The death of dental pulp cells is associated with the expression of p75NTR in vitro

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Neurotrophins and their receptors are involved in tooth development and differentially expressed in pulp of normal and injured teeth. However, the function of the p75NTR signalling pathway is still not well understood. In this study, we investigated the expression of the p75NTR in cultured human pulp cells during stimulation with lipoteichoic acid (LTA) for 48 hours. Untreated cells served as control. The amount of p75NTR-expressing cells and death cells were counted with a haemocytometer. The results demonstrated that 26.9% (n = 12) of the 27 Dent-exposed cultures (G1) had total CP, and only 1 partial CP. In the (G2), 21.8% of the 23 Dent/FA-exposed fibroblasts showed total CP, 11 (47.8%) partial CP and 10 (43.35%) showed no CP. On the (G3) showed that 1 (5.88%) of the 17 Dex/FA-treated fetuses was analyzed by not paired Kruskal-Wallis test, and showed statistical difference among average score values. In the (G4), it was observed that all groups, including control, induced passive migration of 11% of the cells. The (G1) beta was similarly detected in all groups (16.20 pg/ml for control, 17.13 pg/ml for CH and 13.8 pg/ml for BS) but the (G1) beta (0.87 pg/ml) induced statistically more production of this cytokine. All materials similarly induced the IL-8 production (49.01 pg/ml for CH, 48.80 pg/ml for BS and 47.40 pg/ml for FA); but differed from the control group (77.90 pg/ml).

None of the materials induced active cell migration. The (G1) beta induced more IL-8 beta production when compared to the other materials and the control group. The production of IL-8 was similarly reduced for all groups when compared to the control. (Support: FAPESP- 02/02402-7, 7)

H004

In vitro effects of transforming growth factor-β (TGF-β1) in human dental pulp and gingival fibroblasts

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Malignant fibroblasts are believed to be responsible for scar shrinkage that follows granulation tissue formation after partial tooth extraction. The tooth matrix is a strong immunoreactivity for TGF-β1. TGF-β1 has been shown to induce cultured fibroblasts to express SMA. Since pulp fibroblasts are believed to be somewhat different from fibroblasts, the authors studied whether pulp and gingival human fibroblasts are induced to differentiate into myofibroblasts when TGF-β1 is added at several concentrations. It was confirmed by immunofluorescence investigation of MSMA as well as of the extracellular matrix proteins tenascin and osteonectin; the ultrastructural characteristics was also examined by transmission electron microscopy.

The results showed that SMA is expressed in both cells types although it exhibited different expression patterns. After TGF-β1 treatment, both fibroblast populations exhibited a strong immunoreactivity for SMA, which was compared to the control cells (without TGF-β1) on which the expression of SMA was less intense or absent. The ultrastructural examination in in vitro TGF-β1 induced cells revealed numerous peripheral myofilaments and a nodulated (indented) nucleus that is typical of myofibroblastic phenotype. Tenascin and osteonectin were only expressed by pulp fibroblasts, with similar immuno-labelling pattern for both cells incubated or not with TGF-β1. The authors showed that TGF-β1 stimulates both pulp and gingival human cells to differentiate into myofibroblasts. (Support: FAPESP- 05/06996-9.)
Antibacterial efficacy of endodontic irrigants and GAIA Lasers against E. faecalis – an in vitro study
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The aim of this study was to evaluate the in vitro antimicrobial activity of 2% chlorhexidine gel against E. faecalis in vitro, compared with sodium hypochlorite in two different concentrations (1.5% and 5.25%) combined or not with the use of gallium aluminium arsenic (GAIA) laser. One hundred and forty four lortons were divided into three groups, one being instrumented with ultrasonic, a second group was instrumented ultrasonic and then GAIA laser was used for 7 days with E. faecalis monocolonies. The roots were then divided into seven groups according to the irrigant solution and laser treatment used during the standardized biochemical preparation. In order to evaluate the antimicrobial action of the irrigant solutions and the laser treatment, there microbical samples were taken: S1: initial (before the biochemical preparation); S2: post-treatment (immediately after the biochemical preparation), and S3: post-treatment (biomaterial composition). The biochemical samples were stained in tartrate-resistant acid phosphatase (TRAP - an osteoclast marker) and the number of TRAP-positive osteoclasts were counted in the microscopic fields. The strains UA159, C5 and C32 presented higher glucose-PTS activity at pH 7.0; fructose-PTS at pH 5.0; and mannose-PTS activity was inhibited all the microorganisms tested in the agar diffusion method. In the test for minimum inhibitory concentration (MIC) enhanced with cysteine for their ability to inhibit the formation of VSC. The amount of VSC was reduced in the SSS by the extracts of Punica granatum and Carapa fasciculata. The strains UA159, C5 and C32 presented the same pattern of ATPase activity with optimal pH 6.0. C2 had the highest ATPase activity among the tested strains. The ability to form biofilm in BM with sucrose was similar for all strains. However, cells grown in BM with glucose showed different patterns.

Physiologic and genetic characterization of clinical isolates of Streptococcus mutans
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The aim of this study was to evaluate physiologic and genetic traits of S. mutans, the primary etiological agent of dental caries. We used UA199 as control and 3 clinical isolates of S. mutans (C2, C5 and C32). Cells grown to steady state in continuous cultures were assessed for glycolytic profile, acid production, ATPase and PTS activities. Real Time quantitative RT-PCR was used to investigate the transcriptional levels of DnaK, Fru PTS, mannose and glucose PTS related genes. The results of the noise surveys had been provided an average value of 72.1 dB for B handpiece, 79.8 dB for C handpiece and of 80.8 dB for the A, respectively, not exceeding the “threshold limit value” of 85 dB for 8 hours per workday, according our real Brazilian law the NR-15 of Safety and Work Medicine and, therefore, not being compulsory the use of auditive protectors as personal protection equipments for the Surgeons Dentists. The C handpiece revealed less harmful, therefore presented a minor general average of 80.8 dB for the A, respectively, not exceeding the “threshold limit value” of 85 dB for 8 hours per workday, according our real Brazilian law the NR-15 of Safety and Work Medicine and, therefore, not being compulsory the use of auditive protectors as personal protection equipments for the Surgeons Dentists.

Apolipoprotein may be responsible for the decreased number of alveolar bone osteclasts in treated extracted rats
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Estrone is a steroid hormone which exerts an inhibitory function on bone resorption, however, the mechanism by which estrone acts upon skeletal tissues remains unclear. In an attempt to investigate the possible role that estrone may play in bone resorption by the osteoclasts, the bone density of osteoclast examined the alveolar bone of 22-25 day-old female rats treated with estrone (EG) in comparison to rats treated with vehicle (SG) and to control rats (CG). After 8 days of the experiment, fragments containing alveolar bone were removed and processed for light microscope and transmission electron microscope. Sections were stained in tartrate-resistant acid phosphatase (TRAP - an osteoclast marker) and the number of TRAP-positive osteoclasts/microscope field was counted. The results of the noise surveys had been provided an average value of 72.1 dB for B handpiece, 79.8 dB for C handpiece and of 80.8 dB for the A, respectively, not exceeding the “threshold limit value” of 85 dB for 8 hours per workday, according our real Brazilian law the NR-15 of Safety and Work Medicine and, therefore, not being compulsory the use of auditive protectors as personal protection equipments for the Surgeons Dentists.

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The aim of this study was to evaluate the in vitro antimicrobial activity of 2% chlorhexidine gel against E. faecalis in vitro, compared with sodium hypochlorite in two different concentrations (1.5% and 5.25%) combined or not with the use of gallium aluminium arsenic (GAIA) laser. One hundred and forty four lortons were divided into three groups, one being instrumented with ultrasonic, a second group was instrumented ultrasonic and then GAIA laser was used for 7 days with E. faecalis monocolonies. The roots were then divided into seven groups according to the irrigant solution and laser treatment used during the standardized biochemical preparation. In order to evaluate the antimicrobial action of the irrigant solutions and the laser treatment, there microbical samples were taken: S1: initial (before the biochemical preparation); S2: post-treatment (immediately after the biochemical preparation), and S3: post-treatment (biomaterial composition). The biochemical samples were stained in tartrate-resistant acid phosphatase (TRAP - an osteoclast marker) and the number of TRAP-positive osteoclasts/microscope field was counted. The results of the noise surveys had been provided an average value of 72.1 dB for B handpiece, 79.8 dB for C handpiece and of 80.8 dB for the A, respectively, not exceeding the “threshold limit value” of 85 dB for 8 hours per workday, according our real Brazilian law the NR-15 of Safety and Work Medicine and, therefore, not being compulsory the use of auditive protectors as personal protection equipments for the Surgeons Dentists.

The findings of this study showed that the extracts of Punica granatum and Carapa fasciculata ferre inhibit bacteria related to the formation of VSC and may have potential for treating halitosis.

H
Human breast milk is the optimal food for newborn infants. The benefits of breastfeeding include positive effects on the development of infant's health and well-being. Both the mother and the baby gain health benefits from breastfeeding. Regular breastfeeding helps in the prevention of breast and ovarian cancer.

Influence of additives on the properties of Bis-GMA/Bis-GMA

Simple evaluation of the thermal expansion behaviour of tooth structure by its CTE value may not be appropriate. The thermal expansion (CTE) is not a suitable parameter to describe the thermal behaviour of tooth tissue. Results in % of dimensional and weight change was obtained. Fresh dentine contracted on heating and expanded on cooling. Linear thermal expansion of specimens was measured with a thermo-mechanical analysis (TMA) machine. Group 1 was immersed in water (100% RH) for 3 days and then the specimens were dried in an oven at 100 °C for 3 days and then measured under dry conditions. Linear thermal expansion of specimens was measured with a thermo-mechanical analysis (TMA) machine. Group 1 was immersed in water (100% RH) for 3 days and then the specimens were dried in an oven at 100 °C for 3 days and then measured under dry conditions.

Thermal expansion of human and bovine teeth hard tissues

Lopes MB*, Zhang Y, Sinohara MAC, Corrêa-Sobrinho L, Cannato S, McGeer JH

Thermal expansion of human and bovine teeth hard tissues. Fifteen human and fifteen bovine teeth were cut from freshly extracted third molars and divided into three groups (G1, G2, G3) of different materials: G1 - human enamel, G2 - bovine enamel, and G3 - bovine dentin. The thermal expansion was determined in dry conditions and G2 was determined in wet conditions. Group 3 was stored in a desiccator at 100% RH for 3 days and then measured under dry conditions. Linear thermal expansion of specimens was measured with a thermo-mechanical analysis in the temperature range 20 °C to 150 °C. The specimens were weighed before and after the heating process. Results in % of dimensional and weight change was obtained. Fresh dentine contracted on heating and expanded on cooling. Linear thermal expansion of specimens was measured with a thermo-mechanical analysis (TMA) machine. Group 1 was immersed in water (100% RH) for 3 days and then measured under dry conditions. Linear thermal expansion of human and bovine teeth was determined in dry conditions and G2 was determined in wet conditions. Group 3 was stored in a desiccator at 100% RH for 3 days and then measured under dry conditions. Linear thermal expansion of specimens was measured with a thermo-mechanical analysis in the temperature range 20 °C to 150 °C. The specimens were weighed before and after the heating process. Results in % of dimensional and weight change was obtained. Fresh dentine contracted on heating and expanded on cooling. Linear thermal expansion of specimens was measured with a thermo-mechanical analysis (TMA) machine. Group 1 was immersed in water (100% RH) for 3 days and then measured under dry conditions.

Element analysis of ceramic crowns

Chemical, mineralization and evaluation on sound and early caries

Fluorine in the treatment of caries

Calcium, magnesium, phosphorus and sulfur are the main components of tooth structure and the caries process involves a significant decrease in these elements.

In vitro study of fracture strength, fracture pattern and finite element analysis of ceramic crowns


10
H024
Effect of curing mode on the degree of conversion and on bond strength to dentin and of dual-cured cementing systems

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This study investigated the microtensile bond strength (MTBS) and degree of conversion (DC) of dual-cured cementing systems (CS). The CS materials were light-activated or left in the uncured state prior to cementation and confirmed with indirect composite restoration. Occlusal dentin surfaces of forty human third molars were flattened. All Bonding agents (Bead, Arrhythm, Soleo/Nexus) and ceramers (Storo, Bekaert, Empress 2) were used. The results were analyzed using a one-way ANOVA and Tukey’s test (p < 0.05). The MTBS values were similar between the light-activated and uncured conditions (p > 0.05) for all bonding agents and ceramers, except for Arrhythm, which had significantly lower MTBS values for the uncured condition (p < 0.05).

H025
Influence of estrogen receptor alpha polymorphism in Brazilian women carrying TMJ

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Temporomandibular dysfunction (TMD) is caused by a group of severely debilitating conditions that involve inflammatory processes in the temporomandibular joint (TMJ) and associated structures. Estrogen through its alpha receptor can act in parts of brain to modulate pain perception. The objective was to test the hypothesis that specific genotypes and polymorphisms (SNPs) in estrogen receptor alpha might be related to higher prevalence of signs and symptoms of TMD in women. Throughout Research Diagnostic Criteria for Temporomandibular Disorders, 500 women were divided in 3 groups: TMD with chronic pain, TMD without chronic pain and control group. The participants were tested for genetic polymorphisms using a PCR method. The T-397C SNP (rs9349753), which showed a genotype association with TMD, was selected for further analysis. The study showed that the T-397C genotype was significantly more frequent in the TMD group compared to the control group (p < 0.05). The results suggest a genetic predisposition in women with TMD, which could be further investigated in future studies.

H026
Temporomandibular joint assessed at magnetic resonance: occurrence and relationship with craniofacial and dental aspects in Williams syndrome

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The study of the relationship between the head of mandible, the articular disc, the mandibular fossa and their morphology may affect dental esthetics and complicate orthodontic treatment. The management of systemic and craniofacial malformations must be individualized depending on the severity of the disease. We concluded that agenesis of permanent teeth in combination with aberrations in tooth size and morphology may affect dental esthetics and complicate orthodontic treatment. The management of systemic and craniofacial malformations must be individualized depending on the severity of the disease.

H027
Effectiveness of microwave disinfection of complete dentures on the treatment of Candida-related denture stomatitis

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The effectiveness of microwave disinfection of complete dentures on the treatment of Candida-related denture stomatitis (C-RDS) is still unclear. Thirty patients were treated for 4 treatments with a microwave (2450 MHz) controlled with a DDS-6000B device. The dentures were disinfected with G0 (controls) and C0 (extensive cleaning) using base and soap with water overnight; G1 – microwave irradiation (650 W for 3 min) of upper denture 3 X/week for 30 days; G2 – treatment of G1 with topical application of miconazole 3 X/day for 30 days; G3 – same course of antibiotics of G2. Stomatological and microbiological examination was performed in the mouth twice a week. The results showed that microwave disinfection is effective in the treatment of C-RDS, improving the quality of life of patients and decreasing the recurrence of the disease.

H028
In vitro Candida adherence on acrylic resins: influence of surface free energy, surface roughness, saliva and bacteria

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Surface factors such as roughness (Rq) and surface free energy (SFE) together with the presence of salivary film and bacteria are known to affect Candida adherence. The present study aimed to investigate whether these factors produce differences in the adherence of C. albicans and C. glabrata to the dental restoration materials. The materials were analyzed in an in vitro assay applied to the mouth. The results showed that the SFE of the materials and Rq were significantly different between the two species (p < 0.05). The adherence of Candida was significantly higher on the acrylic resins compared to the porcelain ceramics (p < 0.05). The influence of salivary film and bacteria on Candida adherence was significant (p < 0.05). The results suggest that saliva and pro-colonization with bacteria seems to influence yeast adherence. (Support: FAPESP: 04/03729-4.)

H029
Thermo and load cycling on titanium-ceramic bond strength

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The aim of this study was to evaluate the shear bond strength between commercially pure titanium (TiP, Tritrace) and specific ceramics (Tricon – Dourimam, Super Porcelain Ti22-Nortake, Vitacron – TufaLandmark, C. glabrata). Sixty-six extracts were prepared and divided into four groups (n = 16): Group 1 = gold alloy-temperature 900 °C; Group 2 = TiP + Tricon ceramic, Group 3 = TiP + Super Porcelain Ti22 ceramic, and Group 4 = TiP + Vitacron Ceramic. Half of the samples were exposed to the thermo-cycling (4°C to 55°C) for 100 cycles before the test. The shear bond strength was determined using a universal testing machine. The results showed that the adhesive fractures were observed in groups 3 and 4, and the SEM analysis indicated adhesive fractures for the groups of TiP. The SEM analysis showed significant differences between G1 and G2 (p < 0.05), and the adhesive fractures were observed in G1 and G2, with the highest values in G2.

H030
Craniofacial and dental aspects in Williams syndrome

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William syndrome is a rare genetic disorder caused by hemispheric micro deletion of chromosome 7 (p11.23). The syndrome is associated with dysmorphic facies, mild to moderate mental retardation, friendly personality, idiopathic hypocalcaemia, and cardiac abnormalities. Facial dysmorphology is considered to be important and include full prominent cheeks, wide mouth, long philtrum, depressed nasal bridge, heavy orbital ridges, and dental abnormalities. The aim of this study was to describe the craniofacial and dental abnormalities in 14 unrelated individuals with Williams syndrome, seen at Specialized Care in Craniofacial Syndrome (SIC). The craniofacial and dental examination was completed for all 14 patients. The study was a case report and a descriptive and clinical study aimed to determine whether these factors produced differences in the adherence of C. albicans and C. glabrata to the dental restoration materials. The materials were analyzed in an in vitro assay applied to the mouth. The results showed that the SFE of the materials and Rq were significantly different between the two species (p < 0.05). The adherence of Candida was significantly higher on the acrylic resins compared to the porcelain ceramics (p < 0.05). The influence of salivary film and bacteria on Candida adherence was significant (p < 0.05). The results suggest that saliva and pro-colonization with bacteria seems to influence yeast adherence. (Support: FAPESP: 04/03729-4.)

H031
Functional gene polymorphisms IL-1β, IL-6, IL-10 and TNF-α in individuals with recurrent aphthous stomatitis


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Recurrent aphthous stomatitis (RAS) is an oral lesion characterized by recurrent episodes of oral ulcerations. The aim of this study was to investigate the association of functional gene polymorphisms IL-1β, IL-6, IL-10 and TNF-α with RAS development. Sixty-four patients with RAS and 64 healthy controls were included in the study. Both groups were matched by age and sex. A logistic regression analysis was used to identify the significant factors for RAS development. For general disorders implicated in dental clinical management in 14 unrelated individuals with Williams syndrome, seen at Specialized Care in Craniofacial Syndrome (SIC). The craniofacial and dental examination was completed for all 14 patients. The study was a case report and a descriptive and clinical study aimed to determine whether these factors produced differences in the adherence of C. albicans and C. glabrata to the dental restoration materials. The materials were analyzed in an in vitro assay applied to the mouth. The results showed that the SFE of the materials and Rq were significantly different between the two species (p < 0.05). The adherence of Candida was significantly higher on the acrylic resins compared to the porcelain ceramics (p < 0.05). The influence of salivary film and bacteria on Candida adherence was significant (p < 0.05). The results suggest that saliva and pro-colonization with bacteria seems to influence yeast adherence. (Support: FAPESP: 04/03729-4.)

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A method to prevent earlier changes in the maximal mandibular opening for irradiated patients

Validation of an analytical model for determination of rotational freedom between abutment and implant

Comparison of peri-implant bone level assessment in digitized conventional radiographs and digital subtraction images

Characterization and biocompatibility of new osseointegrated implant surfaces – a pilot study

In situ hybridization for EBV and HPV in drug-induced gingival hyperplasia from renal transplant patients

Smoking and diabetes mellitus modulate bone destruction in periodontal disease through a similar mechanism

Beta-catenin expression and its correlation with different signaling pathways in head and neck squamous cell carcinoma

Effect of supragingival plaque control on subgingival microbiota in smokers and never-smokers: Real Time PCR evaluation
Periodontal attachment loss in adolescents and young subjects: occurrence and risk indicators

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The present study describes the periodontal attachment loss (PAL) in a Brazilian population of adolescents and young subjects, and performs a risk assessment of demographic, socioeconomic, and behavioral exposures. A multi-stage probability cluster sampling strategy was used to draw a sample representative of Porto Alegre, Brazil. A total of 1,586 subjects were examined, of which 612 subjects (14-29 years of age, 291 males/321 females) were used in this study. Participants were interviewed using a structured questionnaire and had a full-mouth clinical examination of 6 sites per tooth, excluding third molars. Subjects with PAL $\geq$ 3 mm in proximal sites were classified with chronic periodontitis. A multiple logistic regression analysis, taking in consideration the study design, was used to model the relationship between the outcome and exposures. Subjects diagnosed with aggressive periodontitis were excluded from the present analysis (n = 28). In average, approximately 56% and 20.3% of subjects and 11.7% and 1.5% of teeth had PAL $\geq$ 3 mm and PAL $\geq$ 5 mm, respectively. After adjusting for age, gender, socioeconomic status and smoking, subjects with chronic periodontitis had statistically more supragingival plaque, marginal bleeding and supragingival calculus. In the multivariable analysis, chronic periodontitis was associated with age (20-24 e 25-29 years: odds ratio/OR= 2.6 e 7.2, respectively), low socioeconomic status (OR= 1.9), heavy smoking (OR= 1.7) and supragingival calculus (OR= 1.7).

In conclusion, PAL is very prevalent in this population, but affects a limited number of teeth. Health promotion programs should be implemented to reduce the occurrence of PAL in this population. (Support: CAPES - 1614/99-1.)

Long term results for intrabony defects treated with Emdogain. Split-mouth randomized double blinded, controlled trial

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The objective was to compare the clinical effect of the treatment of intrabony defects with open flap debridement (OFD) combined or not with enamel matrix proteins (EMP). Ten volunteers with at least 2 intrabony defects were selected (probing pocket depth, PPD $\geq$ 6 mm). Subjects received oral hygiene instructions, scaling and root planning. Participants received the two treatment modalities, so test sites were treated with OFD and EMP, and control sites with OFD alone. At 24 months, a significant reduction in PPD was observed for both groups (EMP: 6.20 $\pm$ 0.91 mm to 1.90 $\pm$ 0.65 mm; p < 0.001; OFD: 6.00 $\pm$ 0.90 mm to 2.70 $\pm$ 1.30 mm; p < 0.001). A significant gain in relative clinical attachment level (RCAL) was observed for EMP (13.3 $\pm$ 2.00 mm to 7.10 $\pm$ 2.20 mm; p < 0.001) and OFD (13.20 $\pm$ 1.70 mm to 8.00 $\pm$ 1.40 mm; p < 0.001). A significant increase in gingival recession (R) was observed for EMP (1.0 mm; p = 0.007), but not for OFD (0.9 mm; p = 0.06). However, no significant differences were observed between groups regarding PPD (p = 0.70), RCAL (p = 0.57) and R (p = 0.89). In conclusion, treatment of intrabony defects with EMP did not result in better clinical outcomes than OFD alone. (Support: FAPESP - 00/12285-0.)