Orthodontics. Three Cases Report
Ana Hernandez Fernandez, Marta Inmaculada Cabezuelo Escribano, Yolanda Martinez Beneyto, Susana Navarro Garrido, Antonio Jesus Gazquez Aguilera, Esther Fernandez Miñano
Universidad de Murcia, Murcia, Spain

Introduction: The correct craniofacial development in childhood is very important. Early treatment during deciduous dentition and beginning of mixed dentition of transverse and anteroposterior dental alterations can avoid problems in mandibular development, condylar position and masticatory function. These alterations are not corrected spontaneously and can be treated with small composite tracks called Planas direct tracks.
Case description: We present three clinical cases of three children with ages equal or superior to 6 of age. Two of them had functional unilateral crossbite. When the mandible was moved to a centric position, we observed that one or more teeth had occlusal interference. These favored crossbites, functional deviation of the mandibular midline and alteration in masticatory function. The other one had anteroposterior crossbite. All cases were treated

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with Planas direct tracks and selective carving because it was not sufficient to eliminate the interferences.
Discussion: Planas direct tracks have been used for neuroclusal rehabilitation in the early ages, especially between 4 and 6 years of age. Planas direct tracks can be used at later ages as in these three clinical cases, to correct crossbite and promote a correct mandibular growth. The mayor advantage is low cost and patient collaboration is not necessary.
Conclusions/Clinical significance: Planas direct tracks were efficient in the correction of the posterior crossbites. It can be an alternative to the use of fixed or removable devices.

Poster Session 50 | 31.08.2017, 09:30–10:30 | Poster Display 3

Theme: Periodontics

P249
Laser in Daily Periodontal Treatment Procedure – Prospects for Development
Kinga Grzech-Leśniak
Polish Society of Laser Dentistry PTSL, Krakow, Poland

Aim or purpose: The purpose of this lecture is to illuminate the current role of lasers in daily periodontal treatment procedure. Nowadays, with well-documented knowledge, laser has been proven effective in periodontal treatment as well as periodontal surgery (frenulotomy, frenuloplasty, operculectomy) and periodontal deep pocket treatment with reduction of specific periopathogens.
Several types of lasers: neodymium, erbium and different diode lasers, including low-level diode lasers are suitable for non-surgical and surgical periodontal treatment. This lecture will also discuss treatment procedures for proper selection of laser parameters enables achieving of desired tissue effect and at the same time avoids thermal damages of the surrounding tissues, corrective surgical treatment, including access flap surgery, as well as numerous periodontal plastic surgery procedures, periodontal pocket treatment and more like LLLT procedures which can be performed with lasers.
Materials and methods: The patients with chronic periodontitis were randomly assigned to one of the two groups: test group (laser periodontal treatment) and control group (periodontal treatment without laser). The study included 40 patients, generally healthy and with periodontal pocket deeper than 5 mm. Before and after treatment, molecular-biological microbiological test was conducted which uses the method of real-time PCR. The following clinical (periodontal probing depth, recession, bleeding on probing, plaque index) and microbiological parameters were recorded at baseline and 3 and 6 months after treatment.
Results: Both therapy modalities resulted reduction of all clinical and microbiological parameters in the lased group.
Conclusions: Laser procedures constitute beneficial alternative or complementary adjunct to conventional periodontal treatment.

P250
Complete Root Coverage with Subepithelial Connective Tissue Graft: Case Series
Tugce Zeytinci, Esra Guzeldemir-Akcakanat
Kocaeli University, Kocaeli, Turkey

Introduction: Management of gingival recession (GR) and its subsequent complications such as hypersensitivity or poor aesthetics may require root coverage procedures. Although coronally advanced flap (CAF) with subepithelial connective tissue graft (SCTG) have been accepted as a gold standard among the root coverage procedures, complete root coverage (CRC) may have not been achieved in all cases. The aim of this presentation is to report the management of 5 GR cases in which CRC was obtained with CAF+SCTG.
Case description: Systemically healthy five patients complaining about GR and related hypersensitivity history were referred to our clinic. All cases diagnosed as Miller's Class I GR defects following to intraoral examination. After the phase I periodontal therapy, CAF+SCTG were applied to all defects. The patients were scheduled to a 6-months follow-ups. Post-operative healing period were uneventful for all cases. CAF+SCTG exhibited CRC in all recession defects. All clinical parameters were stable at the end of 6 month after the surgical treatment.
Discussion: In this presentation, CAF+SCTG exhibited successful clinical outcomes including CRC, reduction of hypersensitivities, and patient satisfaction with respect to the aesthetical demands. All clinical improvements were stabile during the 6-months follow-up.
Conclusions/Clinical significance: Although the most of dental practitioners share negative prejudices about the aesthetic consequences of root coverage procedures, recent advances in the periodontal plastic surgery techniques offer successful outcomes beyond the clinical routine. Selection of well-indicated cases and to perform appropriate techniques with gentle surgery are crucial to obtain CRC with long-term stability.

P251
Peripheral Giant Cell Granuloma and Treatment
Dicle Altındal, Eylem Ayhan Alkan, Deniz Yılmaz
University Yüzüncü Yıl, Van, Turkey

Introduction: Peripheral giant cell granuloma is a reactive exophytic lesion occurring on the gingiva and alveolar mucosa usually as a result of local irritating factors.
Case description: In this report, a case of peripheral giant cell granuloma arising at the maxillar anterior region in a 17-year-old female patient, has been presented. The oral lesion consisted of an asymptomatic, red colored, smooth surface and approximated size of 10 mm located in the attached gingiva between the upper left permanent lateral incisor and the primary canine of the same side. Following local anesthesia, primary canine was extracted. The lesion was completely excised.
Discussion: In this case, poor oral hygiene was considered as predisposing factor. There was no evidence of recurrence during a 12-month follow-up period.

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Conclusions/Clinical significance: Correct diagnosis and appropriate surgical method can lead the successful esthetic outcome in the treatment of peripheral giant cell granuloma.

P252

Prevalence Analysis of Some Periodontal Disease's Comorbidities in South-Western Romania

Petra Surlin, Dorin Nicolae Gheorghe, Adina Turcu, Dora Popescu, Cristian Daguci, Elena Herascu, Ion Rogoveanu
University of Medicine and Pharmacy of Craiova, Craiova, Romania

Aim or purpose: To evaluate the prevalence of some systemic comorbidities in patients seeking treatment for periodontal conditions (gingivitis and periodontitis) in the south-western region of Romania.
Materials and methods: The study group included 195 patients seeking periodontal treatment between February and December 2016. After the approval from the university's ethics committee, the patients were interviewed about their medical and dental history and underwent a full-mouth periodontal exam (number of remaining teeth, periodontal probing, gingival and bleeding index, radiological analysis of bone resorption). Five comorbidities were taken into statistical analysis – diabetes mellitus, cardio-vascular disease, chronic B and C hepatitis and non-alcoholic fatty-liver disease. Patients had blood tests in order to determine the level of glucose, cholesterol, triglycerides, hepatic enzymes, erythrocyte sedimentation rate and coagulation tests.
Results: The study's patients (average age 46.5 years, 54.3% females) showed increased values of blood glucose (100 mg/dl average) and total cholesterol (214 mg/dl average), altered values being found in patients both diagnosed or unaware that they could be suffering from diabetes mellitus or high cholesterol-linked diseases such as atherosclerosis. The hepatic function was also impaired even for patients who hadn't been previously diagnosed with chronic hepatitis or non-alcoholic fatty-liver disease.
Conclusions: The studied comorbidities are frequently encountered in patients with periodontal issues in our region. Such systemic conditions need to be taken into consideration as they can alter both the clinical manifestation of the periodontal disease and the outcome of the treatment.

P253

The Mean Increase in CAL Using Azithromycin in Chronic Periodontitis Treatment

Sabah Shahzad Kaiani, Ahsan Khan, Rabeet Haroon Khan, Sana Ahmed, Faizan Haroon, Saima Razaq Khan
Lahore Medical and Dental College, Lahore, Pakistan

Aim or purpose: To compare the mean increase in clinical attachment level using azithromycin as an adjuvant to scaling and root planing, with scaling and root planing alone in the treatment of chronic periodontitis. There was no study available in PAKISTAN, and it deemed necessary, as it may help in treating patients with chronic periodontitis.
Materials and methods: It was a Randomized Controlled Trial with Non Probability Consecutive Sampling technique. 30 patients diagnosed with chronic periodontitis, (30–50) years of both genders were allotted to each group. Study duration was 6 months. Mean increase in clinical attachment level was calculated by measuring the clinical attachment level at the start of the treatment and at 5 weeks after the treatment. Group A: In the test group, conventional scaling and root planing was performed in conjunction with systemically administered Azithromycin (500 mg once daily for 3 days). Group B: Patients in the control group received placebo capsules once daily for 3 days as adjunct to conventional scaling and root planing. Patients were recalled after 5 weeks and clinical parameter (clinical attachment level) was recorded. Data analyzed using SPSS version 17.0
Results: Both groups showed an increase in the clinical attachment levels compared to baseline. However, Azithromycin when used as an adjunct to scaling and root planing showed significant increase (1.10 ± 0.77) compared to scaling and root planing alone (0.41 ± 0.1) [$p < 0.05$].
Conclusions: Although both treatment strategies seem to benefit patients, the adjunctive use of Azithromycin showed significant improvement in clinical attachment levels in treating patients with chronic periodontitis.

Poster Session 51 | 31.08.2017, 09:30–10:30 | Poster Display 4

Theme: Pedodontics

P254

Pulp Oxygenation during Treatment of Reversible Pulpitis in Permanent Teeth

Elena Utkina, Maria Gorbatova, Lyubov' Gorbatova
Department of Pediatric Dentistry, Northern State Medical University, Arkhangelsk, Russian Federation

Aim or purpose: To evaluate the dynamics of pulp oxygenation in permanent teeth during treatment of reversible pulpitis in children.
Materials and methods: Altogether, 31 molars with completed root development and diagnosed reversible pulpitis were randomly divided by three groups (A, B, C) and treated. In the group A treatment was performed with applying of traditional calcium hydroxide liner, in group B – with tricalcium silicate based cement, and in group C light-activated disinfection of carious cavity was added to tricalcium silicate based cement. Pulpal blood' oxygenation was measured using laser Doppler flowmetry (Lakk-02 HPP "Lasma") before treatment, two weeks, one month, three months and six months after treatment. Data measured in standard units are presented as medians and 25^{th}, 75^{th} quartiles. Friedman's test with post-hoc analysis was applied. The study was approved by the local Ethical committee.
Results: In the group A pulp oxygenation increased significantly only from third to sixth month after teeth treatment (from 88.3 (72.4; 95.0) to 93.0 (88.6; 96.4); $p = 0.012$). In the group B significant growth (from 84.5 (81.6; 93.1)) was marked already to third month (94.5 (86.3; 98.0)) after treatment ($p = 0.011$). In the

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group C significant improvement of oxygenation was registered firstly two weeks after treatment (79.4 (76.8; 84.6) vs. 92.1 (88.4; 95.7); p = 0.001), and then from two weeks to one month after treatment (92.1 (88.4; 95.7) vs. 97.2 (95.4; 99.6); p = 0.002).
Conclusions: Combined application of light-activated disinfection and tricalcium silicate based cements led to the greatest improvement of pulp oxygenation.

P255
Fracture Resistance of Pediatric Zirconium Crowns Cemented with Different Materials
İpe Şahin, Hüseyin Karayılmaz, Zülfikar Zahit Çiftçi
Pediatric Dentistry Department, Faculty of Dentistry, Akdeniz University, Antalya, Turkey

Aim or purpose: The aim of this study is to evaluate the fracture resistance of a prefabricated zirconium crown (Nusmile, Houston, Texas, USA) cemented with four different cements (BioCEM, Fuji ONE, Fuji CEM 2, G-CEM LinkForce) were subjected or not subjected to chewing simulation test with thermocycling fatigue.
Materials and methods: Freshly extracted 120 primary molar teeth with only enamel caries were randomly divided into four groups (n = 30). Teeth were prepared and prefabricated zirconium crowns were cemented using assigned cements. Fifteen specimens for each group were subjected to chewing simulation test with thermocycling fatigue (Mechanical Loading: 250,000 × 50 N × 1 mm Thermocycling: 250,000 × 5 °C/55 °C). Then all the specimens were fractured on a universal testing machine. The fracture force of the crowns was calculated and compared with parametric tests.
Results: No failure has been detected in specimens that were subjected to chewing simulation test and the highest fracture resistance values have been obtained from Linkforce and FujiOne groups respectively. The values of these groups were statistically different from the other ones ($p < 0.05$). LinkForce and FujiOne groups had the highest fracture resistance values and there were statistically significant difference between these groups and FujiCem2 group as regards of fracture resistance values, in specimens that were not subjected to chewing simulation test ($p < 0.05$).
Conclusions: According to the results of this study, cementation materials were found as a crucial factor for the fracture resistance of the prefabricated zirconium crowns. Results showed that the crowns, cemented with Linkforce and FujiONE have better fracture resistance.

P256
Apexification of a Necrotic Immature Incisor Using Biodentine
Imen Bourmeche, Fatma Masmoudi, Fethi Maatouk
Academic Clinic of Dental Medicine, Monastir, Tunisia

Introduction: Pulp necrosis is a common complication after dental traumatic injuries. When it happens at an early age it can adversely affect pulpal health and interrupt root development. In such cases apexification is indicated. Lately, Biodentine has been used as an efficient alternative to the conventional apexification materials.
Case description: 11-year-old female patient presented with a fractured upper central incisor with dark discoloration due to an old trauma.
- Clinical examination showed a negative pulpal sensibility.
- Radiological examination shows a wide canal and open apex.
- Treatment inducted was cleaning and decontamination the canal with sodium chloride solution, creating an apical barrier with biodentine followed by canal obturation using warm vertical condensation technique.

Discussion: Continuous clinical and radiological monitoring of traumatized immature teeth is important as pulpal and periapical complications might appear at any time after first treatment attempt.
Conclusions/ Clinical significance: Apexification of necrotic immature teeth with a biodentine plug in a one visit is a simple and predictable procedure. Biodentine has good physical and biological properties allowing him to be an alternative for MTA as an apexification material.

P257
Wear Characteristics of Glass-Ionomer and Bulk-Fill Resin Composite: 3D-Scanning Study
Ilhan Uzel[1], Elif Atila[2], Fahinur Ertugrul[1], Nazan Ersin[1], Arzu Yetkiner[1], Mutlu Ozcan[3]
[1]Department of Pediatric Dentistry, Ege University, Izmir, Turkey, [2]Department of Pediatric Dentistry, Ege University, Izmir, Turkey, [3]Dental Materials Unit, Clinic for Fixed and Removable Prosthodontics, Center for Dental and Oral Medicine, University of Zurich, Zurich, Switzerland

Aim or purpose: High viscosity glass-ionomer and bulk-fill materials are the latest trends in the development of restorative materials. Since wear of dental restorative materials is one of the main concerns in long-term clinical success, this study compared the encapsulated glass-ionomer cement system (GICs) and bulk-fill resin composites (BRC) restorations on the wear depth over 12 months clinical service.
Materials and methods: In total 23 patients, having mandibular carious molars with 46 similar Class I/II cavities were enrolled in the study. Each patient received either GICs with a self-adhesive nano-filled coating or BRC after using a self-etch adhesive. Impressions were made from the cavity, after restoration at baseline and one year clinical function. Resulting models were scanned using 3D scanner. Maximum volumetric wear was calculated using 1 year and baseline scans. Wear was determined using 3D scanning and a volume loss analysis program (ΔV). Data were analyzed using Wilcoxon signed rank test and *t*-test (alpha = 0.05).
Results: After one year, total wear loss of the materials with both GIC (19.63 ± 16 mm^3) and BRC (16.6 ± 14 mm^3) were not significant (p = 831).
Conclusions: Both encapsulated glass-ionomer cement system and bulk-fill resin composite showed acceptable wear performance up to 12 months in permanent molars.

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What To Do In Case Of Dilapidated or Extracted First Molar?

Jihène Zaroui, Imene Jazi, Mohamed Ali Chemli, Imene Gharbi, Badiaa Jemmali
Faculty of Dentistry of Monastir, Hopital La Rabta, Tunisia

Introduction: The first permanent molar has been quoted as being the most caries-prone tooth in the permanent dentition, probably as a result of its early exposure to the oral environment. Indeed, first permanent molars heavily restored will enter the restorative cycle and may need to be extracted in later life. In such cases, consideration should be given to the extraction of these teeth during the mixed-dentition stage.
Case description: A 9 years-old male with hypothyroidism, growth retardation was referred to our clinic because of many caries lesions and dilapidated first permanent molars. By taking into consideration several factors, we opted for extracting the four first permanent molars and we followed up the spontaneous space closure.
Discussion: Extraction of first permanent molars before the age of 8 years may result in distal drifting, tilting and rotation of the unerupted second premolar, especially in an uncrowded dentition. For young patients and if favorable conditions are reunited, the closure of extraction space and spontaneous positioning of the immature second molar and the wisdom tooth in favorable position and with a correct morphology constitute the best choice confirmed by a long term result without prosthetic artifices or implant.
Conclusions/Clinical significance: When planning extraction of first permanent molars with poor prognosis it is important to consider whether future active appliance treatment will be necessary. If such therapy is not needed, consideration should be given to extraction at the ideal developmental age to achieve spontaneous space closure.

Poster Session 52 | 31.08.2017, 10:45–11:45 | Poster Display 1

Theme: Esthetics

P259

Rapid Esthetic Rehabilitation with CAD/CAM Veneers and Crowns

Tatjana Savic Stankovic[1], Jovan Cabunac[2]
[1]*DentalNet Research Group, Department of Restorative Odontology and Endodontics, School of Dental Medicine University of Belgrade, Serbia,* [2]*Dental Practice "Dr Jovan Cabunac", Belgrade, Serbia*

Introduction: Digital smile design (DSD) and computer aided design/computer aided manufacturing (CAD/CAM) are useful diagnostic tools and methods for producing high quality restorations and improving esthetic appearance of teeth in the frontal region. The aim of this study is to present a clinical case of esthetic rehabilitation by laser crown lengthening and CAD/CAM veneers and crowns in two days.
Case description: A 35-year-old female patient disliked the shape, size and color of her upper teeth. On day 1, laser crown lengthening (YSGG, Waterlase iPlus, Biolase) was conducted on teeth 24 and 25. After teeth and bite registration scanning using the latest intraoral scanner (3Shape, TRIOS), scan images were sent to the laboratory and returned with DSD possible solution for future restorations. After teeth preparation, another scanning images was repeated and sent to laboratory again. The milling unit (Wieland Zenotec, Ivoclar Vivadent) cut the temporary veneers and crowns, and within two hours they were tried in the patient mouth. After adjustments and re-scanning, the milling unit fabricated permanent lithium disilicate glass ceramic veneers and crowns. On day 2, the final restorations, six veneers (from 13 to 23) and four full crowns (on 14, 15, 24 and 25) were cemented on prepared teeth using self-adhesive resin cement. No esthetic and functional problems in any of the restorations were observed at 6 months follow-up.
Conclusions/Clinical significance: Satisfying esthetic and functional outcomes for the patient can be reached through CAD \CAM in very short time.

P260

Role of Brushing in Wine Stain of Two Composite Resins

Nieves Serrano Cerdá, Fernando Chiva García, Ana Isabel Nicolás Silvente
University of Murcia, Murcia, Spain

Aim or purpose: To evaluate the effect of red wine in two esthetic restorative materials and the role of brushing.
Materials and methods: 80 disc-shaped specimens (8 × 2 mm) were made from two esthetic materials (ormocer and nanohybrid composite) and randomly assigned to 8 groups. Specimens were photopolymerized 20" with LED lamp and were stored in artificial saliva at 37 °C during all the process. Color values were measured using a spectrophotometer according to the CIEL*c*h* color space before and after staining (4 weeks). All discs were immersed 10" each day (approximate real contact time in mouth). Groups (n = 10) were:

Group 1: ormocer, all days, brushing.
Group 2: ormocer, all days, no brushing.
Group 3: ormocer, two times/week, brushing.
Group 4: ormocer, two times/week, no brushing.
Group 5: nanohybrid, all days, brushing.
Group 6: nanohybrid, all days, no brushing.
Group 7: nanohybrid, two times/week, brushing.
Group 8: nanohybrid, two times/week, no brushing.

Data were analyzed by ANOVA and Tukey's post-hoc test.
Results: Statistically significant decrease of luminosity (L*) ($p < 0.05$) was observed in all groups immersed daily *vs.* two times/week.
All groups no brushed after immersion showed a significant reduction of the hue (h*) ($p < 0.05$) *vs.* those that were brushed.
All groups of ormocer showed a significant increase in chroma (c*) ($p < 0.05$) *vs.* nanohybrid composite groups.
Ormocer groups submerged daily, regardless of brushing, showed perceptible (DeltaE < 3.3) and statistically significant color changes with respect to the other groups.
Conclusions: Brushing reduces negative alterations of color parameters in stains by red wine. Daily consumption of red wine seems to produce visible changes in the color of ormocers.

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Influence of Laser Crown Lengthening and Direct Composite Veneers on Gingiva

Jovan Cabunac[1], Zeljka Cabunac[1], Jovan Rakic[2], Tatjana Savic Stankovic[3]

[1]Dental Practice "Dr Jovan Cabunac", Belgrade, Serbia, [2]Dental Practice "Dr Rakic, Kragujevac, Serbia, [3]DentalNet Research Group, School of Dental Medicine, University of Belgrade, Serbia

Aim or purpose: To examine the incidence of gingivitis and gingival recession after applying direct composite veneers in the same act with laser crown lengthening, in the follow-up period of 5 years.

Materials and methods: The study included 63 patients, which underwent 307 laser crown lengthening and direct composite veneers in the same act. Criteria for assessing gingival condition included gingivitis and gingival recession. The absence or presence of moderate and severe gingivitis was determined as Loe&Silness Gingival Index scores 0–1 and 2–3, respectively. The displacement of marginal tissue apical to the cemento-enamel junction was scored as 'present' gingival recession whereas no such displacement was scored as 'absent' gingival recession as per the definition of the American Academy of Periodontology. The follow-up period was 5 years post-intervention. Data analysis was performed using standard statistical methods (SPSS 17.0).

Results: The average age of patients was 36 ± 7 years. The total number of direct composite veneers with laser crown lengthening in the same act in patients was 307, with an average number of 4.9 ± 3.3. As for the complications, in the period of 5 years, moderate and severe gingivitis was registered in 11.1% (no or mild gingivitis 88.9%) and gingival recession in 7.5% (no gingival recession 92.5%) veneers.

Conclusion: The application of direct composite veneers in the same procedure with laser crown lengthening does not cause a significant increase in occurrence of gingivitis and gingival recession in the period of 5 years.

P262

An Aesthetic Approach to A Patient with Cleft Lip/Palate

Seda Nur Kaplan, Hacer Turgut

İnönü University Faculty of Dentistry, Department of Restorative Dentistry, Malatya, Turkey

Introduction: Maxillary anterior spacing is a common aesthetic complaint of patients. Diastema problems has a multifactorial etiology such as dental malformations, labial frenulum, peg-shaped lateral incisors, microdontia, cleft lip/palate, mesiodens, persistent primary teeth, cysts, habits such as finger sucking, tongue thrusting, or lip sucking. Direct composite resins in diastema cases allow dentist and patient complete control and natural smile. This study aimed to build up primary canine as permanent lateral and closing the diastemas by using direct composite.

Case description: A 24-year-old patient with cleft lip/palate who had finished orthodontic treatment was applied to clinic. In intraoral examination; upper left lateral was missing congenitally, and in this region maxillary left primary canine was persistent and diastema between maxillar anterior incisors was observed. Diagnostic wax up was made to enhance to predictable esthetics and function. Direct composite was applied with silicone matrix guidance in first appointment. Finishing and polishing procedures were achieved by using polishing discs.

Discussion: The restorative closure of diastema can be achieved by using any of the techniques mentioned; direct composite veneers, indirect composite veneers, porcelain laminate veneers, all ceramic crowns, metal ceramic crowns and composite crowns. Composite resins are easy to use, economic and require fewer appointments but offer less wear resistance and much surface staining, which makes them inferior to dental porcelain.

Conclusions/Clinical significance: There were no sensitivities, discolorations and fractures on restorated tooth after 6 months follow-up. Direct composite resins seemed to be highly aesthetic and durable restorations that can satisfy patients under the conditions of case presented.

P263

How to Treat Discolored Non-Vital Teeth?

Syrine Lakhal, Nabiha Douki

Dental Department, Faculté de Médecine Dentaire de Monastir, Hôpital Universitaire de Sahloul, Tunisia

Introduction: Tooth discoloration can have many etiologies. It can be extrinsic or intrinsic. Bleaching of non vital discolored teeth has evolved over the years resulting in a low-risk routine procedure that can improve esthetics.

Case description: A 23 years old female presented to the conservative dentistry and endodontics department complaining of the poor esthetic quality of upper incisor. The history of the patient revealed that the tooth had been traumatized a year ago in a car accident and it has changed color since then. The tooth was asymptomatic. The following treatment plan was proposed: -Root canal treatment -Cervical seal -Application of the bleaching agent -Temporary filling- Renewing bleaching agent -Restoration of the access cavity.

Discussion:

–Patient should be informed that the results are not predictable.

–Other restorative options like crowns or veneers should be considered in case of failure.

–Conditioning the pulp chamber with 37% orthophosophoric acid is still controversial.

–In cases of severe discoloration, 3% hydrogen peroxide should be used instead of water.

–Bleaching agent should be changed every 3 to 7 days.

–Results won't appear before the 2–4th day.

Conclusions/Clinical significance: Bleaching non-vital discolored teeth can be an efficient and valuable treatment to improve esthetics if done in the right way. we have to do a proper diagnosis and to choose the right technique in order to achieve good results that last long and satisfy the patient.

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Poster Session 53 | 31.08.2017, 10:45–11:45 | Poster Display 2

Theme: Oral Health and Systemic Health

P264

Oral-Health and Quality-Of-Life Assessment in Adult Outpatients Using an iPad-App

Thomas Wolf, Ines Willershausen, Mirko Pommerenke, Angelika Callaway, Brita Willershausen

Department of Operative Dentistry, University Medical Center of the Johannes Gutenberg University Mainz, Germany, Mainz, Germany

Aim: The purpose of the study was to determine the prevalence of dental treatment needs and related quality of life in outpatients of a German dental clinic.

Materials and methods: 110 healthy outpatients, reporting to the Department of Operative Dentistry, University Medical Center, Mainz, Germany, for control visits, were enrolled in the study. The patients filled in the OHIP and BDI using a specially-built application for iPad, followed by a dental assessment and a WHO questionnaire filled in by the examiner.

Results: 110 healthy patients (53 male, 57 female) were included (mean age 39.8 ± 16.9, 18–83 years). Mean number of teeth was 26.5 ± 3.8; 16 ± 7.1 teeth were free of caries and restorations. 0.7 ± 0.9 teeth showed primary or secondary caries. Restorations were found in 7.8 ± 6.0 teeth. 17.3% of the subjects were smokers, 82.7% non-smokers. No enamel fluorosis was detected in 47.3%, 14.5% had mild fluorosis, 38.2% were classified as questionable. Enamel or dentinal erosions were observed in 39.1%. The BDI score was 13.6 ± 9.1 (1–44), the OHIP score was 3.6 ± 5.1 (0–24). Mucosal lesions were detected in 10%, 87.3% were lesion-free. Treatment need was urgent in 11.8%, 49.1% required preventive or routine treatment, no treatment was needed in 39.1%.

Conclusions: The investigated outpatients represent a cross-section of the oral health care situation of the German population. The data resemble the results of the DMS V recently published in Germany. The use of the novel app is well suited for the detection of cohorts; however, some older subjects had difficulties using a tablet computer, which required extra time.

P265

Allergic Rhinitis and Its Diagnosis in the Dental Consultation: Clinical Case

Camila Daniela Diez Arauz, Ana Rey, Alberto Rey, Noelia Carolina Hernández-Polo, Rosa González, Esther Ordax, Guillermo Galván, Inés Garrachón, Rosalía Marcano, Luis Daniel Pellicer, Mario Alvarado

Universidad Europea Miguel de Cervantes, Valladolid, Spain

Introduction: Rhinitis is defined as the inflammation of the nasal mucosa whose main cause in half of the cases is allergy. It is worth noting the importance of using reliable imaging methods for differential diagnosis with other pathologies.

Case description: A 19-year-old male patient, who did not report any pathology or known disease, came to the clinic for the first time. Routine tests are performed, including palpation, percussion and orthopantomography, where we see a lesion in the right nasal sinus. We carry out anamnesis in which the patient reports a seasonal allergy. Due to the presence of this symptomatology we decided to perform CBCT with which the presence of the multilocular lesion observed in the orthopantomography was ruled out and confirming the diagnosis of allergic rhinitis.

Discussion: Patient visits for routine checkup. When performing a control orthopantomography, a multilocular lesion associated with the first quadrant molars is seen. We performed infraorbital and percussion palpation, both of which are positive, which makes us suspect of a tumor diagnosis. In our hands is to perform a correct diagnosis and treatment, as well as the differential diagnosis with tumors and malignant lesions.

Conclusions/Clinical significance: It is important to know the limitations of conventional image techniques and always rely on the clinic to make a correct diagnosis. However, we must know the linkage of this pathology with dentistry and refer the patient to the otorhinolaryngus to jointly prevent other complications from allergic rhinitis.

P266

Oral Manifestations of Systemic Diseases in Depressed Geriatrics

Muhammad Daud Ghous, Syed Muhammad Nabeel Asghar, Muhammad Abubakar

Lahore Medical and Dental College, Lahore, Pakistan

Introduction: Oral manifestations of systemic diseases are potential indicators of an array of conditions. Truly the oral cavity is a mirror that reflects and unravels many of the human body's internal secrets. There is a significant relationship between 'oral health' and 'general health'. Systemic diseases like Hypertension, Heart disease and Diabetes Mellitus may affect oral health badly. The aim of this cross-sectional study was to assess the relationship between oral manifestations and systemic diseases particularly Diabetes Mellitus and Hypertension.

Case description: The underlying cause such as diabetes or hypertension can be diagnosed early and it can be treated early. Depression can also be the cause of these diseases either directly or indirectly or it may be an aggravating factor. Depression should be treated with anti-depressants, such as chlorpromazine.

Diabetes can be treated by insulin or other hypoglycemic drugs. Hypertension should be treated with ARBs and Amlodipine.

Discussion: We focused on the prevalent systemic diseases, which are Diabetes and Hypertension, in Geriatrics (age above 60) in Old People Care Homes. We found that Hypertension caused gingivitis. Diabetes caused Halitosis. In diabetic patients, there is increased breakdown of fats, which is converted to ketone bodies, these ketones are excreted in breath resulting in a condition known as halitosis.

Conclusions/Clinical significance: Our research lead to this conclusion that we should focus on managing the patients' systemic conditions alongside the oral and dental treatment that will help in improving the oral health of the patient.

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P267

Evaluation of Triclosan-Sodium Fluoride-Dexpanthenol Toothpastes and Mouthwashes on Gum Inflammation

Bárbara Ferrer[1], Miriam Marti[2], Aurora Garre[2]
[1]*Private, Barcelona, Spain,* [2]*I&D ISDIN S.A., Barcelona, Spain*

Aim or purpose: Numerous studies have shown that the inclusion of antimicrobial agents such as triclosan have positive effects on plaque reduction and gingival bleeding.
This study evaluated the improvement in the symptoms of gum inflammation of two products (toothpaste TP and mouthwash MW) fortified with a combination of cyclodextrin-encapsulated triclosan, NaF, dexpanthenol and bioadhesive excipient in healthy participants.
Materials and methods: 66 subjects received randomly either TP (n = 33) or MW (n = 31) b.i.d. The parameters evaluated by clinical scores and questionnaire at baseline (T0) and after 28 days (T28) were: improvement of erythema, oedema, bleeding gums, mouth, teeth, cosmetic acceptability and tolerance.
Results: All participants showed a significant reduction ($p < 0.001$) in the incidence of erythema and oedema after use of the products, compared to baseline (TP 74% / MW 65%). The frequency and intensity of bleeding gums was reduced at T28 ($p = 0.0035$) and specially with subjects having always or often bleeding (improvement of 100%). After first use, subjects perceived their teeth healthier/ less bleeding (TP 93.94%/ 93.94%, MW 96.77%/ 93.55%). After 4 weeks, they would recommend the product (TP 96.97%/ MW 96.77%). Non-clinical signs or sensation of discomfort during study period was reported by the volunteers. The dentist confirmed the good tolerance.
Conclusions: Daily use of TP and MW formulated with triclosan, NaF, dexpanthenol and bioadhesive excipient permitted to reduce the symptoms associated with gum inflammation. No significant differences were observed between the two galenic formulations which were well tolerated.

P268

Obstetricians and General Practitioners Knowledge of Dental Treatments' Safety during Pregnancy

Teresa Mota, Andreia Figueiredo, Mariana Seabra
Portuguese Catholic University, Viseu, Portugal

Aim: To evaluate the knowledge, attitudes and practices of Obstetricians and General Practitioners about dental treatments in pregnant women.
Materials and methods: Data was collected through a structured, anonymous, online questionnaire sent to Obstetricians and General Practitioners who voluntarily participate between December 2016 and March 2017. The questionnaire consisted of questions seeking knowledge of Obstetricians and General practitioners regarding awareness of pregnants' oral condition. The results as obtained were subjected to statistical analysis using SPSS version 16.0 for windows (Chicago Inc., USA). The statistical significance of difference was tested using Chi-square test and Continuity Correction test. The level of significance was set at $p < 0.05$.
Results: 100% of Obstetricians and General Practitioners believe that it's safe to do dental examination during pregnancy.
92% of Obstetricians believe dental X-rays are safe during pregnancy, but only 23.6% of General Practitioners answered in accordance (p-value = 0.000). When specifically asked about panoramic X-ray safety 57.1% of Obstetricians but only 16.67% of General Practitioners answered positively (p-value = 0.000).
About antibiotics, the most prescribed by both Obstetricians and General Practitioners was Amoxicillin/Amoxicillin and Clavulanate and their opinion about prescribing others like Penicillin, Macrolide and Cephalosporin is 27% of Obstetricians in contrast with 1.3% of General Practitioners (p-value = 0.000).
Conclusions: Opinions of either Obstetricians and General Practitioners about the dental X-rays' safety during pregnancy showed significant differences. Obstetricians' knowledge about X-ray is more accurate when compared to General Practitioners. The same occurs about medication: Obstetricians appear to be more fit to prescribe alternative antibiotics to pregnant women, beyond Amoxicillin.

Poster Session 54 | 31.08.2017, 10:45–11:45 | Poster Display 3

Themes: Public Health and Special Care Dentistry

P269

No Burnout Among Dutch NVM-Dental Hygienists!

Yvonne Buunk-Werkhoven[1], Oddy Folgerts[2], Vanessa Hollaar[3]
[1]*SPOH ARTS – International Oral Health Psychology, Amsterdam, Netherlands,* [2]*Privat, Amsterdam, Netherlands,* [3]*HAN University of Applied Sciences, Nijmegen, Netherlands*

Aim or purpose: The aim of this study was to investigate the prevalence of burnout among Dutch NVM-dental hygienists in various dental hygiene practices.
Materials and methods: 400 members of the Dutch Dental Hygienists' Association (NVM-mondhygiënisten) were invited per e-mail to complete a questionnaire. Student NVM-members, retired members, and dental hygienists not working as a clinical practitioner were excluded. Burnout was determined with the Utrecht Burnout Scale (UBOS); the Dutch version of the Maslach Burnout Inventory, that includes three dimensions of burnout (Emotional Exhaustion; 5 items, Depersonalization; 4 items, and Personal Accomplishment; 6 items). Responses ranged from 0 = *never* to 6 = *always*.
Results: Of the final sample of 157 dental hygienists (39.3%) with an average work experience of 16.6 years (SD = 10.8) and 25–32 weekly working hours, only four participants (2.5%) met the manual norms of burnout. Employed dental hygienists working in team clinical practices reported significantly lower scores for Personal Accomplishment than dental hygienists working independently in their own practice. Overall burnout levels for the three dimensions among NVM-dental hygienists were 'average' as compared to the manual norms.
Conclusions: This exploratory study showed that the prevalence of burnout among Dutch NVM-dental hygienists is very low to none. Thus, burnout appears no threat for the average NVM-dental hygienist in the Netherlands. It is likely that these findings are associated with a high positive working attitude among NVM-dental hygienists.

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P270

Oral Hygiene Training Schoolchildren with Sensory Deprivation of Vision

Vasilii Aliamovskii, Natalya Tarasova, Vladislav Galonsky, Anatoly Duzh, Elvira Surdo
Krasnoyarsk State Medical University, Krasnoyarsk, Russian Federation

Aim or purpose: The existing programs of primary prevention of dental diseases are developed for healthy children; therefore, these technologies are not effective in children with disabilities. The purpose of the study is to analyze the effectiveness of training of oral hygiene students with sensory deprivation of vision.
Materials and methods: To create an educational program, a differentiated approach was applied to children, considering the severity of sensory deprivation and age. The training was based on the principles that make it possible to use the compensatory capabilities of stored analyzers. Important points in the training process was the selection of toothpaste, it was selected according to the age and taste preferences of the children. The project involved 157 schoolchildren, aged 7–18 years, blind children – 5.1% and 94.9% – visually impaired.
Results: The average level of hygiene in schoolchildren before the start of training was defined as a bad 2.5 ± 0.1, during hygienic training the level of oral hygiene improved to a satisfactory (1.8). The PMA index before the beginning of hygienic training averaged 33.0%, after three months of training the periodontal status has not changed, a positive trend was observed with 4–5 months of training. After 6 months, the condition of periodontal tissues has improved by 3.6% (to 29.3 ± 0.15), after 12 months 6.5% (22.8 ± 0.21%).
Conclusions: During training children with a sensory deprivation of visions increased level of oral health literacy and the skills of cleaning teeth gradually developed.

P271

Pacifiers-What is and What Should be the Consumers' Choice?

Maria Beatriz Vilaça, Ana Carolina Baptista, Andreia Figueiredo, Mariana Seabra
Universidade Católica Portuguesa – Instituto de Ciências da Saúde, Viseu, Portugal

Aim: Compare pacifiers' dimensions (screen thickness, height and teat width) of the four best-selling models using a sample of 40 children.
Materials and methods: Data collection was performed in a public facility between Oct' 16th and Jan' 17th. Only children up to 6 years old who used pacifiers were included.
To collect data, a survey was applied. Measurements of each pacifier's components were performed using a thickener.
To ensure data reliability, pacifiers were photographed. A written consent was given to each parent. The study was approved either by the Ethics Committee of the proposing institution and by the public institution where data was collected.
Results: Children's majority used brand A (60%), being model A2 the most used (32.5%) and the one with the highest values for screen thickness in all sizes.
Size 1(0–6 months) had always presented the minimum value for each dimension and was used for 42.5% of the children.
10% of the children used model B4, which has shown the highest value for teat width and height despite having the smallest screen thickness, and 15% of the children used model A1, which had the smallest values of width and height of the teat.
Conclusions: Given its dimensions, model 1 should be recommended. Although it doesn't present the model with the lowest screen thickness, it represents itself, after model 4, the smallest dimension of the referred component. If there was a generally concern of using the smallest pacifier available, any malocclusion treatment that could be necessary would certainly be much easier.

P272

Adults Oral Health Related Habits and Attitudes – A Comparative Study

Marian Cuculescu[1], Oana Slusanschi[1], Roxana Cristina Ranga[1], Atena Galuscan[2], Angela Codruta Podariu[2], Sandra Ribeiro[3], Theresa Albuquerque[3], Yvonne Nyblom[4], Gunnar Johannsen[5], Annsofi Johannsen[6]
[1]Faculty of Dental Medicine, "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania, [2]Faculty of Dental Medicine, "Victor Babes" University of Medicine and Pharmacy, Timisoara, Romania, [3] Faculty of Dental Medicine, University of Lisbon, Lisbon, Portugal, [4]European Dental Hygienists Federation, Torrelavega, Spain, [5]Praktikertjänst AB, Stockholm, Sweden, [6]Department of Dental Medicine, Karolinska Institute, Huddinge, Sweden

Aim or purpose: To compare oral health related habits and attitudes of adults in three countries from Southern, Northern and Eastern Europe.
Materials and methods: A survey was conducted between November 2015 and June 2016 on 1081 adults in Portugal, Romania and Sweden, using an adapted version of the WHO oral health questionnaire, with the approval of Ethics Committees of the respective medical universities. The data was analyzed using descriptive and multidimensional statistics. A p-value < 0.05 was considered for statistical significance.
Results: More than 90% in each country brushed their teeth at least once a day, while interdental cleaning aids and fluoridated toothpaste were used the most in Sweden and the least in Romania. Most Swedish (82.8%), 50.5% Portuguese and 20.6% Romanians visit the dentist regularly, while 52% of the Portuguese and 84.2% of Romanians have never visited a dental hygienist. There was a statistically significant difference ($p < 0.001$) regarding dietary habits: the preference for sweets was lowest for Portugal and highest for Romania; the preference for soft drinks was highest for Romania; daily intake of fruits and vegetables was the lowest for Sweden.
Conclusions: Oral hygiene habits and the relation with dental professionals need improvement especially in Romania and Portugal.

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P273

Pregnancy Can Have an Important Effect on Oral Hygiene

Masuma Akther[1], Sheikh Ali Haider Azam[2], Mst Mostary Zannath[3], Naveena Preethi[4]
[1]*Atish Dipankor University, Dhaka, Bangladesh,* [2]*Save the Children, Dhaka, Bangladesh,* [3]*Bangladesh University of Health Sciences (Buhs), Dhaka, Bangladesh,* [4]*Rajarajeswari Dental College, Dhaka, Bangladesh*

Aim or purpose: The aim of this study was to assess the status of oral hygiene and dental health among pregnant women attended in a selected hospital.

Materials and methods: A cross sectional study was conducted among a total of 200 pregnant women of General Hospital, Manikgonj. Data was collected by face to face interview. A pretested structured questionnaire and a check list were used for data collection. The study was conduct over the period of January 2016 to March 2016. Data Analysis by SPSS 16.0. The research protocol was approved by The Research Committee (Local Ethical Committee).

Results: The mean age of the respondents was 19 ± 5 years and majority of the respondents were illiterate or had education up to primary level. On examination it was found that majority of the pregnant women were suffering from some kind of oral diseases and the diseases were gum bleeding, swelling of gum, gingivitis, calculus, pregnancy epulis, toothache, 3rd molar impacted swelling of face, pain or infection with gross caries and tooth mobility. Similarly, after pregnancy significantly a higher proportion (78%) of the respondent were found to used toothpick every day ($\chi^2 = 5.094$; $p = 0.024$) after meal.

Conclusions: This study identifies special attention to pregnant women's oral health in Bangladesh. This could be achieved through public policies and strategies that integrate dental health workers and lead maternity care workers to assist women with their oral health during pregnancy, particularly through distribution of adequate information and encouragement of preventive measures

Poster Session 55 | 31.08.2017, 10:45–11:45 | Poster Display 4

Theme: General Dentistry

P274

Bi-rooted Primary Canines is it Inherited Anomaly? Case Report

Zubaida Al Karaawi, Afnan Al-Saleem
Prince Sultan Medical Military City, RIYADH, Saudi Arabia

Introduction: Dental anomalies can be caused by genetic disturbances or environmental factors during tooth morphogenesis. However, the incidence of bi-rooted canines is unusual. The aim of this study was to investigate the inheritance pattern of the development of bi-rooted primary canines in three siblings.

Case description: A three years old Saudi boy with congenital heart disease was referred to our pediatric dental department in Riyadh for dental treatment. Clinical examination revealed badly decayed teeth (case 1). Patient received dental rehabilitation under general anesthesia (GA). All teeth were extracted except two received dental restorations (upper second molars). The extracted four canines were bi-rooted. Four months later, the patient attended clinic with his eight years old brother and two years old sister for dental check up. Radiographic examination of his brother (case 2) revealed two distinct roots of the maxillary primary canines and single rooted mandibular primary canines. The two years old sister (case 3) received dental rehabilitation under GA. Dental radiographs were taken during the operation that showed two bi-rooted maxillary canines and single rooted mandibular canines.

Discussion: In previous studies, bi-rooted primary canines was reported to be present in one child of the examined families. However, current study outlines the incidence of bi-rooted primary canines in three siblings that demonstrate genetic attributes of this anomaly rather than environmental influences.

Conclusions/Clinical significance: Bi-rooted canines can be inherited dental anomaly. Early detection of bi-rooted canines prevents complications that may occur during performing endodontic therapy or during dental extraction.

P275

Taste Hyposensitivity in Northern Cypriot Children and Adolescents

Hamit Tunç[1], Serap Çetiner[1], Tamer Yılmaz[2], Leman Özkan[1]
[1]*Near East University Faculty of Dentistry Department of Pediatric Dentistry, Northern Cyprus/Nicosia, Cyprus,* [2]*Near East University Faculty of Dentistry Department of Biochemistry, Yakındoğu Üniversitesi Lefkoşa, Cyprus*

Aim or purpose: The main objective of pilot study was to investigate the prevalence of taste hyposensitivity and the relationships between sex, oral health status (decayed, filled and missing teeth) and systemic drug utilization with taste hyposensitivity in children and adolescents who applied to the Near East University Faculty of Dentistry for oral examination.

Materials and methods: Oral examinations, sweet (15 g/500 ml sucrose), sour (0.2 gr/500 ml citric acid), bitter (0.02 gr/500 ml quinine) and salt (2 g/500 ml NaCl) whole-mouth taste tests and a questionnaire about systemic drug utilization were conducted on 56 children and 56 adolescents who applied to our hospital. Both of groups tried 1 ml of each taste solutions. Factors affecting taste hyposensitivity were investigated using Pearson Chi-Square and Fisher's Exact Test.

Results: The percentages of hyposensitivity for sweet-taste, salt-taste, sour-taste and bitter taste which observed in children are 14.3%, 31.3%, 25% and 44.6%, respectively. Our results showed that the hyposensitivity of sour-taste between childhood and adolescence was found different significantly. However, there weren't significant differences between sex, oral health status (decayed, filled and missing teeth) and systemic drug utilization with all of taste hyposensitivities.

Conclusions: Taste tests would be a helpful adjunct for students to recognize variations in taste sensitivity because sour and salt taste were confused by children. A new research about effects of hormonal changes in adolescence on taste papilla can be made.

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P276

Management of a Premolar Impacted and Inverted – A Case Report

Ana Corte-Real, Diana Pedrosa, Catarina Caetano, Sónia Alves Pereira
Faculty of Medicine, Coimbra University, Portugal

Introduction: The impacted tooth occurs predominantly in the permanent dentition. This pathology affects ⅕ of the world population. Alterations to the normality of eruption, the evolution of the process in the opposite direction to the occlusal plan, with 180° orientation, is called inverted tooth.
Case description: Case of a 14-year-old girl, type I diabetic, with normal growth and no history of trauma. Complains of dental crowding was observed in the orthodontic clinic of Coimbra Hospital and University Centre – Faculty of Medicine. The clinical examination showed a mixed dentition and with the imagiologic examination was diagnosed the presence of an impacted and inverted premolar. An imaging examination was performed. Coronal, sagittal and axial slices were registered by cone-beam computed tomography with iCAT equipment® (Pennsylvania, EUA). The software onDemand was used. Extraction of 45 was planned under general anesthesia. The monitoring was performed by clinical observation and imagiologic exams. The child lost 45 without affecting adjacent structures.
Discussion: The extraction of an impacted and inverted tooth is an accepted procedure within this pathology. The reimplantation is a procedure to consider in view of the possibility of not losing a definitive dental organ when early diagnosed. Monitoring of the procedure is necessary because of the risk of affectation of adjacent teeth and structures.
Clinical significance: Although the presence of an impacted and inverted tooth was rare, the location and position of this tooth determined a lesion of great severity.
Keywords: impacted tooth, inverted tooth, impairment.

P277

Comparison of the Results of Electrovibratography and MRI in TMD Patients

Liaisan Saleeva, Gulshat Saleeva, Dinara Sabirova, Ildar Sagitov, Rinat Saleev
Kazan State Medical University, Kazan, Russian Federation

Aim or purpose: The aim of this study is the comparison of the results of MRI with the findings of joint vibration analysis in patients with TMD.
Materials and methods: After clinical examination of 20 patients aged 20–53 years (4 males, 16 females) with temporomandibular disorders, they were selected for further examinations with the use of additional methods to set the clinical diagnosis. For each of them MRI of TMJ study was performed. Then vibrations occurring from joint sounds during the opening and closing movements were recorded by electrovibratography. Then a comparative analysis and matching of the obtained results with the data of clinical examinations were carried out.
Results: In all cases the results of MRI and electrovibratography were identical and confirmed temporomandibular disorders. At the same time in one case the diagnosis after the joint vibration analysis sounded just like the disc displacement with reposition while the MRI has also shown changes in TMJ disc structures.
Conclusions: The obtained findings indicate high effectiveness of the electrovibratography method in patients with TMD in setting the clinical diagnosis. Joint vibration analysis could be used in dental practice in cases when MRI is not possible to carry out.

P278

Digital Panoramic Radiographic Evaluation of the Gonial Angle

Zeynep Betul Arslan, Dila Berker Yıldız, Fusun Yasar
Selcuk Univercity Dentistry Faculty Oral and Maxillofacial Radiology, Konya, Turkey

Aim or purpose: The aim of the present study was to evaluate the effects of gender and tooth loss on the gonial angle of the mandible.
Materials and methods: Gonial angles of three groups of male and female patients were retrospectively evaluated in digital panoramic radiographs. First group included 25 completely edentulous patients. Second group included 25 dentate patients whose ages were above 40 years. The third group included 25 dentate patients whose ages varied between 20 to 40 years. Two observers separately measured gonial angles with ImageJ on digital panoramic radiographs. The consistency between the observers was evaluated with Mann–Whitney-*U* test. One-way ANOVA was used to compare whether there were statistically significant difference in the gonial angle of the three groups.
Results: It was found that there was no statistically significant difference between the two observers' measurements (p: 0.844) and between the right and left side gonial angles for both of the observers (1 Observer p: 0.225 and 2 Observer p: 0.458). There was statistically significant difference between the gonial angles of male and female patients (p: 0.014). As there was statistically significant difference between the three groups (p: 0.005), post-hoc comparisons were performed. There was statistically significant difference between first and second group (p: 0.003) and first and third group (p: 0.01). However; there was no statistically significant difference between second and third group (p: 0.626).
Conclusions: It can be concluded that gonial angle is wider in female and edentulous patients.

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Poster Session 56 | 31.08.2017, 12:00–13:00 | Poster Display 1

Themes: Oral Surgery and Oral Medicine

P279

Dynamics of Indicators of Electronic Pulp Test of the Teeth on the Mandible Against a Background of Intra-Septal Anesthesia

Solomon Rabinovich[1], Tatiana Babitch[1], Anastasia Zinovieva[1], Olga Dashkova[1], Igor Zinoviev[1], Yuriy Vasiliev[2]
[1]*A.I. Evdokimov Moscow State University of Medicine and Dentistry, Moscow, Russian Federation,* [2]*I.M. Sechenov First Moscow State Medical University, Moscow, Russian Federation*

Aim or purpose: Of the study was to study the dynamics of the indicators of electronic pulp test on the mandible with the use of intraseptal anesthesia with local anesthetics with different concentration of epinephrine.
Materials and methods: We observed 48 patients aged 22 to 34 years who were treated with dental caries on the mandible (1 and 2 molars) by intraseptal anesthesia with using 4% articaine with epinephrine concentration 1: 100,000 (24 people) and 1: 200,000 (24 people). All patients were measured threshold excitation of pain and tactile tooth pulp receptors prior to injection, 1, 3, 5 minutes after injection and after the end of treatment (after 1 hour) with the help of an IVN Pelptest PRO 01.
Results: The use of 4% articaine with epinephrine concentration 1: 100,000 is followed by the following dynamics of the parameters of electronic pulp test: before injection 6.4 μA, after 1 minute – 67.5 μA, after 3 minutes – 92.5 μA, after 5 minutes – 173.5 μA; 4% articaine with epinephrine concentration 1: 200,000 – before injection 6.3 μA, after 1 minute – 58.4 μA C, after 3 minutes – 89.3 μA, after 5 minutes – 165.4 μA.
Conclusions: The use of a higher concentration of the epinephrine at the initial stages gives an advantage in suppressing the pain impulse, however after 5 minutes the difference in the indices has no statistical difference, which indicates the secondary role of the epinephrine in predicting the result of local anesthesia.

P280

Necrotizing Fasciitis- Two Rare Clinical Cases with Different Outcome

Pavel Stanimirov, Radomir Ugrinov, Marina Galeva, Milena Petkova
Department of Oral and Maxillofacial surgery, Faculty of Dental Medicine, Medical University – Sofia, Sofia, Bulgaria

Introduction: Necrotizing fasciitis (NF) is a rare monomicrobial or polymicrobial rapidly spreading infection that attacks the fascial planes of connective tissue and results in tissue necrosis.
Case description: We present two clinical cases of NF of the face with different outcome. The first case is of a middle-aged men who we treated early with broad-spectrum antibiotics and massive debridement. Despite the facial disfigurement, he survived. In the case of the second patient-a middle aged woman-the surgery was delayed because she was originally treated conservatively in ENT department and late referred in the department of OMFS. She died as a result of sepsis and multi-organ system failure.
Discussion: The occurrence of NF in the head and neck region is uncommon. Individuals with underlying medical conditions, such as diabetes, are at increased risk of developing NF. The infection can be sudden, vicious, and fast-spreading. In many cases, there is a history of prior trauma-a cut, scratch or surgical site. At onset, however, it is difficult to differentiate from other superficial skin conditions such as cellulitis. If not treated quickly with antibiotics and vast debridement of the infected tissue, as well as supportive measures such as insertion of a breathing tube, intravenous administration of fluids, and drugs to support the cardiovascular system, the patient may develop toxic shock syndrome, which may lead to multiple organ failure and death.
Conclusions/Clinical significance: Early recognition and appropriate treatment serve to decrease morbidity and mortality. Every delay in surgery affect the outcome.

P281

Multiple KOTs in Gorlin-Goltz Syndrome – A Clinical Case

Pavel Stanimirov[1], Milena Petkova[1], Marina Galeva[1], Natalia Gateva[2]
[1]*Department of Oral and Maxillofacial Surgery, Faculty of Dental Medicine, Medical University – Sofia, Sofia, Bulgaria,*
[2]*Department of Pediatric Dentistry, Faculty of Dental Medicine, Medical University – Sofia, Sofia, Bulgaria*

Introduction: Multiple jaw keratocystic odontogenic tumors (KOTs) are a principal feature of nevoid basal cell carcinoma syndrome.
Case description: We present a 12-year-old female patient that in 2013 was diagnosed with Gorlin-Goltz syndrome based on clinical, histological and radiological findings such as multiple jaw KOTs, hygroma, obvious ocular hypertelorism, frontal bossing and bifid ribs. Since 2013 the patient developed 9 KOTs, one of which showed extremely rapid and aggressive evolution and only for a year displaced cranially the developing upper right wisdom tooth and filled all of the right maxillary sinus.
Discussion: Nevoid basal cell carcinoma syndrome (NBCCS), also known as Gorlin-Goltz syndrome, is an autosomal dominant inherited condition caused by mutation in PTCH-gene. It has high penetrance and variable expressivity. NBCCS is characterized by the development of multiple jaw KOTs and/or basal cell carcinomas, typically beginning in the second or third decade of life. In addition, NBCCS can cause congenital skeletal anomalies, cerebral calcifications, palmar/plantar pits, macrocephaly, intellectual disability, ocular anomalies, cardiac/ovarian fibromas and many others. KOTs associated with NBCCS occur earlier in life, exhibit a greater tendency to recur and have more aggressive biologic behavior than nonsyndromic cases of KOTs.
Conclusions/Clinical significance: We stress on the fact that all those that have been diagnosed or are suspected with this syndrome should be followed up for the rest of their lives in order to detect early every new anomaly and to reduce the severity of the associated complications. That leads to a better prognosis for the patient.

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P282

Determination of Minimum Inhibition Concentration of *Peganum Harmala* Extract Against Candida Species: An In-Vitro Study

Maryam Baharvand[1], Mozhdeh Hakemi-Vala\[2], Leila Dehghani[3], Hamed Mortazavi[1], Masoumeh Mehdipour[1], Mahshid Namdari[4], Elnaz Jalali Moghaddam[5], Amir Hossein Rafiei[6], Ghazal Ranjbar[6]
Associate Professor, Department of Oral and Maxillofacial Medicine, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran, [2]Assistant Professor, Department of Microbiology, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Islamic Republic of Iran, [3]General Practitioner, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran, [4]Assistant Professor, Biostatistics consultant, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran, [5]Private Dental Practice, Oral & Maxillofacial Radiologist, Vancouver, Canada, Tehran, Islamic Republic of Iran, [6]Students' Research Committee, Gifted and Talented Dental Students Division, Dental School, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran

Aim or purpose: The aim of this study was to determine the efficacy of *Peganum Harmala* extract on Candida species in vitro.
Materials and methods: In this study antifungal activity of aqueous and alcoholic extracts of *Peganum Harmala*, produced by maceration method, was studied on *Candida Albicans, Glabrata and Krusei*. The minimum inhibitory concentration (MIC) was determined using the micro-dilution method, which was repeated for three times to minimize the systematic errors during experimental process.
Results: Since the MIC value was obtained to be the same in each of the three replica trials, therefore performing a statistical analysis among the experimental groups was not required. Both aqueous and alcoholic extracts of *Peganum Harmala* were shown to have antifungal activity against *Candida Albicans* in 100 mg/ml. Alcoholic extract of *Peganum Harmala* with MIC of 100 mg/ml was more effective than the aqueous extract in MIC of 200 mg/ml against *Candida Glabrata*. Alcoholic extract of *Peganum Harmala* with MIC of 1.56 mg/ml was more effective than aqueous extract in MIC of 12.5 mg/ml against *Candid Krusei*.
Conclusions: Alcoholic extract of *Peganum Harmala* effective against *Candida Glabrata and Krusei than Candida Albicans*. Aqueous and alcoholic extracts of *Peganum Harmala* were more effective on *Candida Krusei* than the other two species.

P283

The Effect of Topical Phenytoin on Different Microorganisms in Oral Ulcers in Rats

Maryam Baharvand[1], Fahimeh Sadat Tabatabaei[2], Somaye Mazarei Sotoode[3], Ghazal Ranjbar[4], Amir Hossein Rafiei[4]
[1]Associate Professor, Department of Oral and Maxillofacial Medicine, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran, [2]Assistant Professor, Department of Dental Biomaterials, School of Dentistry, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran, [3]Assistant Professor, Department of Oral & Maxillofacial Medicine, School of Dentistry, Kashan University of Medical Sciences, Tehran, Islamic Republic of Iran, [4]Students' Research Committee, Gifted and Talented Dental Students Division, Dental School, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran

Aim or purpose: This study aimed to determine efficacy of 1% topical phenytoin on microbial load of oral incisional ulcers in an animal model.
Materials and methods: This study was performed on six groups of male Wister rats whose mandibular attached gingivae underwent incisional flaps. Then 1×10^5 CFU/g of three microorganisms including *Candida Albicans*, *Staphylococcus Aureus* and *Actinomyces* were placed into groups one and two, three and four, five and six, respectively. Then a uniform layer of 1% phenytoin applied into groups one, three and five, while rats in groups two, four, and six received nothing on their ulcers. The ulcers were sutured, and after three days, incisional biopsies were obtained and placed into appropriate culture media. For each specimen, dilution is performed six times. each diluted specimen placed in agar culture for 24 hours then the agar plates counted with Colony Counter and yielded number multiplied in dilution factor as CFU/ml. Mann–Whitney test was used to analyze difference between groups.
Results: Median of *Candida Albicans* colonies was 2,025 in Phenytoin group and 515 in control group with no significant difference between two groups ($p = 0.423$). Regarding *Staphylococcus Aureus*, median of colonies was 1,820 in phenytoin group and 440 in control group without any significant difference between two groups ($p = 0.259$). Median of *Actinomyces* colonies was 1215 in phenytoin group and 0 in control group which was statistically significant ($p = 0.049$).
Conclusions: One-time application of 1% topical phenytoin did not have any effect on decreasing microbial contamination of oral ulcers in rats.

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Poster Session 57 | 31.08.2017, 12:00–13:00 | Poster Display 2

Theme: Endodontics

P284

Intentional Replantation, Hopeless Tooth's Last Resort

Hugo Riveiro Rodríguez, Pablo Castelo Baz, Amaia Artieda Estanga, Manuel Ruiz Piñón, Benjamín Martín Biedma, Purificación Varela Patiño
University of Santiago de Compostela, Santiago de Compostela, Spain

Introduction: Intentional replantation of a tooth is an interesting therapeutic option in some cases where the periradicular surgery or non-surgical orthograde re-treatment have already failed or are not feasible.
Case description: 47-year-old woman came to the office with spontaneous pain associated with the mandibular left first molar. Periapical radiograph showed a radiolucency in the periapical region. During the root canal treatment, we were not able to perform a glide-path because the apical third of the roots were obliterated. As the periradicular surgery in this tooth may have been complicated we planned to extract the tooth, treat the roots extraorally and re-insert the tooth in the alveolar socket.
Discussion: In these clinical situations, the intentional replantation of a tooth gives us a last chance to save the teeth. The goal of our clinical protocol for intentional replantation is to guarantee periodontal ligament preservation, key to the success of the intentional replantation of a tooth. The most important parts of the protocol are: planning based on a CBCT scanning, atraumatic extraction of the tooth avoiding any contact with the radicular surface and keeping the tooth out of the alveolar socket for less than 15 minutes.
Conclusions/Clinical significance: Planning and performing these cases helped us to establish a clinical protocol that satisfies all aspects necessary to the maximum preservation of the periodontal ligament.

P285

Internal Bleaching. Protocol

Patricia Rodríguez Roca, Beatriz Suárez Mallo, Pablo Castelo Baz, María Freire Álvarez-Blázquez, Benjamín Martín Biedma
University of Santiago de Compostela, Santiago de Compostela, Spain

Introduction: In nonvital teeth, the walking bleach technique requires a completed root filling and an established cervical seal. The bleaching agent should be changed every 3–7 days. The internal/external technique consists on a combined application of the bleaching agent in the pulp chamber and on the surface of the dental crown.
Case description: A 45-year-old man came referring a colour change on 1.1. He presented a C4 colour from the Vita Guide and the root canal treatment was already done. We re-did the root canal treatment leaving the gutta-percha 4 millimetres underneath the cemento-enamel junction and made a cervical seal with a 2 mm glass-ionomer layer. Sodium perborate chemically pure was placed in the pulp chamber for 7 days. It was changed two times before obtaining satisfying results. Three weeks after last visit the final reconstruction was done.
Discussion: The re-treatment of the tooth was done because any antique material may affect our treatment. We removed 4 millimetres of gutta-percha and placed 2 millimetres of glass ionomer for guaranteeing the bleaching effect on the cervical area and avoiding the entrance of the product inside the canal. Sodium perborate chemically pure was placed during 7 days and changed until obtaining good results. Waiting three weeks after the last placement of the product before the reconstruction is basic for allowing the colour get established.
Conclusions/Clinical significance: It is basic to understand the need of a protocol and its explanation for obtaining the best results and minimise the drawbacks.

P286

Comparison of Various Mixing and Placement Techniques on the Fill Density of Mineral Trioxide Aggregate

Tatyana Manak, Inna Shypitsiyeuskaya
Belarusian State Medical University, Minsk, Belarus

Introduction: The aim of this study was to evaluate and compare the fill density of mineral trioxide aggregate (MTA) produced by mechanical and manual mixing as well as the effect of sonic and ultrasonic (indirect activation) agitation during placement.
Case description: There were 30 acrylic transparent blocks used. They were pre-weighted, instrumented with Wave
• One Primary 025.08 (Ni-Ti) rotary file on 16 mm, dried with paper point and weighted again. All blocks were randomly divided into 6 groups and obturated with MTA. 1st group – MTA manual mixing (MM) and insertion into the canal using Ni-Ti plugger; 2nd – MM and sonic condensation, 3rd – mechanical mixing and manual insertion with a plugger, 4th – mechanical mixing and sonic condensation (2 seconds), 5th – manual mixing and sonic condensation (2 seconds), 6th – MM and indirect ultrasonic condensation (2 seconds). In our experiment, we used Belarusian MTA (Rootseal, Belarus). After MTA setting all blocks were weighted. We used the weight of the MTA as an indicator of fill density because the formula for density is: Density = Mass/Volume.
Discussion: Mechanical mixing of MTA and its sonic condensation during 2 seconds resulted in a greater fill density than that achieved using manual mixing and conventional insertion (with Ni-Ti plugger).
Conclusions/Clinical significance: Although manual mixing and conventional insertion of MTA are usually used by dentists, these techniques were not associated with a significant advantage in term of fill density over mechanical mixing and sonic condensation during short period of time (2 seconds).

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P287

Root Dentin Microhardness after Use of Different Resin Sealer Solvents

Gamze Nalcı, Tayfun Alaçam, Bülent Altunkaynak
Gazi University, Ankara, Turkey

Aim: The aim of this study was to determine the dentinal microhardness values before and after application of resin solvents (ethyl acetate: EA; methyl ethyl ketone: MEK; and chloroform: CHL) on different levels of root dentin either used with 5 and 15 minute direct contact or application with 1 minute passive ultrasonic activation.
Materials and methods: Recently extracted human lower anterior teeth were longitudinally sectioned into two segments and embedded in an autopolymerizing resin. Initial microhardness values of dentine specimens were measured using Vickers diamond indenter at the coronal, middle and apical third of the roots. The specimens were divided randomly into 8 groups. In the first 4 groups, EA, MEK, CHL and saline solution (control) were applied for 5 and 15 minutes followed by immersion in saline solution, In the remaining 4 groups, the solvents and the control were applied for 1 minute with ultrasonic activation followed by immersion in saline solution.
Results: Compared to the initial values, microhardness values decreased in all solvent groups. Ultrasound intensified the effect. Saline group had no effect in ultrasound activated or non-activated groups.
Conclusions: Decrease in dentinal microhardness was found in the solvent-treated groups. Amount of decrease was more in the ultrasound-treated groups.

P288

Calcified Canals: A Daily Challenge

María Freire Álvarez-Blázquez[1], Giuseppe Cantatore[2], Manuel Ruiz Piñón[1], Patricia Rodríguez Roca[1], Benjamín Martín Biedma[1]
[1]*University of Santiago de Compostela, Santiago de Compostela, Spain,* [2]*University of Verona, Verona, Italy*

Introduction: Calcifications and calcified canals following trauma are a common challenge in endodontics and often lead to clinical complications, such as perforations and deviations from the original canal path. Bioceramic materials provide an optimal seal and are considered the choice materials when dealing with these complications.
Case description: 35- year old patient came to our clinic showing darkening of the coronal part of tooth 1.1, which is asymptomatic. She recalls a long-term trauma (20 years ago). The periapical xray shows cameral pulp obliteration and also from the middle third onto the apical portion of the canal.
When negotiating the canal, a perforation in the middle third of the canal occurred. Mineral Trioxide Aggregate (ProRoot® MTA, Dentsply International) was placed on the site of the perforation within the first visit and sealing of the canal was put-off to one week later. Non-vital bleaching was performed using chemically pure sodium perborate, and also external walking bleach at the end of the treatment.
Discussion: Bioceramics are the choice materials for perforation repair, due to their bioconductivity and sealing ability.
Some overcorrection of the darkened nonvital teeth is desirable as they are likely to relapse.
CBCT technology is an unvaluable diagnosis and intraoperative tool when dealing with calcifications.
Conclusions/Clinical significance: The clinician must know the exact features of the materials, such as setting time, powder-liquid ratio and instruments for their placement in order to achieve optimal results and solve these challenging day-to-day cases.

Poster Session 58 | 31.08.2017, 12:00–13:00 | Poster Display 3

Themes: Prosthodontics, Materials and Oral Surgery

P289

How to Improve Esthetics in Maxillary Anterior Teeth?

Zeineb Riahi, Rihab Dakhli, Mounir Cherif
Dental Clinic, Monastir, Tunisia

Introduction: The success of all-ceramic crowns and increased patient demand for metal-free, tooth colored restorations has led to the development of many different restorative systems for all-ceramic fixed dental prostheses. The aim of our presentation is to highlight the advantages of the different ceramic systems combined with CFAO technology on order to optimize esthetics at the anterior sector.
Case description: Two different patients reported to our dental center for esthetics problems. The first one suffering from fluorosis which was resistant to internal and external bleaching. The treatment plan was to realize all zirconia crowns. The second one reported an esthetic dental problem related to ceramo-metallic full coverage crown cemented on the maxillary central incisor. The patient complaining of darkening at the neck of the teeth. The treatment plan includes the removal of the crown and after its fiber reinforced resin post and core we manufactured an all zirconia ceramic.
Discussion: Color match of esthetic restorative materials and tooth still remains a challenge in clinical dentistry. The problem is easier to solve when we have to treat all anterior teeth but when attempting to match natural adjacent teeth, all ceramic crowns offer better potential for color match than traditional porcelain fused to metal crowns.
Conclusions/Clinical significance: The restoration of anterior teeth is a demanding procedure; the patient's esthetic expectations are normally very high and the final result is heavily dependent on the perfect cooperation between dentist and lab technician.

P290

Succeed Aesthetics in Maxillary Central Incisor

Rihab Dakhli[1], Zeineb Riahi[1], Rochdi Taktak[2], Mounir Chérif[1]
[1]*Dental Clinic, Monastir, Tunisia,* [2]*Hospital of Farhat Hached, Sousse, Tunisia*

Introduction: The prosthetic integration of a maxillary central incisor is always a challenge for the practitioner. They are front and center in a smile, more than any other pair of teeth in the mouth,

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these two set the tone for a person's appearance, positively or negatively. The restoration of central incisor is a demanding procedure; the patients' expectations are normally very high and the final result is heavily dependent on the perfect cooperation between dentist and lab technician.

Case description: Two different patients reported to our dental centre for esthetics problems in their central incisor. The first one presented with endodontically treated central incisor restored with the composite resin. The treatment plan was to indicate an endocrown in Emax CAD. The second one complaining about the darkening in the neck of his inaesthetic metal-ceramic crown. The treatment plan was to realize an all zirconia crown.

Discussion: Due to its anterior central position, a restorative crown on the central incisor will be immediately compared with the natural counterpart incisor and smaller differences of shape and color will be immediately perceived. When attempting to match natural adjacent teeth, all ceramic crowns offer better potential for color match than traditional porcelain fused to metal crowns.

Conclusions/Clinical significance: The aim of this presentation is to show through various clinical cases the different guidelines to follow for aesthetic success when restoring maxillary central incisor.

P291

Clinical Pathways for Successful Immediate Complete Dentures

Hana Adouani, Karim Masmoudi, Jamila Jaouadi, Karim Chebbi, Achraf Fnaiech, Houda Chraief, Mohamed Ali Bouzidi, Ali Ben Rahma

Faculty of Dental Medicine of Monastir, Monastir, Tunisia

Introduction: For patients confronted to the extraction of their remaining natural teeth, the transition is generally psychologically challenging for the patient and demanding for the clinician. The immediate complete denture is an accepted solution to replace lost natural teeth which is inserted into the patient's mouth immediately after tooth extraction.

Case description: Two case reports describing two patients with no significant medical history. After radiographic and clinical examination, the extraction of their remaining teeth was deemed necessary. Since they refuse to be edentulous for any length of time, they were appointed for immediate complete dentures. Standard procedures for conventional immediate dentures were performed and they were satisfied with the results.

Discussion: The primary advantages of an immediate denture therapy is the absence of an edentulous period immediately after tooth extraction. But the major disadvantage relates to the technical difficulties associated to the denture fabrication because immediate complete dentures are constructed prior to the extraction of the remaining teeth which makes the success of immediate restoration of these patients challenging. In order to optimize immediate denture therapy, thoughtful considerations must be given to the treatment planning, definitive impression making and denture tooth set-up phases of therapy.

Conclusions/Clinical significance: Functional, aesthetic and psychological reasons justify immediate rehabilitation of edentulous ridges. The success of immediate complete dentures depends on a correct diagnosis, detailed treatment planning and patient's cooperation.

P292

Cytotoxicity Evaluation of Dentinogenesis Inducer Materials in MDPC-23 Cell Line

Anabela Paula[1], Mafalda Laranjo[2], Carlos Miguel Marto[3], Ana Coelho[1], Ana Margarida Abrantes[2], Manuel Marques Ferreira[4], Maria Filomena Botelho[2], Eunice Carrilho[4]

[1]Dentistry Area, Biophysics Unit; Faculty of Medicine, University of Coimbra, Coimbra, Portugal, [2]Biophysics Unit, CIMAGO, CNC.IBILI; Faculty of Medicine of University of Coimbra, Coimbra, Portugal, [3]Dentistry Area, Experimental Pathology Institute, Biophysics Unit, CIMAGO, CNC.IBILI; Faculty of Medicine, University of Coimbra, Coimbra, Portugal, [4]Dentistry Area, Biophysics Unit, CNC.IBILI; Faculty of Medicine, University of Coimbra, Coimbra, Portugal

Aim or purpose: The aim of this work is to assess the cytotoxicity of three materials with different compositions, calcium hydroxide, mineral trioxide aggregate and calcium silicate, for direct pulp capping, in an odontoblast-like mouse line cell (MDPC-23).

Materials and methods: The subcultures were exposed to conditioned media (ISO10993-5) with various concentrations (100% to 6.25%) during different times (24, 72 and 120 hours). The metabolic activity was evaluated by MTT assay, protein content by SRB assay, and the death pathways by flow cytometry. Differentiation was assessed by immunohistochemistry through the expression of DSP. Mineralization was determined by the Alizarin Red S colorimetric assay and quantified by spectrophotometry.

Results: The mineral trioxide aggregate and the calcium silicate show similar results, with a decrease of metabolic activity and viability at 24 hours and increase at the subsequent evaluation times. The calcium hydroxide performance, particularly at higher concentrations, indicates a decrease in metabolic activity and an increase in cytotoxicity. Late apoptosis/necrosis is the most frequent type of death. The evaluation of differentiation and mineralization indicates a marked increase in expression and formation of calcium deposits with calcium silicate.

Conclusions: The results show that calcium hydroxide may influence the proliferation of pulp cells. Results of the mineral trioxide aggregate confirm its indication for these therapeutics, justifying its recognition as *gold-standard*. The calcium silicate can be an alternative to mineral trioxide aggregate since its clinical handling is simplified by its short setting time.

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P293

Neurofibromatosis Type 1 Associated with Central Giant Cell Granuloma

Rachid Hammami, Sameh Sioud, Mariem Meddeb, Mounir Omami, Radhia Ben Ali, Adel Bouguezzi, Abdellatif Chokri, Jamil Selmi
Department of Oral Surgery, Monastir, Tunisia

Introduction: Central giant cell granuloma (CGCG) is a non-neoplastic proliferative lesion of unknown etiology. It occurs most commonly in the mandible. It's an intraosseous lesion consisting of cellular fibrous tissue that contains multiple foci of hemorrhage, aggregations of multinucleated giant cells and occasionally trabeculae of woven bone. The association between neurofibromatosis and CGCG has been reported in the literature.
Case description: A 70-year-old male patient was referred to the Department of Oral Surgery, with a gingival mass, with approximate 2 × 2.5 × 1.5 cm swelling arising from the mandibular gingiva, covered by partially ulcerated mucosa. The patient did not report any pain. Clinical examination showed that the patient has café-au-lait spots, freckling and skin neurofibroma. These features are suggestive of neurofibromatosis type 1. Radiographic evaluation demonstrated alveolar bone loss. A biopsy and histopathological examination were performed. The mass was excised. The diagnosis was CGCG, according to both the clinical and histopathological patterns.
Discussion: CGCG is a rare bony lesion in the Head and Neck region. It is a non-odontogenic tumor never seen in any other bone of the skeleton. CGCG is usually found in adults and females. The etiology of CGCG is unknown. Although it has been impossible to find the etiologic factors causing this case, poor oral hygiene, low social economic status and other factors can be considered.
Conclusions/Clinical significance: CGCG should be considered in the differential diagnosis of oral lesions in patients with neurofibromatosis type 1.

Poster Session 59 | 31.08.2017, 12:00–13:00 | Poster Display 4

Theme: Public Health

P294

Self-Assessment Oral Health by a Working-Age Population

Anatoly Duzh, Ivan Artyukhov, Vasilii Aliamovskii, Olga Sokolova, Andrey Shulmin, Elena Danneker
Krasnoyarsk State Medical University, Krasnoyarsk, Russian Federation

Aim or purpose: Self-assessment oral health is an important app roach to assess the state of oral health of the person. Self-assessment may differ from clinically determined health status of the oral cavity. The purpose of the study is to identify factors that affect the self-assessment of oral health by the working-age population.
Materials and methods: We conducted a clinical dental examination and questioning of workers of the non-ferrous metals plant. The study involved 100 workers aged from 22 to 60 years. Evaluation of dental status was conducted during a regular dental examination. The questionnaire contained questions about the presence of risk factors for dental diseases, influences of oral health on the quality of life.
Results: Self-assessment oral health suggested different criteria from "excellent" to "very poor". Respondents rated their dental health as "good" at 36.0% of cases, "satisfactory" – 44.0% and "bad" at 20.0%. The adequacy of the self-assessment of the health status of the oral cavity was confirmed by the data of the objective dental status. The value of the DMFT index for «good» self-assessment was 7.72, in the assessment «satisfactory» it was – 18.73, in the assessment «poor» – 21.35. The identified risk factors and quality of life criteria also affect the formation of self-assessment.
Conclusions: The analysis of self-assessment oral health allowed identifying the main factors that associate with this outcome. This tool may contribute to the planning of health promotion for an improved quality of life of the working-age population.

P295

Smoking Addiction in College Students of Health and Social Sciences

Francisco Martins, Cristina Alves
Faculdade de Medicina Dentária Universidade de Lisboa, Lisboa, Portugal

Aim or purpose: Smoking addiction is one of the biggest risks to health. Studies have shown that the consumption of tobacco is very high among students which are subject to this addiction usually very early. This paper had the main aim of assessing whether the area of studies and the possible existence of subjects on the curricula regarding the negative effects of smoking might affect the consumption of tobacco.
Materials and methods: A survey has been conducted to assess the consumption of tobacco related products and the subjects that have been taught to the sample.
Results: This study has analyzed 208 students, 144 from health sciences and 64 from social sciences majors. The students of majors related to Social Sciences have been regarded has the group which presents a stronger presence of tobacco consumption when compared with Health Sciences students.
Conclusions: It has been concluded that the area of studies of the sample does not have any influence to the regard of smoking habits, however, when there is motivation to, ex-smokers of Health-related areas have the understanding that the prevention of illnesses is an important factor to attain a good health.

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P296

Attitudes Toward Preventive Behaviors Among Albanian Dentists

Etleva Qeli[1], Ertila Druga[2], Celjana Toti[1], Enida Petro[1], Dorjan Hysi[1]

[1]*Faculty of Dental Medicine, University of Medicine, Tirana, Tirana, Albania,* [2]*European University of Tirana, Tirana, Albania*

Aim or purpose: The aim of the study was to assess attitudes, subjective norms, and intentions of preventive behaviors among Albanian dentists, based on the Theory of Planned Behavior.

Materials and methods: A structured questionnaire was developed and administered to the Albanian dentists during the 22nd National Conference in Tirana, Albania in November 2016. The aim of the questionnaire was to collect information on: (i) dental preventive provided behaviors; (ii) dentists' attitudes and beliefs about prevention; (iii) subjective norms, and (iv) perceived behavior control. The data were analyzed by SPSS, 20.0 and descriptive statistical and multiple regression analysis were used for prediction.

Results: The questionnaire was completed by 189 participants (54 percent response rate). The constructs of attitudes, subjective norms and perceived behavior control were analyzed for scores and internal consistency. They had high and moderate value for Cronbach's Alpha, respectively 0.878, 0.745 and 0.652. Albanian dentists' attitudes, subjective norms, and intentions of preventive behaviors in their everyday practice with patients were high, with mean scores of 5.57 (1.98), 4.75 (2.22), and 6.24 (1.86), regardless of their socio-demographic characteristics. Preventing behaviors (related to diet, smoke and alcohol consumption) including "asking about" a patient and "direct intervention" were scored high too, respectively 5.00 (1.98) and 5.58 (1.66).

Conclusions: Albanian dentists were willing to integrate preventive behaviors into their everyday practice. Both, attitude and perceived behavior control were predictors of intention to improve oral health behaviors through prevention, while subjective norms were not.

P297

Anxiety and Pain – Interconnected Aspects in Dental Treatment

Georgiana Macovei, Adina Oana Armencia, Elena Luca, Monica Scutariu, Maria-Antonela Beldiman

University of Medicine and Pharmacy Grigore T. Popa, Iasi, Romania

Aim or purpose: For dentists, anxious patients are more challenging and demanding to be treated, they frequently interrupting treatment after the first signs of symptomatology improvement. Assessing the perception of anxiety and dental pain in different type of patients, before and after dental treatment, is important to search the methods for condition management of treating anxious patients.

Materials and methods: Our study included a group of 125 patients (mean aged 29.5 years) – for each patient we determined the anxiety and dental pain levels, before and after treatment, by using the Norman Corah questionnaire and McGill questionnaire – short version. Data were collected and analysed with SPSS 20.0 software.

Results: The data revealed that severe anxiety was present for 26.5% for male patients and only 6.3% ($p = 0.001$) for female patients. After the dental treatment 55.6% of patients from study group were still anxious, which shows that a good communication could be a key for the success of dental treatment, and the memory of a severe pain could be a cause for patient's stress.

Conclusions: The results of the study revealed that the level of anxiety and dental pain depends on: the moment of dental treatment, patient education level, gender and age. A first step to successful dental treatment is to identify anxious patients and elucidate the causes that give these disorders.

P298

The Number of Teeth and Oral Health Impact Profile

Ewa Rodakowska, Joanna Baginska, Jacek Jamiolkowski

Department of Restorative Dentistry, Medical University of Bialystok, Poland

Aim or purpose: The Oral Health Impact Profile (OHIP-14) is one of the most comprehensive scale assessing oral health related quality of life (OHRQoL). The aim of the study was to evaluate association between the number of teeth and the quality of life expressed by the OHIP-14.

Materials and methods: The study was approved by the Ethical Committee. 118 respondents age from 55 to 93 years old anonymously and voluntarily took part in the study, 55 men. 74 participants had 1 to 10 teeth. The number of preserved teeth and other variables including mean value of the OHIP-14 scale and its four dimensions, age, sex, education, partial dentures, chewing ability, dry mouth, self-rated oral health were evaluated.

Results: The mean age of participants was 67.9. The lower number of teeth (1–10) was significantly associated with lower education ($p = 0.012$), use of partial dentures ($p = 0.025$), chewing problems ($p = 0.015$), dry mouth ($p = 0.002$). There was no association between grouped number of teeth and OHIP-14 dimensions including functional limitation, pain and discomfort, psychological impacts, behavioural impacts. Pearson's chi-squared and Kruskal-Wallis tests were used. Statistical hypotheses were verified with 0.05 significance level.

Conclusions: Although, Oral Health Impact Profile identifies oral health problems in our study the number of teeth were strongly associated with lower education, use of partial dentures, chewing problems and dry mouth.

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Poster Session 60 | 31.08.2017, 14:30–15:30 | Poster Display 1

Theme: Public Health

P299

Modification of Hygiene Habits in Pregnant Women: Group Educational Intervention

Manuela Cristobal[1], Montserrat Díez[2], Manuela Hernandez[3], Maria Carmen Liebana[4], Raquel Ortega[5], Cristina Salinas[6]
[1]Health Unit of Jardinillos, Palencia, Spain, [2]Health Unit of Pintor Oliva, Palencia, Spain, [3]Health Unit of La Puebla, Palencia, Spain, [4]Health Unit of Eras del Bosque, Palencia, Spain, [5]Health Unit of Zona Norte, Palencia, Spain, [6]Health Unit of Nuestra Señora de la Fuencisla, Segovia, Spain

Aim or purpose: To evaluate the impact of a group educational intervention, carried out by Dental Hygienists, on pregnant women

Materials and methods: A quasi-experimental analytical study with a control group, performed in pregnant women who attend for the first time to consultation. In the first consultation, they were given a structured survey of closed answers, with data on origin, characteristics, and habits and later they were cited for a second consultation. Three consultations acted as a control group and proceeded on a regular basis and the other two carried out an intervention that consisted of group educational talk of 45 minutes duration. The O'Leary indices of the first and second consultations were compared as a performance indicator.

Results: Sixty-four pregnant women (23 cases and 41 controls) were studied in five oral health units serving a whole health area. Women were predominantly Spanish (93.75%) and aged between 18 and 41 years (median = 33.5, interquartile range = 6), with various studies and professions and mostly urban (75%). The O'Leary index has decreased more in the intervention group (mean of 15.30%) than in the control group (mean of 5.51%) and these variations are different from the statistical point of view ($p = 0.06$).

Conclusions: In our study, the role of group education was reinforced as an important tool in introducing changes in oral hygiene, surpassing the usual practice of individual counseling. It would be interesting to verify in the long term the maintenance or not of this improvement in oral health.

P300

Engaging School Communities to Improve Oral Health of Children

Parul Marwaha, Ramini Shankumar, Simon Estifo
Monash Health, Melbourne, Australia

Aim or purpose: To improve the oral health and hygiene practices of pre and primary school children to help alleviate acute and serious long term problems and to reduce hospital admissions.

Materials and methods: The partnership between community dental services and local municipal councils, comprising of multiple strategies embedded in an outreach model. The strategies incorporated professional development sessions for school staff and family education sessions for parents and children. The sessions provided information on oral health promotion and access and eligibility to dental services. Pre and primary school children received oral health screening. In addition, schools were given the opportunity to apply for a small grant to support future oral health promotion activities.

Results: 396 school staff underwent professional development training and 580 parents and 927 primary school children attended the family education sessions. 1342 3–4-year-old children and 642 10–12-year-old children were screened, with 78% assessed as requiring further treatment and provided with information to make a dental appointment. The key impacts included increased knowledge of good oral health behaviours and habits, awareness of public dental services and identification of dental caries in screened children.

Conclusions: This collaborative model empowered children, families and schools with a broader understanding of good oral health habits and its impact on overall health and wellbeing. In addition, outreach sessions increased knowledge of public dental services, linking dental services with schools and families.

P301

Web-Based Information on Tobacco Cessation for Oral Health Professionals

Angel Insua[1], Márcio Diniz[1], Rui Albuquerque[2], Ross Keat[2], Christophe Fricain[3], Luis Monteiro[4], Giovanni Lodi[5]
[1]School of Medicine and Dentistry, University of Santiago de Compostela, Santiago de Compostela, Spain, [2]Birmingham Dental Hospital/School of Dentistry, University of Birmingham, Birmingham, UK, [3]Department of Dentistry, University of Bordeaux, Bordeaux, France, [4]Instituto Universitário de Ciências da Saúde (IUCS), Oporto, Portugal, [5]Dipartimento di Scienze Biomediche Chirurgiche e Odontoiatriche University of Milan, Milan, Italy

Aim or purpose: To identify and evaluate the quality of the content of web pages with information for oral health care professionals about smoking cessation.

Materials and methods: Websites were identified using Google and Health on Net (HON) search engines using the terms "smoking cessation OR quit smoking OR stop smoking AND dentistry OR dental clinic OR dentist". The first 100 consecutive results of the 2 the search engines, were considered for the study.

Quality assessment was rated using the DISCERN questionnaire, the JAMA Benchmarks, and the Smoking Treatment Scale-Rating (STS-R). To assess legibility the Flesch-Kinkaid Reading Grade Level (FKRGL) and the Flesch Reading Ease (FRES) were used.

Results: Of the first 200 sites selected (100 of Google and 100 of HON) only 11 met the inclusion criteria, and mainly belonged to Governmental institutions (8), Professional Associations 2 and non-profit organization 1. Only 3 were exclusively related to the subject of the search. The average score obtained with the DICERN was 3.0 and the average score in the FKRGL and FRES was 12.5 and 43.9, respectively. Of the 11 websites evaluated none achieved all four JAMA benchmarks. The mean score of STS-R among all the websites was 2.74 out of 5.

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Conclusions: The number of web pages with information for oral health care professionals about smoking cessation is insufficient. Their mean quality is low and displayed a high heterogeneity. These facts, added to the difficulty of reading, might limit their usefulness.

P302

Is Deciduous Tooth Eruption Age Predictable?

Ana Carolina Soares Baptista, Maria Beatriz Santos Vilaça, Iryna Fediv, Andreia Figueiredo, Mariana Seabra
Universidade Católica Portuguesa – Instituto de Ciências da Saúde, Viseu, Portugal

Aim: To compare the erupted teeth of individuals under 3 years old with the teeth that should be present, according to two scientifically valid eruption tables (eruption table recommended by AAPD (table 1) and eruption table present in the book "Dentistry for the Child and Adolescent, McDonald and Avery's" (table 2)).
Materials and methods: Data collection was performed at a public health care institution between Oct '16 and Jan '17. The sample, being a convenience sample, includes children under 3 years old. Data was obtained through a brief observation of the oral cavity of children and through the registry of existing teeth. All information was collected anonymously and confidentially, and the participation of those involved was voluntary. A written consent was given to each parent and the study was either approved by the Ethics Committee of the proposing institution and by the public institution where data collection took place.
Results: 43 children were included, 19 boys. There was a greater correspondence between the teeth present in the oral cavity of the individuals with table 1 (72% total, 89% of girls and 58% of boys) than with table 2 (40% total, 47% of girls and 33% of boys).
For both table 1 and table 2 there is a greater correspondence with the female gender.
Conclusions: Dental eruption tables should serve as guidance but never as a mandatory requirement to be met by all individuals.
For the masculine gender, we can expect a smaller correspondence with the evaluated tables.

P303

Are Parents More Careful About Their Children Than About Themselves?

Ana Carolina Soares Baptista, Maria Beatriz Santos Vilaça, Andreia Figueiredo, Mariana Seabra
Universidade Católica Portuguesa – Instituto de Ciências da Saúde, Viseu, Portugal

Aim: To compare oral health habits between parents and their children in order to evaluate potential existing differences.
Materials and methods: Data collection was performed at a public health care institution between October 2016 and January 2017. Only children up to 6 years old and their parents were included. Information about the baby/ child and their accompanying caregiver was obtained through the application of a questionnaire. A written consent was given to each parent and the study was either approved by the Ethics Committee of the proposing institution and by the public institution where the data collection took place.
Results: Although most parents and babies/ children brush their teeth daily, parents do it more often (75.7%) than babies / children (64.0%). Most parents (55.0%) as well as most babies/ children (89.3%) use toothbrush and toothpaste to perform oral hygiene; some of the other parents use toothbrush, toothpaste and mouthwash (28.0%). Regarding the times of the day when individuals brush their teeth, parents do it more often after breakfast (59.2%) and before bed (88.3%), compared to babies/ children (49.3% and 61.4%, respectively).
Conclusions: Parents are more concerned about their own oral hygiene and teething than about their children. This action may have some consequences on deciduous dentition of children, that must be investigated.

Poster Session 61 | 31.08.2017, 14:30–15:30 | Poster Display 2

Theme: Endodontics

P304

Analysis of Debris and Smear Layer in Canals Prepared by Different NiTi Systems

Yazdan Shantiaee[1], Omid Dianat[1], Sara Zamaheni[2], Golbarg Kolahi Ahari[3], Amir Hossein Rafiei[4]
[1]Associate Professor, Endodontic Department, Dental School, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran, [2]Assistant Professor, Dental Research Center, Department of Endodontic Dental Faculty, Arak University of Medical Sciences, Arak Tehran, Islamic Republic of Iran, [3]BSc. MSc of Biochemistry, MABA of General Linguistics, Endocrinology and Metabolism Research center, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran, [4]Students' Research Committee, Gifted and Talented Dental Students Division, Dental School, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran

Aim or purpose: This study compared debris and remained smear layers on the canal walls after canal preparation with four rotary files using scanning electron microscope analysis.
Materials and methods: Forty-eight mesiobuccal canals of mandibular molars were randomly prepared by rotary single-canal systems of OneShape and F360; WaveOne system and ProTaper rotary files (12 canals in each system) and four unprepared canals considered as a control group. The amounts of debris and smear layer were assessed by three endodontists using images from the apical and middle of the canal walls by a 5-scaled measure. The data were subjected to Kruskal-Wallis test in four groups while the comparisons between the paired groups were done applying Dunn test. Data obtained from the apical and middle regions were subjected to Wilcoxon test.
Results: ProTaper produced more apical debris than OneShaped single-file ($p < 0.025$) and WaveOne reciprocating single-file ($p < 0.046$). No significant differences were found regarding the amount of the middle canal debris and smear layer in the studied

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systems. More amounts of middle canal smear layer were remained using F360 single file system comparing to WaveOne ($p < 0.055$) and OneShape ($p < 0.053$) systems. The amounts of debris and smear layer in all groups were calculated to be higher in the apical as compared to the middle root canal regions.
Conclusions: The cleaning efficacy of the single-file systems of OneShape, WaveOne and F360 systems in terms of the remaining amounts of debris and smear layer on the root canals was higher or at least the same as the ProTaper system.

P305
Treatment of Horizontal Root Fracture Using MTA: A Case Report
Oznur Tuncay, Özlem Üstün
Akdeniz University, Antalya, Turkey

Introduction: Root fracture is one of the most complicated conditions in dental practice. Many etiological factors contribute to root fracture including traumatic injuries and iatrogenic dental procedures. Iatrogenic fracture of the root can result from preparing post space and can severely compromise the prognosis of the tooth. The treatment options can vary from whole tooth extraction to saving the tooth with certain conservative approaches. This case report describes the use of MTA in the treatment of maxillary left premolar with root fracture.
Case description: A 47 years old female patient with a horizontal root fracture at the apical third of her premolar was referred to the endodontic clinic. In the first appointment, the root canal was irrigated with CHX and filled with calcium hydroxide until the symptoms disappeared. 20 days later the root was filled with MTA 4 mm above the fracture line and restored with a fiber post. 4 months later the final crown was placed.
Discussion: At the two-year recall, the tooth was free of clinical symptoms, functioned normally and had a healthy clinical appearance. Radiographic examination revealed that, the fracture line was free of radiographic signs of periapical disease when compared with prior films.
Conclusions/Clinical significance: MTA appears to provide a biocompatible and long-term effective seal for root fractures.

P306
Endodontic Treatments of Apical Resorptions due to Fixed Orthodontic Treatments
Aida Meto[1], Etleva Dobroniku[1], Lutvije Zulali[2], Dorjan Hysi[1], Michele Tepedino[3], Agron Meto[2]
[1]Restorative Dentistry Department, Faculty of Dental Medicine, University of Tirana, Tirana, Albania, [2]Endodontics Department, Medical University of Aldent, Tirana, Albania, [3]Department of Biotechnological and Applied Clinical Sciences, University of L'Aquila, Aquila, Italy

Aim or purpose: Giving a description of the apical inflammatory resorption through digital *panoramic X-rays* to patients who presented for endodontic therapy, during and after the termination of fixed orthodontic treatments.
Materials and methods: At the Therapeutic Clinic was taken into treatment 10 patients. From anamnesis, 6 patients aged 13–16 years were treated with MBT technique and 4 patients aged 23–35 years with self-legating braces. In these patients were used continuous and intermittent forces increasing the intensity of orthodontic forces. Endodontic treatments were carried out to mandibular frontal incisors, superior and inferior molars, because of the acute and chronic periodontitis.
Results: From our radiological examination for each of two groups, we noticed the light, medium and significant apical inflammatory resorptions. In the patients treated with MBT technique were observed medium and significant resorptions. Whereas, in patients treated with self-legating braces, were observed light resorptions. After endodontic treatments of acute and chronic periodontitis through calcium hydroxide/iodoform paste, resorbed craters were improved.
Conclusions: Cooperation of the orthodontist with endodontist is necessary in cases where apical inflammatory resorption occurs due to the application of high-intensity forces.

P307
Morphometric-CBCT Root-Form Analysis of Human Permanent Maxillary First Premolars
J V Karunakaran, N M Jayaprakash, S K Rahul
J.K.K. Nataraja Dental College, Kumarapalayam, Tamilnadu, India

Aim or purpose: Knowledge of number, location, and incidence of variations, especially attributable to specific population groups has clinical and anthropological significance and contributes to successful treatment outcomes. This study aims to morphometrically analyse the root-form of human maxillary first permanent premolars in **Indo-dravidian population**.
Materials and methods: Eight hundred and twenty-two permanent maxillary first premolar teeth were collected, cleaned, stored in normal saline. They were then examined and various root forms observed were analysed and number of roots recorded. They were divided into groups I, II & III based on number of roots, further subdivided (subgroups A, B, C, D, E, and F) based on morphologic features of roots. Length of crown, root, and tooth of respective groups computed physically and by conebeam tomography, compared and statistically analysed.
Results: Incidence of single root, two roots and three roots was 43.32%, 54.74%, and 1.94%. Six different root forms were observed namely Type A (30.9%), B (12.65%), C (18.73%), D (19.22%), E (16.99%) & F (1.94%). On comparison of the crown, root and tooth lengths of single, two and three rooted forms by both techniques, Overall the differences were not statistically significant ($p > 0.05$).
Conclusions: Though various root forms were observed the two-rooted form (Type C, D &E) was common. The less common varieties are also encountered clinically and operator awareness contributes to successful outcome of therapy. The conebeam technique of linear measurement was accurate found to be comparable to that of the physical technique.

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P308

Correlation Between the Apical Preparation Diameter and the Apical Sealing

Kaoutar Laslami, Radia Skalli, Imane Benkiran, Sara Dhoum
Department of Conservative Dentistry and Endodontics, School of Dentistry of Casablanca, School of Dentistry of Casablanca, Morocco

Aim or purpose: The most feared endodontic step is the shaping of the apical third which is the key element of successful endodontic treatment. Three-dimensional hermetical seal is the ultimate step after cleaning and shaping. Several studies tried to evaluate apical tightness in relation to root canal filling materials and techniques. Nevertheless, little has been published about the correlation between apical foramen diameter and apical infiltration. The purpose of this study was to compare the apical sealing capacity to the size of apical shaping in order to highlight the importance of preserving the diameter and the spatial position of the apical foramen.
Materials and methods: 50 extracted human maxillary central incisors distributed equally and randomly into three experimental groups and two control groups. Each experimental group included 15 teeth:
Group 1: prepared to apical diameter 20/100 – Group 2 (30/100) – Group 3 (50/100).
After filling of the root canals, the teeth were covered with nail polish except the positive control group, placed in Methylene blue dye solution for 48 hours then sectioned longitudinally, photographed and transmitted on a specific computer software to calculate the depth of apical dye penetration.
Results: The results showed that there was no significant difference of the penetration depth of the methylene blue solution between the 3 groups of teeth.
Conclusions: Despite this difference is not statistically significant, the most important dye penetration values were observed at group with the largest apical diameter.

Poster Session 62 | 31.08.2017, 14:30–15:30 | Poster Display 3

Theme: Pedodontics

P309

Single Median Maxillary Central Incisor: Case Report

Natalia Azanza Santa Victoria[1], Yuraima Carolina Garcia De Campaña[1], Elena Buselo Ortega[1], Patricia Celaya Azanza[2], Iratxe Fernandez Gomez[1]
[1]*Osakidetza, Osakidetza Irun Health Center, Spain,* [2]*Salud Comunidad de Madrid, Hospital Universitario Puerta de Hierro, Spain*

Introduction: The presence of a single median maxillary central incisor (SMMCI) is a rare dental anomaly that may occur alone or be associated with growth deficiency or other systemic abnormalities. Early diagnosis of SMMCI is extremely important, because it is a sign that the patient may present with other severe congenital malformations.
Case description: The case of a one year and seven months old patient with SMMCI is reported. The patient was referred by her pediatrician to the pediatric dentist. A thorough study of the clinical history revealed other interesting findings as microcephaly. On the other hand, patient's parents had travelled to an area in Brasil with risk of Zika virus transmission one month before pregnancy.
Discussion: The best-known association of SMMCI is with holoprosencephaly (HPE). HPE is a complex brain malformation that affects both the forebrain and the face. Early diagnosis of SMMCI is important, since it may be a sign of other severe congenital or developmental abnormalities.
Conclusions/Clinical significance: Pediatric dentists must acknowledge SMMCI and not having to consider it a simple dental anomaly since there is the possibility of this syndrome to be associated with other problems of development. Systematic follow-up and close monitoring and growth development of SMMCI patients is crucial.

P310

Intrusion of Permanent Incisors with Alveolar Fracture: A Case Report

Gülsüm Duruk[1], Raziye Kuru[1], Ümit Yolcu[2]
[1]*İnönü University Faculty of Dentistry, Department of Paedodontics, Malatya, Turkey,* [2]*İnönü University Faculty of Dentistry, Department of Oral and Maxillofacial Surgery, Malatya, Turkey*

Introduction: Intrusion is one of the most traumatic injuries which is an axial displacement of the tooth toward the alveolar bone. The displacement of a tooth within its socket implies extensive and acute involvement of the periodontal ligament, bone damage and rupture of neurovascular bundle.
Case description: A 9-year-old child who had a traffic accident applied to the clinic 18 hours later with deviated nasal septum (DNS). Also, complicated crown fracture of 21 was observed. The diagnosis was confirmed with panoramic and periapical radiographies. The emergency treatment consisted of the surgical extraction, reimplantation, replacing the buccal bone plate, and splinting with wire composite. DNS was eliminated after the alveolar bone reposition. Postoperative instructions were given to the patient. After 2 weeks, endodontic treatment was applied to immature permanent incisors with calcium hydroxide. The splint was removed after 4 weeks. When a partial regression of the periapical radiolucent lesion was seen, apexification treatment was completed with MTA. The patient was followed with revisions at 6–8 weeks and 6 months.
Discussion: The treatment strategy will depend on the development stage of the root apex, the severity of intrusion, the presence of alveolar fractures, multiple intrusions and should be focused on the elimination of post-injury complications.
Conclusions/Clinical significance: Preserving the dental health, satisfying both the aesthetic and functional wishes of the patient is possible with a comprehensive treatment plan.

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P311

Management of a Complex Odontoma in Mixed Dentition

Arzu Sukran Incioglu, Elshan Muradov, Alev Alacam
Gazi University Faculty of Dentistry, Ankara, Turkey

Introduction: Odontomas are nonaggressive, hamartomatous developmental malformations composed of mature tooth substances. They are classified in 2 categories: compounds or complexes. The compound odontoma forms multiple irregular toothlike structures, whereas the complex odontoma forms amorphous calcification, with dysplastic dentin covered by enamel. Both compound and complex odontomas mostly occur as solitary lesions in the jaw.
Case description: A 8-year-old type 1 diabetes diagnosed girl was referred to the pediatric dentistry clinic for routine dental examination. The intraoral examination revealed arrested primary teeth carious lesions with moderate oral hygiene. There is a slight palpable expansion observed in right mandibula. In the radiographic examination a typical cluster-like appearance of small denticles in the right mandibula, suggesting a complex odontoma was detected. Also, the existence of a radiopaque mass located by the root of the primary right canine and permanent canine germ was confirmed with CBCT. To prevent further complications, surgical removal of the odontoma was planned. Extraction of the primary canine and permanent canine germ, with odontoma was carried-out under general anesthesia. Histopathological examination confirmed diagnosis of a complex odontoma. The patient has been kept under follow-up since 18 months.
Discussion: As with the present case, the asymptomatic nature of odontomas may complicate their detection in most patients. Thus, in addition to clinical examinations, routine radiologic evaluations of pediatric patients are significantly important for early diagnosis of odontomas and similar hard tissue lesions.
Conclusions/Clinical significance: Early diagnosis and proper treatment ensure a healthy jaw development.

P312

Sleep Bruxism, Malocclusions, Orofacial Dysfunctions in Children with ADHD

Aysun Avsar[1], Ebru Hazar Bodrumlu[2], Sevcan Yilmaz[1]
[1]*Department of Pediatric Dentistry, Faculty of Dentistry, Ondokuz Mayis University, Samsun, Turkey,* [2]*Department of Pediatric Dentistry, Faculty of Dentistry, Bulent Ecevit University, Zonguldak, Turkey*

Aim or purpose: To investigate the association between sleep bruxism, malocclusions and orofacial dysfunctions in children with attention deficit hyperactivity disorder (ADHD).
Materials and methods: Sixty ADHD children a mean age of 8.02 years and 60 healthy age-matched controls were included in this study. Each psychiatric diagnosis was based on criteria from the Diagnostic and Statistical Manual of Mental Disorders (4th edn, Washington, DC: American Psychiatric Association, 1994). Family income and parental education levels were recorded by questionnaire. Sleep bruxism diagnosis was confirmed by parental report of grinding sounds. The presence of shiny and polish facets on teeth were recorded. The index of orthodontic treatment need-dental health component (IOTN-DHC) was used for occlusion evaluation. Orofacial dysfunctions were evaluated using the nordic orofacial test-screening (NOT-S).
Results: There were no significant differences in family income and parental education levels. Sleep bruxism was more prevalent in children with ADHD ($p < 0.05$). (IOTN-DHC) and (NOT-S score of ADHD children had higher than controls ($p < 0.05$).
Conclusions: ADHD children are at increased risk of sleep bruxism, malocclusions and orofacial dysfunctions compared with healthy children.

P313

Treatment of Complicated Crown Fracture in Immature Permanent Central Tooth: A Case Report

Yasemin Sari, Tamer Tüzüner, Özgül Baygin
Karadeniz Technical University, Faculty of Dentistry, Department of Pediatric Dentistry, Trabzon, Turkey

Introduction: Anterior tooth fracture related trauma is a common type of dental injury and its treatment is an important issue in pediatric dentistry.
Case description: 8-year-old healthy female patient was admitted to pediatric department after 24 hours by the reason of a dental trauma. Clinical and radiographic examinations revealed that immature maxillary permanent right central tooth had complicated crown fracture through the subgingival region and there was no root fracture and/or luxation. Therefore, root canal treatment was started and calcium hydroxide dressing was used on this tooth. Subsequently, the apical part of the tooth was plugged with mineral trioxide aggregate (MTA) at second visit. Thereafter, the fiber post was placed and composite restoration was completed at third visit. After 6 months, horizontal root fracture also occurred due to repeated trauma on the tooth but it was found asymptomatic in a routine follow-up. During the 12-month follow-up, no luxation was obtained and also the tooth was asymptomatic.
Discussion: Mineral trioxide aggregate is a biocompatible material that has demonstrated beneficial healing in teeth with open apices. However, MTA and fiber post systems are rigit materials and they can increase the risk of root fracture in repeated trauma. There is no luxation with this tooth which is asymptomatic even after 6 months of repeated trauma and 12 months clinical and radiographic findings were found acceptable.
Conclusions/Clinical significance: It can be concluded that the fiber post systems could be considered as a risk factor in repeated dental trauma episodes of open apices teeth.

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Poster Session 63 | 31.08.2017, 14:30–15:30 | Poster Display 4

Theme: Materials

P314

Anti-Inflammatory Effect of Propolis in Human Dental Pulp Cells

Minkyoung Cheon, Jaehwan Kim, Hyuntae Jeong, Seonmi Kim, Namki Choi

Department of Pediatric Dentistry, College of Dentistry, Chonnam National University, Gwang-ju, Republic of Korea

Aim or purpose: Propolis has been widely used as a traditional medicine for broad purposes including infection and inflammation control and recently used as an alternative pulp treatment material. The purpose of this study was to investigate the effects of propolis on anti-inflammation in human dental pulp cells (HDPCs) treated with lipopolysaccharide (LPS).

Materials and methods: HDPCs were isolated from extracted teeth for orthodontic purposes. Cell viability was measured using a MTT assay. Gene expression of inflammatory cytokines and adhesion molecules on the HDPCs cultured with or without LPS and propolis were evaluated by reverse transcription polymerase chain reaction and Western blot analysis.

Results: Treatment with propolis significantly attenuated the LPS-stimulated expression of interleukin (IL)-1β and IL-8 in HDPCs. In addition, propolis inhibited the up-regulation of vascular cell adhesion molecule-1 (VCAM-1) and the production of intracellular adhesion molecule-1 (ICAM-1) in HDPCs exposed to LPS.

Conclusions: These finding suggest that propolis has effects associated with inhibition of inflammation in HDPCs exposed to LPS.

P315

In Vitro Spectrophotometry of Tooth Discoloration Induced by MTA-Based Materials

Namki Choi, Jaehwan Kim, Hyuntae Jeong

Department of Pediatric Dentistry, College of Dentistry, Chonnam National University, Gwang-ju, Korea

Aim or purpose: Mineral trioxide aggregate (MTA) materials have been used for many years as a pulp therapy material. The most widely used product, Proroot wMTA®, has a major drawback that it causes tooth discoloration. Alternatives have recently been developed such as Biodentine®, Endocem® and RetroMTA®. This study assessed discoloration of crown when these various MTA-based materials.

Materials and methods: Seventy-five single-rooted, premolar teeth extracted for orthodontic reasons were selected. The teeth were randomly assigned to four experimental groups and one negative control groups ($n = 15$). Teeth were sectioned 2 mm below the cemento-enamel junction (CEJ). Each material was placed into the pulp chamber. Color measurements utilize the CIE L*a*b*system. The color was assessed using spectrophotometer: initial, 1 day, 1, 2, 4, 8, 12, 16 weeks after the placement. Statistical analysis was performed using the 2-way repeated analysis of variance and Bonferroni's method with $p < 0.05$.

Results: Proroot wMTA® induced significant decreases in L*values. The total color change exceeded the perceptible threshold for the human eye ($3.7 \leq \Delta E^*$) after 16 weeks. The Endocem® group showed the largest ΔE* value after 1 day. However, the constant ΔE*change was observed during remaining 16 weeks. The Biodentine® and RetroMTA® showed color stability ($p > 0.05$).

Conclusions: The application of Proroot wMTA® induced a decrease in lightness in teeth. The Endocem® group showed the largest discoloration after the 1 day but, the constant ΔE*change showed for the rest of the period. Less discoloration was observed with Biodentine® and RetroMTA® than with Proroot wMTA®.

P316

Efficacy of Alkaline Endodontic Irrigates on *Enterococcus faecalis* Biofilm

Takenori Sato[1], Jiro Suzuki[2], Ryuji Fujimaki[2], Nobuyuki Tani-Ishii[2], Seiji Goda[1], Nobushiro Hamada[1]

[1]Department of Oral Science, Kanagawa Dental University, Yokosuka, Kanagawa, Japan, [2]Department of Pulp Biology and Endodontics, Kanagawa Dental University, Yokosuka, Kanagawa, Japan

Aim or purpose: We developed a new alkaline EDTA solution and evaluated *E. faecalis* biofilm removal. In endodontic treatment, ethylenediaminetetraacetic acid (EDTA) is used for the removal of the smear layer, which can protect the surface of bacterial biofilm. However, the efficacy of EDTA concentration on bacterial biofilm has not been clarified.

Materials and methods: *Enterococcus faecalis* ATCC 19443 were cultivated on sterilized coverslips under anaerobic conditions and were used as a biofilm. To evaluate the biofilm removal of 3% alkaline EDTA solution (0.09 mol/l EDTA, pH 12.3), the coverslips on bacterial biofilm were placed into 3% alkaline EDTA solution for 5 minutes. Following the chemical treatment, the coverslips were stained with 1% crystal violet (CV) for 10 seconds at room temperature. The biofilm removal ability of alkaline EDTA solution was measured through the absorbance of the CV-stained solution containing the removed biofilm at 550 nm. Sterilized phosphate buffered saline (PBS) was used as a control. The bactericidal effect of the alkaline EDTA solution was evaluated by *E. faecalis* bacterial count for 0 to 5 minutes. Data was analyzed by using a one-way analysis of variance and Tukey's test.

Results: The percentage of biofilm removal by the 3% alkaline EDTA solution was 73.2%, which was 4.0-fold greater than that by PBS. The alkaline EDTA solution was also significantly decreased *E. faecalis* cells and biofilm in a time-dependent manner ($p < 0.01$).

Conclusions: These results suggest that the 3% alkaline EDTA solution is a useful endodontic irrigate.

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P317

Comparing of Micro-Tensile Bond Strength in Dentin According to the Dispensing time in Clinical Situations with Undergraduate Students in Riyadh Colleges

Almothanna Alkahtani, Abdullah Al-Azzam, Omar Al-Turki
RCDP, Riyadh, Saudi Arabia

Aim or purpose: Compare the micro-tensile bond strength of bonding agent (5th generation) to dentin according to time elapsed from opening to application.
Materials and methods: In vitro study, 214 specimens of freshly extracted molar teeth of similar dimensions without any physical deficiency stored in normal saline. Three bonding bottles of bonding were used on teeth that were prepared at a uniform depth of 2 mm in dentin according to manufacturer's instructions.

Group 1: Used bonding agent bottle, bonding dispensed in the proper container and applied on teeth within 5–7 minutes after dispensing.
Group 2: Opened bonding agent bottle, bonding applied immediately from an inventory
Group 3: Stock fresh bonding agent bottle, bonding applied immediately.
Teeth prepared for micro-tensile testing by cross sectioned with dimension of 3 mm by 3 mm in dentin. Bond strength measured using a Vitrodyne V-1000 universal tester.
Results: Significant difference was observed among the three different groups (<0.001) with the highest mean value of micro-tensile bond strength for the group of stoke bonding bottles (38.031Mpa), followed by opened bonding bottles (30.138Mpa) and group which was applied within 5–7 minutes. after dispensing (16.904 Mpa).
Conclusions: The result of this research emphasis the fresh bonding agent which was applied immediately after dispensing to dentine obtained higher micro-tensile bond strength values than the other two groups of bonding that were applied after spending different times since opening of bonding bottle to bonding application.

P318

Investigation of Antibacterial Effect of Different Permanent and Temporary Cements

Zeynep Yesil Duymus, Tugay Sısı
Recep Tayyip Erdoğan University, RIZE, Turkey

Aim or purpose: The aim of the study, the antibacterial effect of different permanent and provisional dental luting cements were investigated in vitro against four different microorganisms.
Materials and methods: In our study, a total of five cements were used: Zinc Carboxylate (Adhesor), glass ionomer (Meron) and self-adhesive resin (Panavia SA) cements as permanent cements and eugenol containing (Provicol) and eugenol free (Cavex) cements as temporary cements. Four standard types of bacteria were used to assess antibacterial activity of cements: St. mutans, S. sangius, S. salivarius, Lactobacillus casei. For each cement five sample was prepared by a single researcher with aseptic conditions and according to the manufacturer's recommendations, with the help of fiberglass molds to be 2 × 5 mm in size. Freshly prepared cement samples were placed on a Brain-Heart infusion medium and left at 37 °C for 24, 48, 72 hours of incubation. It was observed that microorganism growth was prevented after the incubation period. Multi-way analysis of variance (ANOVA) and Tukey HSD tests were applied to the obtained values. The statistical meaningful level was accepted as $p < 0.01$.
Results: It has been observed that different dental cements used in the study have antibacterial effects against St. mutans, S. sangius, S. salivarius and l. casei. zinc carboxylate cement was found to have the highest antibacterial effect. The other cements have a similar antibacterial effect.
Conclusions: Clinically, antibacterial effects of dental cements reduce the bacterial problems that can occur in the underlying teeth.

Poster Session 64 | 31.08.2017, 15:45–16:45 | Poster Display 1

Theme: Materials

P319

Nanocomposite Material Particles Toxic Effects on Human Lung Carcinoma Cell Culture Study

Gulshat Saleeva[1], Albina Gimaletdinova[1], Liaisan Saleeva[1], Rustem Islamov[1], Rinat Saleev[1], Ravil Fakhrullin[2]
[1]*Kazan State Medical University, Kazan, Russian Federation,*
[2]*Kazan Federal University, Kazan, Russian Federation*

Aim or purpose: To study the cytotoxicity of particles of a nanocomposite filling material used for direct restorations in dentistry in vitro.
Materials and methods: The sterile suspension of the test particles (1.25 mg/ml^{-1}) in 0.15 M NaCl was mixed with the culture of human lung carcinoma cells A549 (5 × 105 ml^{-1}). After incubation for 3 minutes, the cells were centrifuged to remove excess nanocomposite particles. The cells were microscopized using an darkfield microscope with a CytoViva condenser. The growth rate and the character of the formation of the monolayer were observed during the cultivation of the cells treated with the test substance and intact cells using an inverted microscope. A cytometer was used to count the cells. The hydrodynamic diameter of the particles of the test substance and the zeta-potential were determined using a Malvern Zetasizer Nano ZS analyzer. The cytotoxicity of the test substance was determined using an MTT test and a neutral red test.
Results: Linear dependence of nanocomposite particles' action on survival and functional activity of the cells was shown. The crucial concentration of cytotoxicity should be considered as 0.313 mg/ml. At 0.156 mg/ml or below this concentration the tested substance had no toxic effect on A549 cells.
Conclusions: Considering the possible negative effect of nanocomposite particles released during the material abrasion on cells we suggest limiting application of the studied nanocomposite material on the surfaces subjected to intensive mechanical impact leading to high abrasion.

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P320

Evaluation of Restoration Interface Microleakage of Experimental Graphene Oxide Composites

Codruta Sarosi[1], Marcela Corina Rosu[2], Cristina Gasparik[3], Cristina Prejmerean[1], Doina Prodan[1], Laura Silaghi-Dumitrescu[1], Marioara Moldovan[1]

[1]Department of Polymer Composites, Babes Bolyai University, Cluj-Napoca, Romania, [2]National Institute for Research and Development of Isotopic and Molecular Technologies, Cluj-Napoca, Romania, [3]Faculty of Dental Medicine, University of Medicine and Pharmacy "Iuliu Haţieganu", Cluj-Napoca, Romania

Aim or purpose: The aim of this study was to investigate the interface and marginal microleakage at enamel and cement of two experimental composites with graphene oxide and one commercial composite Amelogen Plus, as reference material.

Materials and methods: Thirty human extracted premolars were assigned to 3 groups (n = 10). Class II cavities were prepared (4-mm wide, 2-mm axially, with the gingival margin located 1 mm beyond the cementum-enamel-junction) and the teeth were restored with different resin composites: Group 1 – experimental composites with graphene oxide and ZrO_2 (GZ2) and an experimental self-etch adhesive with graphene oxide (A1); Group 2 – experimental composites with graphene oxide and SiO_2 (GS4) and self-etch adhesive A1 and Group 3 – commercial composite Amelogen Plus (Ultradent) and an commercial self-etch adhesive All-Bond, Bisco. The teeth were immersed in a 3% methylene blue dye solution for 24 h and the after were evaluated with a stereomicroscope Zeiss Stemi 2000-C (Zeiss, Germany). The interface (dentine/enamel/composite) were analyzed with SEM (Inspect S, FEI).

Results: The results highlight a score 0 – lack marginal microleakage, for teeth restored with commercial composite Amelogen Plus and experimental composite GZ2. SEM images for tooth restored with GZ2 present a continuous and uniform adhesive layer and A1 is infiltrated in dentin tubules.

Conclusions: All adhesive systems exhibited dye penetration at both occlusal and gingival margins. The results obtained for restorations with experimental composites GZ2 and adhesive (A1) was comparable with commercial materials.

Acknowledgements: This work was funded by National projects 101PED/2017 and 230/2014.

P321

Morphological and Microhardness Properties for Dental Composites

Marioara Moldovan[1], Doina Prodan[1], Cristina Prejmerean[1], Laura Rusu[2], Laura Silaghi-Dumitrescu[1], Codruta Sarosi[1], Miuta Filip[1]

[1]Babes Bolyai University, Cluj Napoca (Raluca Ripan Chemistry Research Institute, Department of Polymer Composites), Romania, [2]University of Medicine and Pharmacy "Iuliu Haţieganu", Cluj Napoca (Faculty of Dental Medicine), Romania

Aim or purpose: The purpose of this study was to evaluate the biodegradation effect and microhardness of six dental composites

Materials and methods: Specimens were obtained from three commercial dental composites (Charisma®, G- aenial®, Enamel®) and three experimental composites (PM®, P14M®, P2S®). Biodegradation effects were carried out using FTIR spectroscopy (JASCO) and SEM (FEI Company). These tests were repeated on specimens stored in artificial saliva and water, for 30 days. The hardness was quantified using Vickers (Neophot 21) hardness test.

Results: SEM images shows the compact structure, filler particles are well incorporated into the organic matrix and provides composites hardness. Most of the fractures at the surface of the composites were observed at the samples immersed in distilled water. After 30 days of storage in water, followed by drying, it was observed at the IR spectra the low level of the corresponding vibration band Si-O-Si for composites Enamel®, G-aenial® and for experimental composites in artificial saliva. The minor changes of the commercial composite materials in artificial saliva was observed. Microhardness of the composites is around 85 and 62 HV; experimental composite PM® presents higher hardness values than commercial composites Enamal® and G-aenial®. Data were analyzed using ANOVA test, p value ≤ 0.05.

Conclusions: Storage in artificial saliva and water determined the degradation in time for all dental composites tested. The analysis showed a statistically significant difference of the hardness means recorded for different tested materials.

Acknowledgments: This work was funded by National Project PNII no: 127/2014.

P322

Potential of Natural Gutta Percha as Root Canal Filling Material

Annisa Tauziri[1], Kosterman Usri[2], Opik Taofik Hidayat[3]

[1]Faculty of Dentistry, Universitas Padjadjaran, Bandung, Indonesia, [2]Dental Material Department, Faculty of Dentistry, Universitas Padjadjaran, Bandung, Indonesia, [3]Conservative Dentistry Department, Faculty of Dentistry, Universitas Padjadjaran, Bandung, Indonesia

Background: Getah perca, known as gutta percha, is the most widely used material for root canal filling. Indonesia has big potential to produce dental gutta percha, as it is one of biggest country that has conduction of natural gutta percha at PT. Perkebunann Nusantara VIII Cipetir-Jawa Barat. Chemical and thermal properties are very important to be found out before making natural gutta percha as the root canal filling material. The advantage of this study is to simplify the production and manipulation process.

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Aim or purpose: This study purposed to know the potential of natural gutta percha as root canal filling material in dentistry.
Materials and methods: The method is experimental study that studies the potency of natural gutta percha using thermogravimetric (TGA), Differential Scanning Calorimetry (DSC), and Fourier Transform Infrared Spectrometry (FTIR) characterization. Each sample was made 20 mg and characterized using TGA, DSC, and FTIR.
Results: The TGA and DSC result mass decomposition that degraded at temperature 200 °C and show β phase thermal property. The IR results the presence of 1,3-trans-poly-isoprene, resin, and inorganic compound.
Conclusions: The conclusion of this study showed natural gutta percha has potential as root canal filling material in dentistry.

P323
The Importance of β-Tricalcium Phosphate Porosity on Bone Response
Iria Gasamáns[1], Mónica G. Boado[1], Francisco Guitián[1], Arturo Martínez[2]
[1]*Instituto de Cerámica de Galicia (ICG), Universidade de Santiago de Compostela (USC), Spain,* [2]*Instituto de Cerámica de Galicia (ICG), Facultade de Medicina e Odontoloxía, Universidade de Santiago de Compostela (USC), Spain*

Aim or purpose: The aim of this study was to compare bone response when scaffolds of β-tricalcium phosphate (β-TCP) with different porosities and microstructures are employed.
Materials and methods: Three New Zealand rabbits were employed. Four round defects 7 mm in diameter were performed in the cranial vault, removing both cortical walls. One defect was filled with β-TCP dense granulate (0.25–1 mm, 0.61% porosity, surface area of 0.01 m^3/g). Another defect was filled with β-TCP porous granulate (0.25–1 mm, 23.36% porosity, surface area of 0.28 m^3/g). The remaining two defects were not filled (control group). The whole defect set was covered with a collagen membrane. Histological and morphometric analysis were performed at 16 weeks using ImageJ and SPSS 20.1 softwares.
Results: Bone ingrowth was higher in the porous group (56.42%), being statistically different to the control group (44.5%) ($p = 0.05$). Difference in new bone formation between dense and porous groups was very significant ($p = 0.01$). There were not statistically significant differences in bone ingrowth comparing control and dense groups (40.54%). However, the dense group had the lowest bone growth ratio (40.54%).
Differences in remaining material at 16 weeks did not show significance between porous (10.19%) and dense (10.78%) groups.
None of the β-TCP forms used presented inflammatory or encapsulation reactions, allowing direct bone apposition.
Conclusions: Porosity and microstructure of the scaffold's surface employed as bone graft substitute are important to promote an earlier and faster response. The reabsorption of β-TCP granulate does not seem to be so influenced by these surface characteristics.

Poster Session 65 | 31.08.2017, 15:45–16:45 | Poster Display 2

Theme: Public Health

P324
Dental Anxiety
Muhammad Daud Ghous, Syed Muhammad Nabeel Asghar
Lahore Medical and Dental College, Lahore, Pakistan

Aim or purpose: To investigate extent of dental anxiety in male and female population of Pakistan. In the study, a questionnaire was designed to analyze if people were anxious while going to the dentist or not and who is more phobic of males and females.
Materials and methods: A study was conducted in Lahore Medical and Dental College and Punjab University. The participants were chosen at random. The sample size consisted of 100 students with an age-range of 16–21 years. The participants were divided into two basic male and female categories. The survey was conducted using "Norman Corah's Dental Anxiety Scale". The questionnaire included 9 questions.
Results: Of the 100 participants in this study, 43% were girls and 57% were boys. The scores were divided into 4 sets each representative of the severity of how anxious the participants were.
Females were found to be more anxious in the highly and severely anxious sets with 40% being highly and 27.9% being severely anxious, whereas small proportion of males 21% and 4.6% were found to be highly and severely anxious respectively.
Conclusions: This study concluded 17% participants had no anxiety and 83% suffered with anxiety from being moderate to severe with 14% participants being highly anxious. Females were found to be more phobic.
Keywords: anxiety, dental anxiety, students.

P325
Factors Affecting Access to Dental Care
Muhammad Mohsin Kamal[1], Dr. Ayyaz Ali Khan[2]
[1]*Fatima Memorial College of Medicine and Dentistry, Lahore, Pakistan,* [2]*Sheikh Zayed Hospital, Lahore, Pakistan*

Aim or Purpose: The present study was conducted to assess the factors affecting access to dental care in people entitled to free treatment.
Materials and methods: A cross sectional survey of 125 households of residential colony of sheikh Zayed hospital was carried out. The targeted respondents were selected on the basis of entitlement to free treatment in the hospital and living in the boundary of the complex. Out of 125, males were 30% and 70% were females. Among the respondents 31% were in the age group of 18–34, 33% were in 35–44 and 36% were 45 years and above. Approval of the study was obtained from institutional review board of the Sheikh Zayed hospital.
Results: Overall 36% people went for routine treatment, 20% went for emergency treatment and 44% did not seek any type of treatment. In the bivariate analysis factors like monthly income, preferred type of treatment in case of dental problem, time since last dental visit, having treatment from a private dentist, reason of

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visiting the dentist, work overload during the day and dental anxiety were found to be effecting access to dental care. In the logistic regression model monthly income, personal dentist, day work overload and availability of dentist after 2 pm were found to be significant.

Conclusion: The findings of this study highlight the complicated relationship between socio-demographics, knowledge attitude practices of people, some other intervening factors and access to dental care.

P326

Oral Health Program for the Pygmy Baka Population of Cameroon

Natalia Moraga Miranda[1], Hissein Amazia[2], Trinita Yano Inrombe[3], William Ndjidda Bakari[3], Nicias Afoumpan Poni[4], Paola Garih Vidal[3], Alicia Masa Otero[3], David Gonzalez Alarcon[5]

[1]Assistant Professor of Endodontics, University of Viña del Mar. Republic of Chile. Coordinator of the Public Oral Health Program of Zerca y Lejos NGO, Latin America Area, Universidad Viña del Mar, Chile, [2]Responsible of the Public Oral Health Program of Zerca y Lejos NGO, Yaounde Zerca y Lejos, Cameroon, [3]Coordinator of the Public Oral Health Program of Zerca y Lejos NGO, Yaounde, Cameroon, [4]Member of the Public Oral Health Program of Zerca y Lejos NGO, Yaounde Zerca y Lejos, Cameroon, [5]Director of the Mindja Paul Oral Health and Emancipation Research Centre, Yaounde Zerca y Lejos, Cameroon

Aim or purpose: Cameroon is a third world country that counts among its inhabitants Baka pygmy populations. They are indigenous peoples who live under a constant ethnical discrimination and who benefit very little from the educational and health systems of the country. This situation makes them very vulnerable and does not allow them to enjoy their political rights that are legitimate.

The objective of the project is to improve the oral health of the "bakas" and to provide to them the means and knowledges necessary to control this health.

Materials and methods: We reviewed the state of oral health policies at the central and peripheral levels.

Creation in 2007 of the Odontological Center Garcia Camba.

Continuous training of voluntary personnel in preventive odontology and primary care.

Continuous training of Bakas staff on techniques for sensitization and prevention of oral pathologies, and basic protocols for clinical attention in rural areas.

Continuous training of Bakas personnel in basic removable prostheses.

Results: From 2007 to 2016:

- Installation of 669 prosthesis.
- Restoration index of 63%.
- Emergency treatments of extraction and drainage of abscesses in 7331 cases.
- Detection and surgical resolution of 2 cases with NOMA and 6 cases with oral cancer.
- Treatment of 68 cases with oral lesions associated with HIV.
- Applications of 3,980 sealants in 1,100 children and 35,160 fluoride gel applications in 3,516 children.

Conclusions: We must continue the different training of personnel and strengthen the capacity of the institutions to be able to maintain the effects of the project over time.

P327

Oral Health Knowledge Among Health Visitors in the United Kingdom

Ozkem Azmi Oge[1], Gail Douglas[2], Diane Seymour[3], Cheryll Adams[4], Julia Csikar[5]

[1]Near East University Faculty of Dentistry, Nicosia, Cyprus, [2]University of Leeds School of Dentistry, Leeds, UK, [3]Dental Public Health Department – Public Health England, Leeds, UK, [4]Institute of Health Visiting, Leeds, UK, [5]School of Dentistry University of Leeds + Dental Public Health Department – Public Health England, Leeds, UK

Aim or purpose: To assess health visitors' oral health knowledge, attitudes and practices to support the development of a healthy child in the UK.

Materials and methods: A quantitative web-based self-administered survey was distributed to all members of the 'Institute of Health Visiting (IHV)' currently employed in the UK. Data was analysed using statistical package for social sciences (SPSS) for descriptive and multivariate analysis.

Results: A response of 1088 was achieved from a database of 9000. Two-thirds of the health visitors reported that they had received oral health training previously and 99.8% agreed that oral health advice/promotion should be included in their routine health visiting contact points. Forty-eight percent of participants did not know that the first dental visit for a child should be under 1 year of age. Twenty-two percent did not know that fluoride is an effective way of preventing dental caries. Overall, 22.4% of the total respondents answered all oral health knowledge related questions correctly. Training in oral health is associated with an increase in knowledge of appropriate and correct information about oral health ($p < 0.0001$) with confidence in entering a discussion with parents/caregivers ($p < 0.0001$) and involving in dental referral process ($p < 0.013$).

Conclusions: This study demonstrates that health visitors would benefit from more oral health training. This is to ensure that a child's oral health can be assessed and appropriate evidence based guidance given to prevent the development of dental caries.

P328

Open Bite – How Can Pacifier Use Influence Its Dimensions?

Maria Beatriz Santos Vilaça[1], Ana Carolina Soares Baptista[1], Andreia Figueiredo[1], Mariana Seabra[2]

[1]Universidade Católica Portuguesa – Instituto de Ciências da Saúde, Viseu, Portugal, [2]Universidade Católica de Viseu – Instituto de Ciências da Saúde, Viseu, Portugal

Aim: Compare open bite characteristics with the pacifiers' dimensions (screen thickness, height and teat width) used by a sample of 10 children with age between 2 and 5 years old.

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Materials and methods: Data collection was done at a public facility between Oct' 16 and Jan' 17. Only children between 2 and 5 years with open bite and pacifier were admitted. A record sheet was used, in which the characteristics and pacifiers' dimensions were measured with a thickness gauge.
Intraoral photographic registry was performed with pediatric retractors.
Open bite measurements were performed using the first cusp contact on the right side and on the left side, defining its width. In order to delimit its height, the distance between incisal edges was considered.
A written consent was given to each parent and the study was approved either by the Ethics Committee of proposing institution and by the public institution where the data collection took place.
Results: The minimum value of open bite dimensions (width – 15 mm and height – 0.3 mm) is verified when using the size 1 pacifier (0–6 months), with the smaller nipple width (15.5 mm).
The pacifiers' teat width is directly proportional to the size of the open bite height in all cases studied.
Conclusion: This study suggests that there is a correlation between the width of the pacifiers' teat and the height of the open bite presented by the child. Therefore, it's understood that the use of smaller teats may prove to be beneficial in preventing the malocclusion in question.

Poster Session 66 | 31.08.2017, 15:45–17:00 | Poster Display 3

Theme: Pedodontics

P329
Management of Subluxed Immature Permanent Incisor Teeth: Three Case Reports
Semanur Özüdoğru, Gül Tosun, Firdevs Kahvecioğlu, Murat Selim Botsalı
Selçuk University, Konya, Turkey

Aim: This case report was aimed to present management of subluxed permanent incisors teeth.
Case: Case I and II: A 8-year-old male and a 8-year-old female patients presented with trauma to the permanent maxillary central incisors. Upon clinical and radiographic examination, they had open apex and subluxation injury. There was sensitivity to percussion, severe horizontal mobility and bleeding from the gingival sulcus. Under local anesthesia a semirigid splint was accomplished by using twistwire, acid etching, bonding agent and resin composite to labial surfaces of teeth for 2 weeks. Twelve months after treatment central incisors' root development appeared to continue and dentinal wall thickening was noted and maintained their pulp vitality. After 12 months, clinic and radiographic examinations showed satisfactory esthetic and functional outcome.
Case III: A 8-year-old male patient referred to our clinic as a result of traumatic injury. Occlusal and periapical radiographs were taken. During the intraoral examination, it was seen that the mandibulary central incisors were subluxed. Treatment and symptoms were similar to case I and II. Ten months after treatment root development appeared to continue and maintained their pulp vitality. Both of these teeth were asymptomatic and no resorption was observed on the root surfaces in radiographic assessment.
Conclusion: The correct treatment approach is very important for root development and pulp vitality in the evaluation of the subluxed teeth.

P330
Revascularization of Immature Incisors After Dental Injuries: Case Report
Taibe Tokgöz[1], Ela Öner[2], Murat Selim Botsali[1]
[1]Selcuk University, Konya, Turkey, [2]Dt., Ankara, Turkey

Introduction: Immature permanent teeth damaged by caries or trauma can present a challenge to dentistry. Recently a biologically based treatment called regenerative endodontic treatment was introduced. The purpose of this report was to present a case of pulp revascularization in immature, traumatized and necrotic permanent teeth.
Case: In this case report an 8-year-old female presented with dental trauma to the permanent maxillary central incisors. Upon clinical and radiographic examination, the left central incisor had open apex and complex crown fracture. Right central incisor had open apex and uncomplicated crown fracture. The right central incisor restorated with resin composite. The left central incisor was treated via a revascularization protocol. Irrigation with 2.5% sodium hypochlorite was done. Triple antibiotic paste was placed in dried root canals for further disinfection and the access cavity was sealed with temporary restorative material for three weeks. At recall appointment, the root canal was irrigated with 17% EDTA and L-PRP was used as scaffold and placed in dried root canal. The coronal third was sealed with MTA and the tooth restorated with resin composite and strip crown. Also, the maxillary left central incisor which displaced to palatinal side was treated with an acrylic plate incorporating a labiolingual spring approximately three weeks. Patient was recalled for evaluation after 3, 6 and 18 months of placement of scaffold. Eighteen months after treatment left incisor's root development appeared to continue and dentinal wall thickening was noted.
Conclusion: Revascularization is a biologically based, more effective and conservative approach over apexification for necrotic immature permanent teeth. On the other hand, further and long-term clinical researches are required.

P331
Dental Findings in Morquio Syndrome (Mucopolisaccharidoses type IVa): Case Report
Semanur Özüdoğru, Gül Tosun, Firdevs Kahvecioğlu
Selçuk University, Konya, Turkey

Introduction: Morquio Syndrome is a rare skeletal dysplasia with an autosomal recessive trait inheritance that has characterized with disorder of mucopolysaccharide metabolism. The deficiency of N-acetylgalactosamine-6-sulfate sulphatase cause Type A form, and beta galactosidase deficiency cause Type B form. Dental defects are rarely seen in association with the syndrome. The purpose of this report was presentation of the dental treatment of the patient with Morquio syndrome (MPS IVA).

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Case: A 6-year-old male patient with Morquio syndrome (MPS IVA) diagnosis was referred to our clinic for dental treatment. It was learned that the patient had mitral valve prolapse in his history. The characteristic skeletal deformities of Morquio syndrome were discovered during the clinical inspection. During the intraoral examination, the permanent posterior teeth were tapered and showed concave buccal surfaces with pitting, pointed cusps, concave occlusal surfaces and caries on the primary molars. On radiographs, the enamel was thinner than normal but with normal radiodensity, and was clearly distinguishable from underlying dentine. Dental treatments (with antibiotic prophylaxis before operation) were performed under general anesthesia. After extraction sockets were healed, the space retainer was made and the flour gel was applied.
Conclusion: Multidisciplinary clinical trials have been carried out in patients with Morquio Syndrome to obtain oral health and esthetics planning is required.

P332
Dental Approach to Self-Mutilation: A Case Report
Yasemin Sarı, Özgül Baygın, Sengul Merve Erbek
Karadeniz Technical University, Trabzon, Turkey

Introduction: Self-mutilation is defined as any intentional injury to one's own body. It may accompany some diseases and can be in different forms such as twitching, scratching, biting oneself. In the treatment of self-mutilation, preventive appliances can be used and the sharp edges and corners in the teeth can be grinding.
Case description: An 8-year-old boy was admitted to pediatric department due to tooth decay. The patient had widespread tooth decays due to finger bite. Secondary to recurrent trauma, both hands had amputated appearance in the distal phalanges of the 1st, 2nd and 3rd fingers. Because the patient's self-harm behavior was not controlled by medical treatment, the incisal and occlusal tubercular hills of the teeth in the mouth were drilled under general anesthesia. In this way, it was aimed to minimize the damage which the patient gave himself by biting behavior. After the treatment, the patient was transferred to the psychiatric clinic to continue the follow-up.
Discussion: Self-mutilation can be controlled with preventive appliance. Precautions can be taken such as grinding the sharp edges of the teeth and rounding the corners to minimize the self-injury situation in patients in whom the medical treatment is not affective and the preventive devices cannot be use.
Conclusions/Clinical significance: A multidisciplinary approach supported by dental treatments is needed to improve the quality of life of the patient in the treatment of self-mutilation behaviors.

P333
Pedodontic Management of Children with Cleft Lip and Palate
Imen Jazi, Jihene Zaroui, Manel Chalbi, Mohamed Ali Chamli, Imene Gharbi, Badiaa Jemmali
Chu La Rabta, Tunis, Tunisia

Introduction: Cleft lip and palate is the most common of the craniofacial congenital anomalies. They are structural abnormalities that occur between the 4th and 10th weeks of the intrauterine life.
Case description: The first case was an eleven day old female infant. The mother complains of breastfeeding failure as the child was born with unilateral cleft lip and palate. After a detailed examination, it was decided the conception of a feeding plate on to resolve feeding problems.
The second case was a six months old male infant who was born with unilateral cleft lip and palate. His first plate becomes unstable due to maxillary growth; therefore, a new plate was made.
Discussion: Prompt intervention by conception of feeding plate can eliminate the immediate problems. It helps in feeding and effectively separating the mouth from the nasal cavity. This sort of prosthesis reduces regurgitation, incidence of choking. The prosthesis conjointly prevents the tongue from getting into the defect and developing the right tongue position.
Conclusions/Clinical significance: Respiration and nutrition are the foremost necessary functions for surviving, their disorders impact physical and psychological well-being of the infant or child. Non-inheritable deformities like cleft lip and palate and other congenital abnormalities impair these functions resulting in varied complications. Early management may has positive impact on these infants.

P334
Preventive Effectiveness of Fluoride Varnishes in Preschoolers: Randomized Controlled Trials
Anna Turska-Szybka[1], Iwona Soika[1], Piotr Rozniatowski[1], Dariusz Gozdowski[2], Dorota Olczak-Kowalczyk[1]
[1]Department of Paediatric Dentistry, Medical University of Warsaw, Warsaw, Poland, [2]Department of Experimental Statistics and Bioinformatics, Warsaw University of Life Science, Warsaw, Poland

Aim or purpose: To compare effectiveness of two fluoride varnishes in preschoolers at high caries risk.
Materials and methods: One hundred eighty preschool children aged 3–5 years (mean 49.33 ± 11.35 month) was randomly allocated into two fluoride groups received four varnish applications every three months ((A Group-AG) – 1.5% ammonium fluoride; (B Group-BG) –5% NaF varnish) and control group (C Group-CG), no intervention)). ICDAS criteria were used in clinical examinations. Statistical analysis was conducted using t-test for comparisons of means; confidence intervals for proportions were calculated at 95% of confidence level.
Results: After nine months, 172 children remained in the study. In AG 22.0% and in BG 20.0% had developed new WSL compared to 52.8% in CG; a difference between C and A of 30.8% (95% CI 13.7 to 47.9, $p < 0.001$) and between C and B of 32.8% (95% CI 16.0 to 49.6, $p < 0.001$). In the beginning of the study d1-6mf (mean ± SD) were 11.1 ± 5.79;11.90 ± 5.72 and 11.77 ± 5.6 for A, B and C groups respectively, while after nine months d1-6mf were: 11.36 ± 5.61 ($p = 0.424$);11.87 ± 6.17 ($p = 0.929$) and 13.79 ± 5.85 ($p < 0.001$) respectively. In AG 44.1% and in BG 36.7% had increased dmf compared to 60.4% in CG; a difference between C and A of 16.3% (95% CI −2.0 to 34.6, $p = 0.085$) and between C and B of 23.7% (95% CI 5.8 to 41.6, $p = 0.011$).

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Conclusions: Effectiveness of examined fluoride varnishes was similar in WSL and cavitated lesions arresting.
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Theme: General Dentistry

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Metal Constructions Surface of Orthopedic Dentures Investigation after Sand-Blast Finish
Rinat Saleev[1], Liaisan Saleeva[1], Ramil Kashapov[2], Gulshat Saleeva[1]
[1]*Kazan State Medical University, Kazan, Russian Federation,*
[2]*Kazan Federal University, Kazan, Russian Federation*

Aim or purpose: To study the surface of metal structures of orthopedic prostheses after sandblasting.
Materials and methods: For the study, cylinders (d = 3 mm, l = 2 cm) and plates of dental base wax (d = 2 mm, l = 1.5 cm, h = 1.5 cm) were modeled, from which subsequent experimental samples of CoCr alloy were cast. The obtained samples were cleaned from the investment material by sandblasting, machined the surface with a milling cutter, then sand with a diameter of 50 μm, a working pressure of compressed air of 1.5–2 atmospheres. The surface of the samples was examined with the EVO-50 scanning electron microscope.
Results: After cleaning from the molding mixture, the surface of the experimental sample had a number of irregularities, depressions. After machining with a milling cutter, the surface of the specimen was smoothed, had no irregularities or depressions. After finishing sandblasting, sand particles measuring 150–300 nm were found on the surface of the metal, also particles of a large range that are imprinted into the metal are observed in places. Particles of micron size are difficult to clean, but it is possible and requires considerable time and special equipment. Particles of the nanometer range can be removed without serious deformation of the base of the sample impossible.
Conclusions: The standard metal processing using a sandblaster leaves sand particles in the metal structure in size of 150–300 nm, which can affect the bonding quality of the ceramic coating to the metal surface.

P336
Comparison of Three Diagnostic Methods in Incipient Caries Detection
Fatma Busra Dogan, Bilgun Cetin, Faruk Akgunlu
Selcuk University, Dentistry Faculty, Oral and Maxillofacial Radiology, Konya, Turkey

Aim or purpose: Early diagnosis of incipient carious lesions is very important for performing preventive treatments. The aim of this in vivo study was to compare consistency of three diagnostic methods: Laser fluorescence, bitewing radiography and visual examination at detecting incipient proximal and occlusal caries of permanent premolar and molar teeth.
Materials and methods: In this study, 54 permanent premolar and molar teeth of patients aged 21–25 years were examined. Without obvious cavities and restorations 52 occlusal surfaces were evaluated firstly visual examination followed by laser fluorescence and finally by bitewing radiography. 75 proximal surfaces were evaluated firstly by laser fluorescence and then by bitewing radiography. The results obtained for evaluating compliance between the diagnostic methods used were calculated using the Friedman test.
Results: No significant correlation was found between bitewing radiography and laser fluorescence in the diagnosis of occlusal caries ($p < 0.005$) and proximal surface caries ($p < 0.005$). There was statically difference between visual and radiographic examination in the occlusal caries ($p < 0.005$). However, visual and laser fluorescence examination in the occlusal caries diagnosis were consistent with each other ($p > 0.005$).
Conclusions: Laser fluorescence can be used for incipient caries detection as an adjunct to visual or radiographic examination. Treatment decision shouldn't be made of the basis of laser fluorescence findings alone for proximal and occlusal caries.

P337
Concordance of Visual and Photographic Perception When Choosing Color
Amany Harzallah, Sana Bagga
Faculté de Médecine Dentaire de Monastir, Monastir, Tunisia

Aim or purpose: Choosing the color of future restorations is a daily challenge for every clinician. The aim of this study is to determine the concordance between the choice of color visually and through a digital camera.
Materials and methods: The study focused on 45 patients' natural right maxillary incisors and canines without any restoration. Initially, the visual choice was made using a shade guide. In a second time, photographs of the target tooth with shade tab aligned edge-to-edge were taken under the same conditions as the visual choice. The photographs were then analyzed with an image processing software to calculate the color difference according to the following equation: $\Delta E = ((\Delta L)^2+(\Delta a)^2+(\Delta b)^2)^{1/2}$
Values of ΔE greater than 5.5 were considered clinically unacceptable.
Results: It was demonstrated that the averages of ΔE of each tooth were greater than 5.5. The colorimetric correspondence varies according to the tooth. But also according to the color chosen and its characteristics: value, chroma and hue.
Conclusions: Visual and instrumental shade-matching are different for all teeth. The 11 and 12 give better results than the 13. It would be wiser to associate the visual and digital matching in order to optimize the results. An analytical study in this direction on a larger number of patients is in order to standardize the shade-matching technique.

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Medico-Legal Table-Guides: Temporomandibular Joint Disability

Cristina Figueiredo[1], Américo Afonso[2], Ana Teresa Gonçalves[3]
[1]*Universidade Católica Portuguesa – Instituto de Ciências da Saúde, Viseu, Portugal,* [2]*Faculdade de Medicina Dentária – Universidade do Porto, Porto, Portugal,* [3]*Faculdade de Medicina – Universidade de Coimbra, Coimbra, Portugal*

Aim or purpose: In order to promote body damage evaluations supported by justice and equality, emerged table-guides. The assessment of disability within the temporomandibular joint (TMJ) is characterized by the presence of an altered functional state – temporomandibular disorders (TMD).
Materials and methods: The diagnosis of any temporomandibular dysfunction is made by analyzing the signs and symptoms of the patient in a three-way analysis: muscular/articular/sensitive. We will analyze parameters that are evaluated in TMJ disorders and the scores they represent, and compare some of the existing table-guides in Europe. We will also make a critical analysis of the table-guide that is used in Portugal, establishing an analogy with the Guide Barème Européen.
Results: Table-Guides are used for a long time, and to establish uniformity between countries of Europe, the Guide Barème Européen was developed in 2003. Despite the existence of that table-guide, the majority of countries still use their own references regarding TMJ evaluation, and there are some differences between them, not only in the terminology that is used to describe the pathology but also in the scores that are proposed.
Conclusions: Despite the pure informational value given by table-guides, they are aimed for helping the medico-legal expert on equitable evaluation of victims, regarding the evaluation of TMJ. Table-guides should be used based on the diagnoses done with clinical protocols and translate the various degrees of severity in different scores, thus standardizing the assessments that are made.

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Dental Ergonomics in Babies

Cristina Isabel Calderón Díaz, Paloma López Martínez, Yolanda Martínez Beneyto, Amparo López Silva, Antonio José Ortiz Ruiz
Universidad de Murcia, Murcia, Spain

Aims and purpose: The different positions adopted by the pediatric dentist when treating babies are not entirely ergonomic and produce occupational pathologies. The purpose of this communication is to present a new device to position babies during dental treatment, following ergonomic criteria for the dentist, emotional security for the babies and including risk control during baby's movements.
Materials and methods: A new and more ergonomic retention system was created using 3ds Max® software. The system has been tested as a prototype in the University of Murcia Dental Clinic.
Results: The system size is 75 × 55 × 26 centimeters and includes a head rest, a main body and a rest piece for the dentist and companion legs. We have been able to validate that the system fulfills all the proposed objectives.
Conclusions: The advent of a new positioning system will allow for a better management of the baby by the pediatric dentist with the companion collaboration and will prevent occupational pathologies.

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Temporomandibular Joint Disorder in child and Impairment – Case Report

Cristina Figueiredo[1], Ana Teresa Gonçalves[2]
[1]*Universidade Católica Portuguesa Instituto de Ciências da Saúde, Viseu, Portugal,* [2]*Faculdade de Medicina, Coimbra, Portugal*

Introduction: The assessment of disability within the temporomandibular joint (TMJ) is characterized by the presence of an altered functional state – temporomandibular disorders (TMD). The diagnosis of any temporomandibular dysfunction is made by analyzing the signs and symptoms of the patient in a three-way analysis: muscular/articular/sensitive.
Case description: A two-and-a-half-year child was hit by a four wheeled vehicle. The traumatic event resulted in hard and soft tissues injuries. Deciduous teeth were lost prematurely and therefore permanent teeth become crowded. Mandibular growing centers were affected resulting in mandibular and facial asymmetry, despite orthopedic treatment done to minimize the asymmetry. There was no pain associated – spontaneous or provoked.
Discussion: Children have a high adaptative functional capacity that is observed in this case, thus to the non-existing pain despite the anatomic and articular alterations that can be seen. The appreciation of anatomic traumatic sequels is essential in the diagnosis of Temporomandibular disfunction and is highly associated with esthetic damage. This type of damage is extremely important when observed in children, because it will get worse with time.
Conclusions/Clinical significance: The careful examination of the temporomandibular joint in children, after a traumatic event is extremely important and encompass high sensibility by the clinical because it can correspond to a asymptomatic disorder.

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