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International association for Dental Research

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Programa

PROGRAMA MARTES 13 DE OCTUBRE

Hora	Salón Parque 1	Salón Parque 2
8:30 - 8:50	Instalación Posters (sesión A)	Acreditación y entrega de Credenciales
8:50 - 9:00		Sesión Inaugural XXVII reunión anual IADR Chile
9:00 - 10:00		Kim Ekstrand (Moderador Alvaro Cartagena)
10:00 - 10:30	Café	
10:30 - 12:00		Kim Ekstrand
12:00 - 13:00	Presentación de Posters (sesión A)	
13:00 - 14:00	Almuerzo	
14:00 - 16:00	Instalación Posters (sesión B)	Simposio Aclaramiento Dental. Moderador: Eduardo Fernández
16:00 - 16:30	Café	
16:30 - 17:30	Presentación de Posters (sesión B)	
17:30 - 19:00		Presentaciones Orales 1 a 4

Programa

PROGRAMA MIÉRCOLES 14 DE OCTUBRE

Hora	Salón Parque 1	Salón Parque 2
9:00 - 11:00	Instalación Posters (sesión C)	Presentación RDP Moderador: Soraya León
11:00 - 11:30	Café	
11:30 - 12:30	Presentación de Posters (sesión C)	
12:30 - 14:00	Almuerzo Asamblea de Socios	
14:00 - 16:00	Presentaciones Orales 5 a 8	
16:00 - 16:30	Café	
16:30 - 17:30	Presentaciones Orales 9 a 12	
17:30 - 18:30	Presentaciones Orales 13 a 16	
18:30 - 19:00	Retiro de Posters	Premiación y Clausura

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- 2 Bone destruction biomarkers in orthodontic patients with periodontally compromised teeth
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1 ATF6 α Pathway activation by pro-inflammatory cytokines

Barrera MJ, Aguilera S, Castro I, Cortés J, Bahamondes V, Urzúa U, Molina C, González S, Leyton C and González MJ.

OBJETIVOS

Salivary gland (SG) acinar-cells are susceptible to endoplasmic-reticulum (ER) stress due to its high secretory activity and molecular complexity of synthesized secretory products. SG from Sjögren's syndrome (SS)-patients exhibits chronic inflammation and altered acinar proteostasis associated with high activity of the ATF6 α pathway and increased endoplasmic-reticulum-associated protein degradation (ERAD) components. Acinar-cells could evade apoptosis by ATF6 α pathway activation inducing ERAD. In this study, we evaluate the role of pro-inflammatory cytokines in the ATF6 α pathway activation in HSG cell, as well as, some pro- and anti-apoptotic markers (related or induced by ER stress) in SG from SS-patients.

MÉTODO

ATF6 α pathway activation was evaluated by immunofluorescence in HSG cells treated with TNF- α or IFN- γ . Protein levels of cleaved-caspase-3 and cIAP2 were determined in SG from SS-patients and controls by Western-blot. A correlation analysis between levels of pro-inflammatory cytokines and ERAD components was done with the Pearson test.

RESULTADO

Significant positive correlations were observed between pro-inflammatory cytokines levels and expression levels of ERAD components. TNF- α and IFN- γ treatment induced activation of the ATF6 α pathway. No significant differences in cleaved-caspase-3 and cIAP2 levels between control and SS-patients were observed. Moreover, a negative balance of active Caspase-3/cIAP2 ratio was determined in both groups. A significant positive correlation between cIAP2 protein levels and active Caspase-3 was observed in SS-patients.

CONCLUSIONES

In SS-patients, high levels of pro-inflammatory cytokines induce an activation of the ATF6 α pathway, which may increase the expression of ERAD components, allowing cell rescue from apoptosis. Fondecyt-1120062, Conicyt-Fellowship (MJB and JC).

2 Bone destruction biomarkers in orthodontic patients with periodontally compromised teeth.

Yañez P, González C, Pango A, Von Mühlenbrock H, Vernal R, Riquelme A, Navarrete C.
Facultad de Odontología, Universidad de Chile.

OBJETIVOS

Pathologic tooth migration is one of the most common sequels of periodontitis, which can be resolved using orthodontic treatment; however, this is not frequently recommended for periodontally compromised patients given that it could lead eventually to additional osteo-destruction. In this research, different molecular markers associated with alveolar bone resorption were analyzed in healthy patients after periodontal treatment, with periodontally compromised teeth affected by pathologic migration, before and during the orthodontic treatment.

MÉTODO

Moderate-to-severe chronic periodontitis patients, aged 30 to 65, affected by pathologic tooth migration of group 2 and/or 5 were treated using non-surgical periodontal therapy. After first periodontal control, conventional orthodontic treatment was performed. Gingival crevicular fluid samples were obtained from migrated teeth in at least 2 dental surfaces, depending on the movement made, and at different times: T0: Immediately before starting the periodontal therapy. T1: When periodontal treatment was concluded, immediately before orthodontic treatment. T2: 1 week of orthodontic treatment. T3: 1 month of orthodontic treatment. T4: 3 months of orthodontic treatment. Levels of the biomarkers RANKL, OPG and ICTP were quantified using ELISA.

RESULTADOS

The RANKL levels were significantly lower during the orthodontic treatment compared with levels detected before the periodontal therapy. In fact, the RANKL levels significantly decrease until T2, reaching plateau levels between T2 and T4. These changes were concomitant with the significantly lower levels of ICTP detected during orthodontic treatment, at T4 reaching levels ~50% of the levels detected before periodontal therapy. No differences were detected in the OPG levels during the orthodontic treatment.

CONCLUSIONES

These results demonstrate that, in periodontally compromised teeth with pathologic migration, orthodontic treatment did not increase the levels of pro-bone resorption biomarkers RANKL and ICTP. In fact, the physiological decrement of the RANKL and ICTP levels associated with periodontal therapy was not affected by the orthodontic treatment.

Supported by grant FIOUCH 13-011.

3 Caries experience and severity in childhood, Región Metropolitana, Chile 2014-2015

OBJETIVO

Estimate the caries experience and severity in children from 1 to 6 years old in Región Metropolitana, Chile.

MÉTODO

Preliminary results FONIS SA13I20130: Cross-sectional study stratified sampling in 9 districts of Región Metropolitana de Chile, years 2014-2015. Total of 1361 children. Questionnaires and oral exams were applied after written informant consent. Decay, missing and filled tooth index (dmf index), significant index caries (SIC) and their respective confidence intervals 95% were calculated. T-test to evaluate the difference between dmf-t and SIC. The statistical analysis were performed in STATA13.0

RESULTADOS

The dmf index mean for the sample was 1,92 (CI95% 1,76: 2,09), the SIC was 5,5 (IC95% 5,21:5,78), this difference is statistically significant ($p < 0,00$). The decay component was 1,43 (IC95% 1,30:1,57), the filled component was 0,40 (IC95% 0,34:0,47) and the missing component was 0,08 (IC95% 0,05:0,11).

CONCLUSIONES

The latest studies to estimate caries experience in Región Metropolitana in 2007 reported similar results for dmf index and their confidence intervals for ages 2, 4 (Ceballos, et al.) and 6 (Soto, et al). Despite the Chilean public policies designed to address the problem of oral health in childhood, principally from an individual risk approach, the distribution in the last 8 years has shown small variations. In some age-groups the mean in experience of caries has been reduced, but the differences in oral health between mean dmf and SIC showed significative differences. Because of this is important to study the distribution of caries experience in accordance to their individual and population variables that could explain these differences.

Álvarez C, Sepúlveda P, Yáñez P, Rojas L, Castillo F, Monasterio G, Rojas C, Vega M, Carvajal P, and Vernal R.
Facultad de Odontología, Universidad de Chile.

OBJETIVOS

During periodontitis, microbial antigen presentation may occur both in the regional lymph nodes that drain the periodontal tissues and locally in the infected periodontal tissues. In fact, it has been reported the formation periodontal lymphoid clusters where dendritic cells present microbial antigens to naïve T-lymphocytes, promoting alveolar bone resorption in a periodontal site-specific-manner. In this context, the chemokine receptors CCR7 and CXCR4 and chemokines CCL19, CCL21, and CXCL12 have been associated with the formation of ectopic lymphoid-like structures in inflammatory diseases. Thus, this study aimed to analyze the CCR7, CXCR4, CXCL12, CCL19, and CCL21 production, as well as the CCR7+ naïve T-helper lymphocyte detection, in periodontal tissues of healthy and periodontitis individuals.

METODO

Gingival samples were obtained from healthy and moderate-to-severe chronic periodontitis individuals. Total cells were obtained using enzymatic digestion and then analyzed by flow cytometry using the following monoclonal-antibodies: anti-CD4 (T-helper lymphocytes), CD25 (activated T-lymphocytes), CD45RA (naïve T-lymphocytes), CD45RO (memory T-lymphocytes), and CD197 (CCR7). In addition, total RNA was purified and the expression of CCR7, CXCR4, CXCL12, CCL19 and CCL21 was quantified by qRT-PCR. Finally, the secretion of CCL19, CCL21, and CXCL12 was quantified from gingival crevicular fluid samples by ELISA and the expression of CCR7 and CXCR4 was detected by immuno-histochemistry and western-blot.

RESULTADO

Higher levels of CCR7, CXCR4, CCL19, CCL21, and CXCL12 were detected in periodontitis compared with healthy individuals. In addition, the number of CCR7+ naïve T-lymphocytes (CD4+CD25-CD45RA+CD45RO-CD197+) was greater in periodontitis patients and they were localized mainly perivascularly in the gingival connective tissue.

CONCLUSIONES

Higher number of CCR7+ naïve T lymphocytes was detected in periodontal tissues from periodontitis versus healthy individuals and this increment was associated with the CCL19, CCL21, and CXCL12 production. CCR7+ naïve T-lymphocytes could play a role in the formation of periodontal lymphoid-like structures during the pathogenesis of periodontitis. Funding: FONDECYT-1140904. T-lymphocyte, CCR7, CC-chemokines.

5 Comparison of periodontal treatment modalities in diabetic patients: clinical trial

Quintero A (1), Chaparro A (1), Ramírez V (1), Morales H (2), Prada P (1), Prieto D(1), Hernández M (1), Sanz A (1).
(1) Facultad de Odontología, Universidad de los Andes. (2)Facultad de Medicina, Universidad de los Andes.

AIM: To evaluate in decompensated type 2 diabetics patient the effect of spaced compared with intensive periodontal therapy on periodontal clinical parameters, glycosylated hemoglobin (HbA1c), glycaemia and C-reactive protein (CRP) at three and six months after periodontal therapy.

METHOD: A randomized controlled, parallel group 2 (1: 1) clinical trial was conducted. 58 decompensated DM2 patients (HbA1c \geq 7%) were recruited and assigned randomly to 2 groups : Group 1 (n=27) received spaced non-surgical periodontal treatment in 4 weeks and Group 2 (n=31) an intensive 24 hours scheme. A complete periodontal examination was performed including the size of periodontal wound (PISA) at baseline, three and six months post treatment in conjunction with blood parameters: Glycaemia; HbA1c and C-reactive protein. The results were analyzed using the median and interquartile range (IQR), using the Stata14 program.

RESULTS: In Group 1 (spaced mode) the median difference at 6 months compared to the initial was -0.699% (IQR 2.4) for HbA1c; increase of 2 (IQR 108) for glycaemia and 0 (IQR 3) for PCR. In group 2 (intensive mode) was -0.5 (IQR 2) for HbA1c; -3 glucose (IQR 79) and PCR 1 (IQR 4). Periodontal parameters showed a decrease of gingival bleeding (BOP) and PISA. In Group 1 median PISA difference at 6 months compared to the initial was -382.82 mm² (IQR 407.68) and -25.37% (IQR 20.43%) for BOP. In the group 2 values were -545.32 mm² (IQR 608.37) and -27.77 mm² (IQR 22.08) respectively.

CONCLUSIONS: All patients showed a decrease in HbA1c values and a decrease in the total inflamed periodontal area and BOP and at 3 and 6 months with both treatments modalities. No major differences between both non surgical periodontal treatment schemes were observed.

6 Cultural Adaptation and Validation of a Dental Values Survey

Alcota M1, Manríquez JM1, Cornejo-Ovalle M1, Werlinger F1, Catano V2, Ruiz de Gauna P3, González FE1.

1Faculty of Dentistry, University of Chile, Chile;

2Faculty of Science, Saint Mary's University, Canada;

3Faculty of Philosophy and Educational Sciences, University of the Basque Country, Spain.

OBJECTIVES: The aim of this study was to culturally adapt and validate a Dental Values Survey developed in Canada to be used and applied to students and faculty members from the Faculty of Dentistry, University of Chile.

METHODS: The original instrument contained 91 items or questions. The following steps were performed: i) initial translation of the instrument, from English to Spanish, following standardized procedures to ensure the semantic equivalence between the original and the translated versions; ii) validation of the instrument by a panel of five experts; iii) pilot study, where the consensus version of the survey was applied to a random sample (n=100) of the target population, including faculty members (dentists) and students from the Faculty of Dentistry, University of Chile. Cronbach's alpha was calculated to determine the internal consistency. Items were grouped in five dimensions: altruism, personal satisfaction, quality of life, consciousness and professionalism status and a simple exploratory factor analysis (EFA) and a principal components analysis (PCA) was performed at each item by dimension, as the original instrument. Analyses were performed using STATA 12 software.

RESULTS: There were no adaptation problems in the majority of the items. Only in some cases there was need to adaptation for its use in our environment. There were two items with no cultural equivalence: "I am ambitious," and "I show cultural sensitivity". The reliability of the instrument was very high, with a Cronbach's alpha of 0.94 for the whole survey. The internal consistency for the dimensions was also high. The final instrument was composed of 64 items.

CONCLUSIONS: The reliability of the instrument was satisfactory for the general survey as well as for each dimension, like that described in the original study, except for two items of personal satisfaction and quality of life dimensions.

Financed by Becas Chile Program, CONICYT.

Dendritic cells response upon coinfection with different *Aggregatibacter actinomycetemcomitans* serotypes

Rojas L, Álvarez C, Monasterio G, Castillo F, Sepúlveda P, Hernández M, Fariña V, Vernal R.
Facultad de Odontología, Universidad de Chile.

OBJETIVOS: In *Aggregatibacter actinomycetemcomitans*, six different serotypes have been described, which correspond to structurally distinct O-polysaccharide components of their respective lipopolysaccharide that function as immuno-dominant antigens. A heterogenic immuno-stimulatory potential of this serotypes have been demonstrated when they are in contact with dendritic cells. In fact, serotype b-stimulated dendritic cells produce higher levels of pro-inflammatory cytokines and chemokines compared to the same cells induced with the other serotypes. Recently, it has been reported that some periodontitis patients can harbour two or three different *A. actinomycetemcomitans* serotypes in the same periodontal pocket. Thus, this study aimed to analyze the cytokine, chemokine, chemokine receptor, and matrix metalloproteinase production in dendritic cells exposed to different combinations of the most prevalent *A. actinomycetemcomitans* serotypes.

METODO: Human peripheral blood monocytes were purified and differentiated in vitro into dendritic cells. Dendritic cells were then stimulated with each *A. actinomycetemcomitans* serotype alone or the combinations a+b, a+c, b+c, or a+b+c. The expression and secretion levels of IL-1 β , IL-5, IL-6, IL-10, IL-12, IL-23, IFN- γ , and TNF- α ; CCL1, CCL2, CCL3, CCL5, CCL20, CCL21, CCL25, and CCL28; CCR1, CCR2, CCR5, CCR6, CCR7, CCR8, CCR9, and CCR10; as well as the activity levels of MMP-2 and MMP-9 were quantified using real-time qRT-PCR, ELISA, and gelatin zymography.

RESULTADO: Increased levels of cytokines, CCLs, CCRs, active-MMP-2, and active-MMP-9 were detected in dendritic cells stimulated with the serotype b of *A. actinomycetemcomitans* compared with the others. When dendritic cells were coinfecting with different serotype combinations, a significant decrement in the serotype b-induced cytokine, CCL, CCR, active-MMP-2 and active-MMP-9 production was detected, the lowest levels observed when cells were induced with the combination a+b+c.

CONCLUSIONES: A heterogenic immuno-stimulatory potential was detected after dendritic cell coinfection with the different *A. actinomycetemcomitans* serotypes. The distinct *A. actinomycetemcomitans* serotype coinfections modulate the higher immuno-stimulatory potential induced by the serotype b. Funding: FONDECYT-1140904.

8 Development of a predictive model of preeclampsia in gingival crevicular fluid: a pilot study

Chaparro A1, Gaedecheus D1, Ramírez V2, Zúñiga E1, Inostroza C3, Varas-Godoy M5, Kusanovic JP4, Silva K4, Illanes SE5

1. Department of Periodontology. Faculty of Dentistry, Universidad de los Andes. Santiago, Chile.
2. Department of Public Health and Epidemiology. Faculty of Dentistry, Universidad de los Andes. Santiago, Chile.
3. CIBRO. Oral Biology Center Research. Faculty of Dentistry, Universidad de los Andes. Santiago, Chile.
4. Department of Obstetrics & Gynaecology of Centro de Salud Hospital Sótero Del Río. Santiago. Chile
5. Department of Obstetrics & Gynaecology and Laboratory of Reproductive Biology. Faculty of Medicine, Universidad de los Andes. Santiago, Chile..

BACKGROUND: Preeclampsia (PE) is a maternal disease that clinically manifests in the second half of pregnancy, characterized by hypertension accompanied by proteinuria and generalized edema. Its complications have become one of the main causes of maternal and fetal morbidity and mortality in the world, causing nearly 40% of premature births delivered before 35 weeks of gestation PE is present in around 5-10% of all pregnant women worldwide and despite the amount of resources invested in the research and treatment of this pathology, it's still barely predictable and thus hard to handle clinically.

AIM(S): To explore Cd63+ micro-vesicles, placental alkaline phosphatase and angiogenic biomarkers levels in gingival crevicular fluid (GCF) of preeclamptic and controls patients.

METHODS: We recruited 30 pregnant women, and with Sotero del Río Hospital and Universidad de los Andes ethics committee approval and patients signed consent, we took GCF samples at the PE diagnosis moment and completed a questionnaire for maternal and obstetric history. Control group were randomly selected at the same gestational age and healthy pregnancies. We measured Cd63+ micro-vesicles, placental alkaline phosphatase (PLAP), placental growth factor (PIGF) and sFlt-1 levels in GCF. Variables were integrated in a multiparametric model using a boosted logistic regression analysis (WEKA software).

RESULTS: Preliminary results (30 patients, 20 controls and 10 cases) show an area under the ROC curve of 0.927 (SE=0.05482, 95% CI 0.8200 to 1.035, P= 0.0001708), when combining PLAP, CD63+ micro-vesicles, PIGF, sFlt-1, bleeding on probing and teeth quantity.

Conclusions: Women with PE showed significant differences in comparison with controls in the selected biomarkers detected in the GCF. The model could estimate the development of PE. Larger cohort studies are needed to corroborate the predictive value of this proposed model.

9 High caries values are related to qualitative child development

Mufdi, M., Nuñez, L., Mejía, G.

Depto. Salud Pública Facultad de Ciencias de la Salud, Universidad de Talca.
ARCPOH University of Adelaide. Australia.

OBJECTIVES: To determine the relationship between caries and qualitative child development in three year-old children attending Integra kindergartens of Talca and Linares, Chile 2014-2015.

METHOD: A cross-sectional study was conducted. A sample of 164 children was calculated based on population proportion with a confidence level of 95%. The test of learning and child development (TADI) qualitatively assessed four dimensions of development (language, cognition, motor skills and socio-emotional). The TADI score defined altered or normal child development. A lower test of learning and child development score indicates a lower level of child development. Children were examined to assess decayed, missing and filled teeth (dmft), as well as, caries progression. Data analysis was performed with the SPSS and Infostat. The Scientific Ethics Committee of the University of Talca approved the study.

RESULTS: A weak inverse linear correlation was observed between test of learning and child development score and dmft index ($r = - 0,20$, valor $p=0,004$). The same correlation was observed between dmft index and the dimensions of language, ($r = - 0,19$, valor $p=0,01$) cognition ($r = - 0,18$, valor $p=0,018$) and socio-emotional development ($r = - 0,21$, valor $p=0,005$) with dmft. Nonetheless, children with a very high dmft scored ($> 6,5$) had an average test of learning and child development score lower than children with low (1,2 – 2,6) and very low (0 – 1,2) dmft. There was no statistically significant difference in caries progression between children with normal and altered child development level.

CONCLUSIONS: There was a significant relationship between high caries experience and qualitative child development in three year-old children. Further studies are needed to clarify if causal relationship exists between caries experience and qualitative child development.

10 Inflammatory environment alters salivary mucin secretion in Sjögren's syndrome patients.

I. Castro, S. Aguilera, M.J. Barrera, J. Cortés, V. Bahamondes, S. González, C. Molina, U. Urzúa, C. Leyton, M.J. González
ICBM-Facultad de Medicina, Universidad de Chile. Facultad de Odontología, Universidad Mayor. Clínica INDISA

OBJETIVOS: Sjögren's syndrome (SS) is a chronic autoimmune disease characterized by severe mouth and eye dryness. Salivary mucins are O-glycosylated glycoproteins that protect, lubricate and maintain the oral mucosa hydration. Labial salivary glands (LSG) from SS-patients show cytoplasmic accumulation and altered sulfation of salivary mucins. Decreased mucin sulfation has been correlated with high levels of pro-inflammatory cytokines and dryness symptoms. In this study we determine the localization of salivary mucins in LSG from SS-patients and controls, and evaluate the effect of pro-inflammatory cytokines on mucin secretory process in vitro

METODO: Localization of MUC1 and MUC7 was analyzed in LSG sections from SS-patients and controls using double-staining with endoplasmic-reticulum and Golgi-apparatus markers. The effect of pro-inflammatory cytokines on mucin secretory process was evaluated in 3D-acini obtained by culturing HSG cells on matrigel and incubated with TNF- α and IFN- γ .

RESULTADO: MUC1 showed apical localization in acini of LSG from controls, while in SS-patients was distributed throughout the cytoplasm showing a coincident staining with the endoplasmic-reticulum marker GRP78 and the Golgi-apparatus marker Giantin. MUC7 showed supranuclear localization in acini of LSG from controls, while in SS-patients was observed in supranuclear and basolateral regions, showing points of coincidence with GRP78 and Giantin. Incubation of 3D-acini with pro-inflammatory cytokines induced MUC1 redistribution and altered the localization of polarity markers.

CONCLUSIONES: Our results demonstrate that pro-inflammatory cytokines alter mucin secretory process, which may explain the altered localization and maturation of mucins observed in LSG of SS-patients. FONDECYT-1120062/Conicyt-fellowship (MJB-JC).

11 Mandibular Exercises and Conditioned Pain Modulation in women with Temporomandibular Disorders

Oyarzo, JF
Universidad Andrés Bello

Jaw Exercises has been proven as a pain relief therapy for Myofascial Pain. Conditioned Pain Modulation (CPM) determines how an endogenous inhibitory system regulates pain sensation. Our purpose was to investigate Conditioned Pain Modulation as a possible mechanism of exercise induced analgesia and its behavior in women with Myofascial Pain.

A double-blind randomized controlled trial was performed. 25 women with myofascial pain (RDC/TTM) were randomly assigned to a daily isometric (n = 9) or isotonic (n = 6) jaw exercise or as a neutral control group (n = 9). Masseter, Temporal and forearm muscles Pain threshold (PPT) and Pain tolerance (PPTol) and VAS were measured on days 1, 7, 14 and 21. Cold water arm immersion was used as a noxious stimuli to calculate CPM. Variations between each week were analyzed with STATA® and SYSTAT® software by Scheffe, ANOVA and t tests, Bonferroni correction and linear regression. This study was approved by the local ethics committee.

Pain modulation varied in all three groups within 21 days. Only after 21 days Isometric exercises had a positive correlation with CPM, improving modulatory response and decreasing pain perception ($p=0.01$). Subjective pain improves ($p=0.00$) and some PPT and PPTol thresholds tended to fluctuate in different days, ($p<.05$). The control group muscles had a variable behavior over time, decreasing pain perception at day 21.

CPM varies over time and is related with pain perception after a 21 day jaw exercise therapy, which may improve subjective and mechanic pain perception. These results can't explain conditioned pain modulation as exercise induced analgesia mechanism. We suggest to continue studying this mechanism.

12 Neuroimmune components in dental pulp of teeth with chronic periodontitis

Lovera M (4), Sepulveda M (3), Suzuki K (4), Donoso B (3), Schmachtenberg O (2-3), and Couve E (1-3)
Instituto de Biología (1); Centro Interdisciplinario de Neurociencia de Valparaíso (CINV) (2), Facultad de Ciencias (3); Facultad de Odontología (4), Universidad de Valparaíso, Valparaíso, Chile.

OBJETIVOS: Periodontitis is a prevalent inflammatory disease caused by pathogenic microorganisms affecting mostly adult individuals. Chronic periodontitis is characterized by a progressive clinical attachment loss and persistence of local inflammatory conditions that cause tooth loss. However, the effects of chronic periodontitis on dental pulp components in adult teeth are controversial. The purpose of this study was to evaluate changes in neuroimmune components within the dental pulp of teeth with chronic periodontitis using confocal immunohistochemical and electron microscopy.

METODO: Twenty teeth with moderate and severe chronic periodontitis and ten healthy teeth from adult patients were extracted under clinical indication and donated by signed consent. Teeth were fixed, demineralized and processed for immunohistochemical assessment. Cryosections were assayed with different markers for neuroimmune components (NF-200, S100, GFAP, MBP, Caspr, NaChv, HLA-DR, CD68, CD45 and CD4). Semi-quantitative analysis of antigen expression was performed using confocal microscopy. Transmission electron microscopy was performed to define the status of myelinated axons and pathogen presence within juxta-apical root domains.

RESULTADO: Comparative analysis of samples demonstrates a progressive immuno-inflammatory response characterized by over-expression of HLA-DR by dendritic cells and a gradual infiltration of lymphocytes. Nerve fibers evidence myelin degradation and severe changes at axonal nodes with asymmetric expression of Caspr and the division of sodium channel clusters. Schwann cells display strong GFAP expression and a disaggregated network of S100-labeled cells. Transmission electron microscopy from juxta-apical root sections shows different degrees in myelin degradation and pathogen infiltration.

CONCLUSIONES: We evidence significant changes within dental pulp components in moderate and severe chronic periodontitis. Neurodegenerative changes in nerve fibers and progressive immunocompetent cell infiltration could be associated with the chronic inflammatory environment surrounding affected teeth. We propose a link between chronic periodontitis and changes in neuroimmune components, suggesting progressive dental pulp degeneration. (Fondecyt 1141281 and Millennium Institute CINV)

13 Oral health of adolescent inmates, Maule Region.

Kostya C, Núñez L, Mejía G, ARCPOH University of Adelaide.
Depto. Salud Pública Facultad de Ciencias de la Salud, Universidad de Talca.

OBJETIVOS: To investigate oral health of adolescents housed at Provisional Detention Centers (CIP) and Closed Detention Centers (CRC) of the Maule region compared to high school students living in the same region.

MÉTODOS: Cross-sectional study, comparing two adolescent groups matched by gender, urban/rural area of residence and age (± 2 years). The first group included 47 adolescents from the CIP-CRC centres of the Maule Region and the second group included 47 adolescents from a high school community of the same region. Both groups were surveyed and examined during the second half of 2010 in order to obtain information on their sociodemographic characteristics, oral and dental health status. The statistical analysis used Student's T test and Mann Whitney U tests. Analysis was done using SPSS 14.0.

RESULTADOS: A significant statistical difference was observed in caries prevalence between the CIP-CRC group (97,9%) and the High School group (74,5%) ($p < 0,0001$). The difference in the DMFT index between the CIP-CRC group and the High School group (6,83 (SD 3,82) versus 4,02 (SD 3,02) respectively). This difference was statistically significant. The Significant Caries Index was significantly higher in the CIP-CRC group compared to the High School community (10,88 (SD 2,82) versus 7,56 (SD 1,89)) ($p = 0,001$). The average Simplified Oral Hygiene Index was significantly higher in the CIP-CRC group than in the High School Community group (2,10 (SD 0,76) versus 1,56 (SD 0,66)) ($p < 0,0001$).

CONCLUSIONES: Adolescents' oral health status at the CIP-CRC centers of the Maule Region is deficient compared with High School adolescents of a particular district in the same region. This may affect their capability to adjust to society after imprisonment.

14 Platelet-derived fractions promotes migration of human periodontal ligament stem cells

Pastore A, , Smith P, Martínez C.

Academic membership:

Dentistry Academic Unit, Faculty of Medicine, Pontificia Universidad Católica de Chile

Identification of speaker:

Antonia Pastore Thomson

OBJECTIVE: Characterize migration ability of Human periodontal ligament stem cells (HPL) treated with Human Platelet- Rich (PRP) or Poor (PPP) plasma.

METHODS: Primary cultures of human periodontal ligament were obtained from explants, from third impacted molars under approved guidelines set by the Ethics Committee of the Faculty of Medicine, Pontificia Universidad Católica de Chile. Cells were characterized by flow cytometry and their differentiation potential into osteogenic, adipogenic and chondrogenic lineages. Platelet derived fractions were collected from young and healthy volunteers using the Biomet GPS III system. Migration ability of human periodontal ligament stem cells (HPLSC) was evaluated in the presence of PRP or PPP fractions at different concentrations (5 or 10%) seeded on transwell chambers with 8 μ m pore polyester membrane. After 16 hours of treatment, cells were fixed and stained with hematoxylin. Quantification of cell migration was done using digital images of three fields per membrane. Cells were counted using imaging software. Student t test was used to analyze data. Finally to evaluate actin fibers, cells were stained with phalloidin and counterstained with DAPI.

RESULTS: We obtained periodontal ligament cell cultures with mesenchymal stem properties. By flow cytometry cells were positive for CD105, CD90, CD73 (>98%) and negative for CD34, CD11b, CD14, CD79a. We confirmed the differentiation potential of HPLSC into the bone/cementum, adipose, and cartilage lineages using specific stains. We saw a positive effect of PRP or PPP on migration ability of HPLSC. Significant statistical differences were found between PRP (5 or 10%) or PPP 10% and control (DMEM) $p < 0,005$. In order to establish a biological rationale for the use of PRP or PPP, we can conclude that plasmatic-derived fractions are a source of biomolecules to stimulate HPLSC migration and constitutes an alternative source of biomolecules potentially used in future periodontal regeneration therapies. Fondecyt Grants 11121294 (CM) 1130618 (PS) financed this work.

15 Qualitative exploration of the guaranteed program for pregnant Chilean women

Carvajal C (1), Fajreldin V (2), Hernández-Ríos P (3), Contreras J (3), Carvajal P (3).

1. Oral Health Department, Ministry of Health of Chile
2. Institute of Dental Sciences, Faculty of Dentistry at the University of Chile
3. Department of Conservative Dentistry, Faculty of Dentistry at the University of Chile

OBJECTIVES: The Oral Health Policy Public in Chile prioritizes health care for pregnant women through the explicit guarantee of health (GES) called Oral Health Integral Pregnant. This GES ensures pregnant women access, opportunity, quality, and financial protection for dental care. In general, this GES is aimed to educate, prevent, recover, and rehabilitate the oral health of pregnant women and create health conditions for their children fostering the family environment that promotes and protect oral health. This study is aimed to explore the experience and perception of pregnant women whom have received this guaranteed attention GES.

METHODS: By theoretical non-randomized sampling, two Family Health Centers (CESFAM) from Quinta Normal and San Joaquín were selected. From them, 19 mothers who received the Oral Health Integral Pregnant GES were interviews. The interviews were transcribed and analyzed using content analysis of information categorized by the objectives trying to understand the phenomenon of research. The protocol of the study was clearly explained to all the participants, who agree to participate in the study by signing an IRB-approved informed consent.

RESULTS: Key themes emerged: (1) Pregnancy and lactation are perceived as unsafe for tooth loss due to the belief that they produce tooth decalcification; (2) They value positively the dental care during pregnancy, due to the improved aesthetics and enhancing their self-esteem and happiness; (3) They value positively the gratuity; (4) They believe that the oral health care for their children depends on their own oral care; (5) The educational component of dental care for their children is not included.

CONCLUSIONS: In general, women are unaware that during pregnancy oral health is guaranteed by the Public Health. Additionally, they do not fully understand the scope of this guaranteed oral health, despite signing the respective notification.

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16 Quality Teaching: Promoting student-centred approach to teaching through Constructive Alignment

Tricio J, Ormeño C, Naranjo C.
Facultad de Odontología, Universidad de los Andes.

OBJETIVOS: A process of teaching quality assurance is underway at the University of los Andes Dental School by fostering a student-centred approach to teaching. Hence, the influential Constructive Alignment (CA) model (Biggs 1999) is being implemented. The premise of the model is that teaching-learning activities and assessment tasks must be “aligned” with the course intended learning outcomes in order to improve students’ learning. This study aimed at assessing baseline teachers’ approach to teaching as well as their perceptions on CA training and early implementation.

METODO: In March 2015, all 176 dental school teachers were invited to anonymously complete the Approaches to Teaching Inventory (ATI) (Trigwell et al. 2005) to assess the way they approached their teaching (student-centred or teacher-centred). Subsequently and during the 2015 first semester, an introductory CA model seminar followed by small group workshops were delivered by three experts from the Education Directorate to all staff. A target was set to start implementing the model in all courses by March 2016, though five pilot courses are due to begin in August 2015. Once training was completed, teachers were invited to answer a CA anonymous perceptions’ questionnaire. Descriptive statistics using Microsoft Excel® were employed to express the studied variables.

RESULTADO: A number of 114 (65%) teachers answered the ATI questionnaire before the CA training. The majority (52%) demonstrated a student-centred approach to teaching, though 29% showed a teacher-centred approach, whilst 19% exhibited no dominance. However, 70% of clinical teachers exhibited a student-centred approach. Sixty-four (56%) completed the CA perceptions’ questionnaire after training: 97% agreed on that CA will foster a student-centred approach to teaching through learning outcomes transparency (94%), and evidencing students’ weaknesses and progress (88%).

CONCLUSIONES: There is considerable room to increase a student-centred approach to teaching in our Dental School and staff believe Constructive Alignment will do so.

95 Success, Failure and Oral Health-Related QoL: Implant overdenture, two-year assessment.

Miranda V.M.*, Barahona C., Sanfurgo J., Cáceres M., Romo F., VonMarttens A., Tirreau V., Carvajal JC & Torres-Quintana MA.
Dpto of Prosthesis, Dpto of Oral Pathology and Oral Medicin and Dpto of Surgery and Traumatology. Dental Faculty of University of Chile .

OBJETIF: To compare the development of oral health-related quality of life (OHRQoL) in ederly with complete conventional dentures (CCDs) and others with maxilar conventional and mandibular implant overdenture (IOD), and its association with succes, repair incidence and failure of prosthesis or implants.

METHODS: 98 patients (mean age, 72.3, 70,4% female) received CCD (N=17) or IOD (N=81) came to clinical controls at 1 and 2 years after insertion (protocol visits). All circumstances of success, repair incidence and failures were recorded. At time of epicrisis (6 months CCD; 1 month IOD), and 1 and 2 years, OHRQoL was measured by use of the OHIP-49Spanish. Percentages, average, differences in propotions, Mann-Whitney and survival Kaplan-Meier tests were used to analyze and compare data..

RESULTS: At 12-14 months IOD success was 22.2%, OHIP49Sp:11,8±11,5 and 41.2% (significant p<0,05), OHIP49Sp: 5,4±8 for CCD. At 18-24 months IOD success was 39.5%, OHIP49Sp:16,9±16 and 35.3%, OHIP49Sp:13,2±14,6 for CCD. Repair incidence reported was 67,9% (significant p<0,05); OHIP49-Sp:19,6±27,8 IOD and 41,2%, OHIP49-Sp:31,1± 43,2 for CCD at 12-14 months, decreased to 51,9%, OHIP49-Sp: 20±28,6 and 47%,OHIP49-Sp: 8,9±7,2 respectively at 18-24 months control. Failures were 9.9%, OHIP49-Sp: 31,8±33,8 IOD and 17.7%, OHIP49-Sp:12,7±21,9 for CCD at 12-14 months; and 8.6%, OHIP49-Sp:14,3±14,8 IOD and 17.7%, OHIP49-Sp: 16,7±28 CCD at 18-24 months. The Kaplan-Meier analysis showed a 50% survival IOD treatment after 49 months follow-up and 52 months for the CCD group. No subgroups has a significant impact on survival of treatment with IOD.

CONCLUSIONS: Maintenance treatment with implant-retained mandibular overdenture is more complex than treatment with conventional dentures, protocol requires greater number of controls. The clinical results indicate that the protocol can benefit from modifications, OHRQoL is maintained over time, even it seems to improve more in CCD. A cost / benefit two years tracking, analysis can determine its health programs indicated the elderly. Intracameral bleaching causes increased levels of RANKL in Gingivocrevicular transudate, these results may explain the hard tissue resorption occurs in some patients. The intracameral bleaching has an positive effect on the self-aesthetic perception and psychological impact for the patient.

FONIS SA11i2197

109 Can the non-vital bleaching stimulate resorption of mineralized tissues?

C.Bersezio , J.Martín , OB Oliveira Jr , R. Vernal , E.Fernández
Facultad de Odontología, Universidad de Chile.

OBJECTIVES: The aim of this clinical randomized double-blind clinical study was to assess the markers levels of RANKL, involved in the external cervical resorption as a primary outcome, change color effectiveness and effect on the self-aesthetic perception and social impact in patients undergoing intracoronary bleaching.

METHOD: 20 volunteers participated with discoloration on non-vital teeth, with the endodontic treatment in good condition. Patients were randomly located into two study groups according to product G1 = 35% hydrogen peroxide (n = 10) and G2 = 37% carbamide peroxide (n = 10).

The intracameral bleaching was performed with a walking bleaching technique with 4 sessions

Gingivocrevicular transudate samples to determine levels of RANKL were taken with absorbent paper (Periopaper®), they are obtained from six sites per tooth bleaching: 3 vestibular and 3 palatine (mesial, middle and distal), in 6 opportunities: baseline, after 4-sessions of intracameral bleaching and a one week after treatment. Total proteins are quantified by Bradford® system and from the eluted sample RANKL levels measured by ELISA (Quantikine®; R&D Systems Inc.).

The color was evaluated in each sesión with Vita EasyShade spectrophotometer is used with the CIEL*a*b system to measure the total variation in color (ΔE), between the baseline and the different evaluation times. Quality of life was assessed by questionnaire OHIP-14 and PIDAQ before and after treatment.

RESULTS: RANK-L had a significantly increased levels relative to baseline ($p < 0.05$) in all evaluated times. The color had a change of 16.31 for G1 and 13,77 for G2 of delta E units ($p > 0.05$). And there was a decline in scores of OHIP14 and PIDAQ ($p < 0.05$) compared to baseline.

CONCLUSIONS: Intracameral bleaching causes increased levels of RANKL in Gingivocrevicular transudate, these results may explain the hard tissue resorption occurs in some patients. The intracameral bleaching has an positive effect on the self-aesthetic perception and psychological impact for the patient

116 Bioactivity of dentin-substitutes with bioactive glass nanoparticles: a FTIR-ATR study.

Corral C, Quintana C, Sepulveda G, Covarrubias C, Fernandez E, de Oliveira Jr OB
Facultad de Odontología, Universidad de Chile.

OBJECTIVE: To assess the effect of the incorporation of bioactive glass nanoparticles (nBG) into dentin substitutes on its in vitro apatite formation capacity.

METHODS: nBG were synthesized by sol-gel method. Discs were prepared of Biodentine (BD), BD modified with 2% weight of nBG (2%nBG/BD), MTA (Angelus), MTA modified with 2% of nBG (2%nBG/MTA), Theracal LC (TH), TH modified with 2% of nBG (2%nBG/TH), Hydcal (DY) and Hydcal modified with 2% of nBG (2%nBG/DY). The ability of these cements to induce apatite formation was assessed in Simulated Body Fluid (SBF). Discs were immersed in SBF for 3 days, and discs not immersed in SBF were used as control. Fourier transform infrared spectroscopy (FTIR) analysis was performed to identify presence of hydroxyapatite (HA) on the surface of the samples.

RESULTS: BD showed the presence of characteristic HA signals after 3 days of SBF immersion; which were more intense when 2% weight of nBG was incorporated into the cement. MTA and DY did not express the characteristic HA signals after 3 days of SBF immersion, however when nBG was incorporated into these cements the characteristic bands were observed. TH did not showed the presence of HA on its surface after 3 days of SBF, not even when nBG was incorporated into it.

CONCLUSIONS: The nBG incorporation to dentin substitutes, based on calcium silicate and calcium hydroxide, improves their bioactive properties, accelerating the formation of an apatite layer on their surface after 3 days of SBF immersion. This effect is not observed in resin-modified cements.

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17 Adolescents: oral health and quality of life. Epimaule study.

Valenzuela C., Bustos I.P., Mariño R.J., Giacaman R.A.
 Department of Public Health, University of Talca, Talca, Chile.

OBJETIVOS: To describe the quality of life and the state of oral health of adolescents 15 years-old, Maule, Chile, 2011.

MÉTODO: Analytical cross-sectional study. The study was done to estimate proportions through a multistage probability sampling stratified by age. A total of 484 15 years-old adolescents representative of Maule Region, Chile, participated in the study. Clinical examination was performed by four examiners calibrated according to the WHO criteria (Kappa 0.96). Quality of life was assessed with GOHAI. Student's T-test was used for averages, binomial exact test to calculate population prevalence, Fisher exact-test was used for association of variables (significance level of 5%). Normality assumptions were reviewed with the Kolmogorov-Smirnov test. The study protocol was approved by the Bioethics Committee of the University of Talca (Number 00038).

RESULTADO: The 45.2% of the sample were women and 43.6% lived in rural area. GOHAI average was 46.6 (95% CI, 45.9 to 47.2). The 70% of study population perceived poor quality of life in relation their oral health. A better quality of life perception was observed in men than in women ($p = 0.005$) observing no difference between urban-rural residence ($p = 0.326$). No association was found between quality of life with number of caries ($p = 0.089$), filled teeth ($p = 0.219$), DMFT ($p = 0.064$) or community periodontal index ($p = 0.184$). A weak negative correlation was found between the number of missing teeth and GOHAI ($p = 0.01$).

CONCLUSIONES: In the study, the oral condition exerts an influence on the quality of life of adolescents. As the number of missing teeth increases, there is a worse perception of quality of life related to oral health.

18 Adolescents' attitudes about elderly oral health. Epimaule-study

Salas C., Bustos I.P., Mariño R.J., Giacaman R.A.
 Departamento de Salud Pública, Facultad de Ciencias de la Salud, Universidad de Talca

OBJECTIVE: To describe the attitudes of 15 years old population regarding oral health of the elderly, in the Maule region and its association with caries experience and sociodemographic characteristics such as gender and place of residence (rural or urban).

METHODOLOGY: Analytical cross-sectional study. The study was done to estimate proportions through a multistage probability sampling stratified by age. A total of 475 adolescents 15 years old who received public education of Maule Region, participated in the study. Data collection was carried out by four calibrated examiners (Kappa inter and intra-examiner 0.93 0.96), using an intraoral clinical examination (DMFT) and implementation of a structured interview (sociodemographic and oral health attitudes Likert survey). Statistical comparisons for variables presented as means were measured by Student's t-test, Z-test was applied to compare proportions. Contingency tables were used in conjunction with Fisher exact test to study the association of the variables. The statistical significance was set at a p -value < 0.05 . The study protocol was approved by the Bioethics Committee of the University of Talca (Number 00038).

RESULTS: The 54.74% of the sample were male, 56.6% live in urban areas, 51.4% of adolescents showed good attitudes. No association was found between attitudes and gender ($p = 0.783$) and between attitudes and place of residence ($p = 0.460$). Association was found between attitudes and oral health status index (DMFT) ($p = 0.049$).

CONCLUSION: There seems to be a correlation between a bad attitude toward the health of the elderly and the personal experience of caries in adolescents. Health promotion programs should promote knowledge regarding the permanent consequences of their behavior during adolescence (product of the interaction between knowledge, attitudes and practices), projected in the individual's adult life.

19 Adults' attitudes about elderly oral health. The epimaule-study.

Bustos M., Bustos I.P., Mariño R.J, Giacaman R.A.
Department of public Health, Faculty of Health Sciences, University of Talca

OBJECTIVE: To describe the attitude of adults 35-44 years old of Maule region regarding oral health of elderly and its relationship with caries experience and sociodemographic variables such as gender, residential area (rural or urban), education level and occupation.

METHODOLOGY: Analytical cross-sectional study. The study was done to estimate proportions through a multistage probability sampling stratified by age. A total of 448 adults 35-44 years old of Maule Region, Chile, participated in the study. Data collection was performed by four calibrated examiners (Kappa inter-examiner: 0.93 and intra-examiner: 0.96), using an intraoral clinical examination (DMFT) and implementation of a structured interview (sociodemographic and oral health attitudes). Student T-test and Mann Whitney U-test were used to compare means and medians of DMFT components. The association of variables were evaluated using Fisher's Exact test (statistical significance was set at a p-value<0.05). The study protocol was approved by the Bioethics Committee of the University of Talca (Number 00038).

RESULTS: The 85.3% of the sample were female, 58.5% lived in rural areas, 57.8% showed a bad attitude toward elderly oral health. The bad attitude toward elderly oral health was observed in 50.7% of women, 33.3% of rural residents, 49.1% of adults with 12 years of education and 47.5% of adults with high DMFT. No association was found between attitude and all variables study (gender ($p = 0.106$), place of residence ($p = 0.698$), educational level ($p = 0.895$), occupation ($p = 0.702$)).

CONCLUSION: Most of studied population showed a bad attitude towards elderly oral health. There was no association between attitude and caries experience and demographic variables (gender, place of residence, education level and occupation).

20 Adults: Quality of life and oral health. The epimaule study.

Troncoso F.J., Bustos I.P., Mariño R.J, Giacaman R.A.
Department of Public Health, University of Talca, Talca, Chile.

OBJECTIVES: To determine the association between oral health and quality of life related to oral health from adults aged 35-44 years old in the Maule Region, Chile, 2011.

METHODOLOGY: Analytical cross-sectional study. The study was done to estimate proportions through a multistage probability sampling stratified by age. Clinical examination was performed for 436 adults to assess DMFT, and CPI index (calibrated examiners, 0.93 inter and intra-examiner Kappa 0.96). GOHAI was applied and the individuals were requested to complete a socio-demographic survey.

Data were analyzed using frequency and percentages tables, plus contingency tables to describe the sample. A correlation test was applied to determine the association between variables (Pearson correlation coefficient, Kendall Tau C). The statistical significance was set at a p-value<0.05. The study protocol was approved by the Bioethics Committee of the University of Talca (Number 00038).

RESULTS: The sample was mainly composed of women (85.3%) and rural areas residents (58.7%). High prevalence of caries (99.77%) and periodontal disease (96.8%) was found, in addition to poor perception of quality of life related to oral health (GOHAI 97.7%). GOHAI psychosocial function was the most affected dimension.

Correlation was found between GOHAI and DFMT, D component (Pearson 0.18; $p = 0.0$), M (Pearson 0.18; $p=0.0$) and CPI (Kendall Tau C=0.14; $p=0.0$).

CONCLUSIONS: Poor perception of quality of life, affecting mainly on a psychosocial level. This perception is weakly related oral health indicators.

21 Aesthetics self-perception post in-office bleaching at long-term follow-up by OHIP14

*Inda D, Herrera A, Martin J, Letelier C, Bersezio C, Fernandez E
Facultad de Odontología, Universidad de Chile*

OBJETIVOS: To evaluate the changes in self-perception of dental aesthetics in patients undergoing bleaching teeth in-office with low concentration of PH at 9 month follow-up.

MÉTODO: 31 patients older than 18 years, of both genders, who were subjected to tooth bleaching, were evaluated. The OHIP14-Aesthetic questionnaire was applied to measure the self-perception of dental aesthetics in 4 times (prior to bleaching, in the week after treatment, one month and nine months later). After the data were compared by Wilcoxon test.

RESULTADO: The results show that there is no statistically significant difference between measuring the perception of aesthetics prior to bleaching versus the post-evaluation ($p = 0.11$). At month only statistically significant differences are observed in the topic of psychological discomfort ($p = 0.026$) and 9 months on the topic of functional limitations ($p = 0.047$).

CONCLUSIONES: There are no differences in the perception of aesthetics in patients undergoing teeth whitening by comparing the baseline time and 9 months follow-up. Positive changes in terms of psychological discomfort at month time and functional limitations at 9 months of follow-up.

22 Alteración de Vértebra C1 como Factor de Riesgo para Mordida Cruzada

*Contreras M., Rozas O.
Facultad de Odontología, Universidad San Sebastian. Facultad de Odontología, Universidad Andrés Bello*

OBJETIVOS: Relate the tilt or rotation of cervical vertebra Atlas and crossbites unilateral in patients whose ages oscillate between 4-11 years.

MÉTODO: A case-control analytic observational study was conducted. The sample complied by 64 patients (20 cases and 44 controls) from 4-11 years, of both genders, which was performed in a scanning: Dentistry with the Fox plane analysis; kinesiológica through palpation of the position of vertebra C1 and subsequently performed a radiographic taking with a Transoral in open mouth.

RESULTADO: There is no significant difference between age, gender, type of dentition and intervertebral spaces Atlas-Axis (mm) groups in case and control. The occlusal plane is inclined in 85% of cases and normal at 81.8% of controls. The dental midline is deviated in 95% of cases and focused on the 79.5% of controls. Jaw is misguided in 95% of cases and focused on 88.6% of the controls. There is a statistically significant difference between the rotation and inclination of the Atlas and the cases and controls observed in the x-ray. 100% of the cases presented rotated Atlas and 88.6% of controls normal, OR 148,2. The Atlas is inclined in 65% of cases and normal in 95.5% of controls, OR 39. In the kinesiológica evaluation, 90% of the cases presented Atlas rotation, and normal in 56.8% of controls, OR 25.

CONCLUSIONES: When comparing age, gender, type of dentition and intervertebral joint spaces Atlas-Axis, there were no differences that could suggest a role as a risk factor for subsequent unilateral cross bites. When comparing the occlusal plane, this was presented normal in most of the controls and tilted in most cases, so the occlusal plane is related to unilateral posterior cross bite. The mandibular dental midline position, centered found most deviant controls and in most cases. Indicating that these variables are related to the presence of unilateral posterior cross bite. When comparing the position of the vertebrae Atlas (rotation and tilt of C1) with the study groups differences suggesting a role in the development of posterior cross-bites unilateral, mainly the presence of rotation of C1 on the same side was found posterior cross bite.

23 Analysis of Dental Clinical Terminology and Translation Mapudungun

Flores T, Caniguan J, Fuentes R, Salamanca C.

Filiación Académica: Facultad de Odontología, Facultad de Educación Ciencias Sociales y Humanidades, Universidad de la Frontera.

PURPOSE: The objective of this research was to determine whether the terms used in dentistry have mapudungun translation. A qualitative, descriptive and cross-sectional study was conducted.

METHOD: With the help of 10 dentists from public health practice of Temuco, was developed a list of 132 terms frequently used in dental practice. Its significance is discussed in mapudungun-Castilian dictionary with the help of specialists in Mapuche language.

RESULTS: It was determined that 28.78% of the terms have the Mapuche language translation; 14.39% have no translation but can be understood from the language; while a 56.81% have no translation and can't be understood from the Mapudungun language. For the statistic analysis, was used Pearson Chi square non parametric test in order to determinate significative differences between the proportions of the studied terms from the three groups ($p=0,000$).

CONCLUSIONS: A significant number of terms commonly used in dentistry don't have mapudungun translation; and even among the Mapuche people's conception about oral health seems to be very important, are still scarce clinical terms that can be explained on the basis of pre-existing Mapuche concepts. It is necessary to generate precise form of communication between the patient and the dentist, along with the creation of new words and concepts in mapudungun, and therefore tools that help to understand the perception of the concepts of health and disease Mapuche worldview context helping to improve dental care.

24 Antimicrobial Acrylics Modified With Metal Nanoparticles for Dentures

Matamala L, Covarrubias C, Gómez L, Pérez J, González JP.

Facultad de Odontología, Universidad de Chile

OBJETIVOS: Objectives Study the antimicrobial properties against *Candida albicans* of acrylics modified with nanoparticles of copper (CuNP), silver (AgNP) and zinc (ZnNP).

MÉTODO: Methods Nanocomposites were prepared with thermocuring polymethylmetacrylate (PMMA) by adding copper, silver and zinc nanoparticles synthesized in the laboratory. The structure of the materials were characterized through SEM-EDX microscopy and FTIR spectrophotometry. Antimicrobial properties of the materials were assessed against *Candida albicans*, by counting colonies grown on the surface material. Mechanical properties were measured through flexural and traction essays.

RESULTADO: Results The acrylic loaded with CuNPs presented higher capability to inhibit *Candida albicans* grow on the material surface, than that exhibited by the nanocomposites prepared with AgNPs and ZnNPs. This result can be explained for the differences in the reactivity, solubility and the capacity of the nanoparticles to interact with the membranes of *Candida albicans*. Otherwise, it was seen an improvement of the flexural and traction properties of the denture acrylic with the incorporation of the metallic nanoparticles.

CONCLUSIONES: Conclusion The incorporation of metallic nanoparticles into the acrylic polymer of denture, enable to create a material with effective antimicrobial properties to control *Candida albicans*. Among the assessed nanoparticles, the copper produced the highest antimicrobial effect. Dentures fabricated with the new acrylic material modified with CuNPs, should have favorable consequences in preventing and/or controlling Denture Stomatitis in denture wearing patients. Proyecto FONDEF CA13110005

25 Body position effect on respiratory muscles in different breathing types.

Miralles R², Celhay I², Cordova R^{1,2,3}, Santander H², Valenzuela S^{1,2}, Fuentes AD^{1,2}, Gutiérrez MF^{1,2}, Bull R².

1 Faculty of Dentistry, University of Chile. 2 Faculty of Medicine, University of Chile.

3 Faculty of Medicine, Diego Portales University.

OBJETIVOS: Effect of body position on electromyographic activity of respiratory muscles in subjects with different breathing types was evaluated.

MÉTODOS: This study included two groups of twenty subjects each, one with upper costal and the other with costo-diaphragmatic breathing type. Surface electromyographic activity of sternocleidomastoid, diaphragm, external intercostal and latissimus dorsi muscles was recorded during standing and in the lateral decubitus position, during the following tasks: 1) normal quiet breathing; 2) speaking the word "Mississippi"; 3) forced deep breathing.

RESULTADO: Electromyographic activity of diaphragm and external intercostal muscles was higher during standing than in the lateral decubitus position, in subjects with both breathing types. Electromyographic activity of diaphragm was significantly higher in upper costal than in costo-diaphragmatic breathing groups, during all tasks at standing and during tasks 1 and 2 in the lateral decubitus position ($P < 0.05$).

CONCLUSIONES: These results suggests differences in the respiratory effort in the subjects studied, that depend on the body position and/or the breathing type.

26 Body position influence on electromyographic activity of respiratory muscles.

Valenzuela S(1,2), Miralles R(2), Santander H(2), Bull R(2), Cordova R(1,2,3), Celhay I(2), Cavada G(2), Gutiérrez MF(1,2).

1 Faculty of Dentistry, University of Chile. 2 Faculty of Medicine, University of Chile. 3 Faculty of Medicine, Diego Portales University.

OBJETIVOS: To compare the effects of body position on electromyographic (EMG) activity of respiratory muscles in subjects with costo-diaphragmatic or upper costal breathing.

MÉTODO: Each group included 20 male subjects. EMG activity of sternocleidomastoid (SCM), diaphragm (DIA), external intercostal (EIC) and latissimus dorsi (LAT) muscles was recorded in standing and lateral decubitus positions, during the following tasks: i) swallowing of saliva, ii) maximal voluntary clenching in intercuspal position.

RESULTADO: EMG activity, in both tasks, was higher during standing than in the lateral decubitus position in DIA, EIC and LAT muscles in the upper costal breathing group, and only in EIC muscles in the costo-diaphragmatic breathing group. EMG activity of SCM muscle was higher in the lateral decubitus than in the standing position, during maximal voluntary clenching. EMG activity of DIA muscle was higher in subjects with upper costal than in subjects with costo-diaphragmatic breathing, in the standing position, during both tasks. Activity of SCM, DIA and EIC was higher in the upper costal than in the costo-diaphragmatic breathing group, in lateral decubitus position during swallowing, whereas, EMG activity was only higher in SCM and DIA muscles during maximal voluntary clenching.

CONCLUSIONES: These results suggests differences in the EMG activity recorded depending on the body position and on the breathing type.

27 Bone resorption induced by synovial fluid of osteoarthritic-affected temporo-mandibular joints

Monasterio G, Yáñez P, Sepúlveda P, Castillo F, Rojas L, Álvarez C, Núñez C, Flores G, Diaz W, Vernal R.
Periodontal Biology Laboratory, Faculty of Dentistry, Universidad de Chile

Keywords: osteoarthritis, temporo-mandibular joint, bone resorption.

AIMS: The osteoarthritis of the temporo-mandibular joint (TMJ) is a degenerative disease characterized by inflammation of the synovial membrane, chronic pain, and articular cartilage and subchondral bone resorption. During osteoarthritis of the TMJ, diverse pro-inflammatory and cartilage/osteo-destructive mediators are produced, which can be detected in the synovial fluid. This study aimed to analyze the presence and activity of osteo-destructive factors in the synovial fluid of osteoarthritis-affected TMJs by quantifying the levels of RANKL and induction of in-vitro bone resorption.

METHODOLOGY: Following to RC-TMD criteria, three patients with osteoarthritis of the TMJ were selected. One patient with disk-displacement without articular bone resorption was selected as control. From each TMJ, synovial fluid was obtained during arthrocentesis procedures and immediately centrifuged at 8000xg for 15 minutes, in order to separate total cells from synovial fluid. From cells, total cytoplasmic RNA was purified and the RANKL mRNAs levels were quantified by real-time qRT-PCR. From synovial fluid, the RANKL levels were quantified by ELISA. In addition, 50,000 RAW264.7 cells/mL were seeded in DMEM-medium in osteo-assay 96-well plates, then differentiated to pre-osteoclasts with 35ng/mL rhRANKL for 1 day and finally exposed to serial dilutions of each synovial fluid sample for 4 days. Cells maintained with RANKL or exposed to DMEM without synovial fluid were used as experimental controls. After toluidine-blue staining, the number of resorption pits was quantified by image analysis using visible light microscope.

RESULTS: Higher levels of RANKL were detected in samples from osteoarthritis-affected TMJs compared with disk-displacement-affected TMJ control. In addition, a dose-dependent higher number of resorption pits was observed when osteoclasts were exposed to synovial fluid from osteoarthritis-affected TMJs compared with control.

CONCLUSIONS: The articular cartilage and subchondral bone resorption characteristic of the osteoarthritis-affected TMJs can be explained, at least in part, by the detection of increased levels of RANKL in the synovial fluid.

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28 Carbamide vs. Hydrogen peroxide at-home bleaching: systematic review and meta-analysis

Luque-Martinez IV1, Muñoz MA2, Schroeder M4, Loguercio AD3, Cople ML4, Reis A3.

1Pontificia Universidad Católica de Chile, Chile; 2Universidad de Valparaíso, Chile; 3Universidade Estadual de Ponta Grossa, Brasil; 4Universidade Federal do Rio de Janeiro, Brasil.

OBJECTIVES: To compare the color change produced by tray-delivered carbamide peroxide [CP] versus hydrogen peroxide products [HP] for at-home bleaching through a systematic review and meta-analysis.

METHODS: MEDLINE via PubMed, Scopus, Web of Science, LILACS, BBO and Cochrane Library and Grey literature were searched without restrictions. The abstracts of the IADR (1990–2014), unpublished and ongoing trials registries were also searched. Dissertations and theses were explored using the ProQuest Dissertations and Periodicos Capes Theses databases. We included randomized clinical trials that compared tray-delivered CP versus HP for at-home dental bleaching. The color change in shade guide units (SGU) and ΔE were the primary outcomes, and tooth sensitivity and gingival irritation were the secondary outcomes. The risk of bias tool of the Cochrane Collaboration was used for quality assessment.

DATA: After duplicates removal, 1379 articles were identified. After title and abstract screening, 29 studies remained. Fifteen studies were further excluded remaining 14 studies for qualitative and quantitative analyses. Eight studies were considered to be 'low' risk of bias in the key domains of the risk bias tool. For ΔE , the standardized mean difference was -0.45 (95% CI -0.69 to -0.21), which favoured tray-delivered CP products ($p < 0.001$). The color change in ΔSGU ($p = 0.70$), tooth sensitivity ($p = 0.83$) and gingival irritation ($p = 0.62$) was not significant different between groups.

CONCLUSIONS: Tray-delivered CP gels showed a better whitening efficacy than HP-based products. Both whitening systems demonstrated equal level of gingival irritation and tooth sensitivity.

Key words: systematic review; meta-analysis, at-home bleaching, carbamide peroxide, hydrogen peroxide.

29 Caries prevalence in childhood by district, Región Metropolitana, Chile

Monsalves M, Aubert J, Valdes M, Duran D, Moya P.

Instituto de Políticas Públicas de Salud, Universidad San Sebastián. Escuela de Salud Pública, Universidad de Chile. Facultad de Odontología, Universidad Finis Terrae.

OBJETIVO: To estimate the prevalence in decay-free children from 1-6 years old, by district in Región Metropolitana de Chile.

MÉTODO: Preliminary results FONIS SA13I20130: Cross-sectional study, stratified sampling in 9 districts of Región Metropolitana de Chile (MR), years 2014-2015. Total of 1361 children. Questionnaires and oral exams were applied after written informant consent. Decay, missing and filled tooth index (dmf index), and prevalence of decay-free children were calculated for each district, with their respective confidence intervals 95%. Fisher-exact and ANOVA to evaluate the differences. The statistical analysis were performed in STATA13.0

RESULTADOS: Decay-free children prevalence in MR was 62.62%. In Cerrillos 59.65%, Independencia 63.10%, La Pintana 71.62%, Lampa 47.31%, Maipo 76.32%, Melipilla 56.82%, Recoleta 73.33%, San Jose de Maipo 48.36% and Santiago 48.36%. The dmf-index for the entire MR was 1.92 (IC95% 1.76: 2.09), Cerrillos 1.92 (IC95% 1.76: 2.09), Independencia 2.59 (IC95% 2.08: 3.10), Pintana un 1.03 (IC95% 0.74: 1.32), Lampa 3.23 (IC95% 2.66: 3.81), Maipo 1.18 (IC95% 0.65: 1.70), Melipilla 2.47 (IC95% 1.79: 3.15), Recoleta 1.01 (IC95% 0.65: 1.36), San Jose de Maipo 2.58 (IC95% 1.97: 3.19) and in Santiago 1.55 (IC95% 1.11: 1.99). Significant differences between districts were observed ($p < 0.05$), with the highest caries prevalence in Lampa and San Jose de Maipo.

CONCLUSIONES: The differences observed between the districts, and the most disadvantaged districts, are the ones in rural zones, obtaining the lowest numbers of decay-free prevalence and the highest caries experience (dmf-index).

30 Cariology contents teach to undergraduate students in Chilean Universities

Aránguiz V, Marró ML, Ramírez V.
Facultad de Odontología, Universidad de los Andes

OBJETIVOS: Identify concepts and contents related to caries and non carious lesions (NCL) teach to undergraduate students in Chilean dental schools.

MÉTODO: A cross-sectional study, the sample was obtained by convenience from professors of Cariology or courses related with caries or NCL subject from 23 dental schools between June-July 2015. A questionnaire survey with 43 contents and concepts selected according to domain proposed by the "Association of Dental Education in Europe" and "Alliance for Cavity Free Future in Latin America" was mailed to each professor. Data collected was tabulated and analyzed with the STATA14 software.

RESULTADO: Response rate was 65% (15). The distribution of responding professors was: Santiago (8), V region (3), Talca (1), Concepción (1), Temuco(1), Valdivia(1). In relation to Domain I: 7(47%) teaches "The role of S. mutans as main etiologic agent", 13(87%) "polymicrobial etiology of caries", 4(27%) "Caries like infectious-contagious disease", 4(27%) "Caries transmissible disease", 15(100%) "Caries disease process and lesion concept", 9(60%) "Pathogenesis of NCL". Domain II: 15 (100%) delivery "Concepts and criteria for caries diagnosis and detection". Domain III: "Control of oral infection" it is taught in the 7(47%) of responding schools, "use of CHX for caries control and S. mutans" in 9(60%). Domain IV: 11(73%) Non delivery "A critical analysis of Black's cavity principles" and 15 (100%) teaches "Foundations for minimal intervention dentistry. Domain V: 10(67%) "Promotion and prevention in oral health". Domain VI: 7(41%) "Critical analysis of the evidence".

CONCLUSIONES: According to the results, differences were observed in the level of update of contents and also in alignment in some concepts and contents.

31 Cariology Teaching in Chilean Universities

Díaz-Yokens M, Giacaman RA, Araya-Bustos F, González S, Martignon S.
Dental Faculty of Universidad Mayor, Universidad de Talca, Universidad El Bosque

OBJETIVOS: The purpose of this study was to describe the current Cariology teaching in Chilean universities undergraduate curricula.

MÉTODO: We conducted a cross sectional study including the total of private and public universities with dental schools, with a previously validated questionnaire consisting of twenty (19 multiple choice, 1 open-ended) questions. Questions assessed curriculum (7), diagnosis (5), treatment (7) and perceptions (1) areas.

RESULTADO: The response rate was 85,7%. Cariology is taught as the key-axis of a course in 66,7% of universities in a variety of departments/areas. 61,1% taught Cariology more than one year, the most frequently named was the 3rd of six years (88,9%). 66,7% devoted less than 3 weekly hours. There was consistency in Cariology topics taught. 77,8% included preclinical practice. Fejerskov and Kidd Cariology textbook was the most frequently recommended. For caries lesion detection, the visual (100%), radiographic (88,9%) and ICDAS (83,3%) methods are frequently taught. All universities included risk and lesion activity assessment. None university indicated operative treatment for non cavitated lesions, nevertheless 66,7% did when a radiographic lesion reached the external dentinal third. All universities taught initial caries lesions prevention, arrestment and remineralization strategies with a multifactorial approach. Regularly risk assessment based caries management in clinical practice is taught in 66,7% of universities. 77,8% taught to repair/reseal restorations as operative treatment alternative. 72,2% responded no standardization existed between Cariology theoretical teaching and transference to clinical practice.

CONCLUSIONES: Effort to implement modern Cariology concepts was observed in Chilean universities. It seems reasonable to adopt a basic Cariology curriculum for undergraduate students that includes the new paradigm, progressively cross and longitudinally integrated, in different dental courses.

32 Cell injury by methylglyoxal in gingival connective tissue cells

Hernández R, Retamal IN, González-Rivas C, Zapata P, Cáceres M, Arancibia R, Martínez J, Romero A, Martínez C, Smith P. Carrera de Odontología, Facultad de Medicina, Pontificia Universidad Católica de Chile

OBJETIVOS: Methylglyoxal is a toxic product derived from glucose metabolism important in inflammation, diabetes and aging. Inflammatory cells and periodontal pathogens may generate this compound. However, the effects of methylglyoxal on gingival cells are still poorly understood. In the present study we have explored whether methylglyoxal may modulate cell death in gingival connective tissue cells. In addition, we have searched for inflammatory mediators secreted by cells upon exposure to methylglyoxal as part of the general cell response to this agent.

MÉTODO: Primary cultures of human gingival fibroblasts were stimulated with soluble methylglyoxal or cultured over a collagen matrix glycated by this agent. Cell viability was assessed through the MTS assay. Protein levels of matrix metalloproteinases and cytokines were evaluated through antibody arrays, ELISA and immunofluorescence. Statistical analysis was performed through Kruskal-Wallis and Mann-Whitney tests.

RESULTADO: Methylglyoxal, particularly as a soluble stimulus, reduced cell viability in gingival fibroblasts. Using an antibody array, interleukin-6, MMP-3 and TIMP-1 and TIMP-2 levels were increased when cells were cultured over an MGO-modified collagen matrix. ELISA and immunofluorescence assays confirmed that both, soluble methylglyoxal or methylglyoxal-modified collagen stimulated an increase in TIMP-1 protein levels.

CONCLUSIONES: Methylglyoxal is a highly cytotoxic compound that may induce cell death in gingival fibroblasts. TIMP-1 is induced in these cells upon direct exposure to methylglyoxal or after the interaction of gingival cells with glycated collagen. Since TIMP-1 has been implicated in cell survival and matrix remodeling, we propose that increased TIMP-1 protein levels may be part of a protective response of gingival connective tissue cells upon exposure to methylglyoxal. Funding: FONDECYT/1130618 (PS).

33 Characterize the oral attention in Children with Special Health Care Needs (CSHCN), at Andrés Bello University, Santiago, of 2014.

Musalem O.

OBJETIVE: The purpose of this study was obtain the first know of characterize the attention in Children with Special Health Care Needs (CSHCN) and children without special health care needs, at Andrés Bello University, Santiago, of 2014.

METHODS: Used a 13- item survey, which we took to the parents of CSHCN and non-special health care needs (NSHCN)

RESULTS: We used a survey for 15 patients up to 20 years old that were treat on pavilion and 15 patients who were care for undergraduate student at UNAB, at the same period of time. The results show that both group belonging to the public health system. The family of CSHCN reported an average income of \$500.000 pesos monthly in the 60% of the cases, versus a 41% in the families of children without special health care needs. At the scholarity level the CSHCN group compared to NSHCN showed differences in completed secondary education segments that prevailed in the first group and technical education or higher complete in the second. Both group reported that the oral main illness in lifelong is decay, following of tooth pain, and gingivitis. The CSHCN showed intervals of dentistry control longer than the NSHCN. Respect to the barriers, environmental and non-environmental, the CSHCN presented more number of barriers. Finally, this group of CSHCN also showed a greater number of urgency in the last year, mainly resolved in private dentistry.

CONCLUSION: We conclude thanks the info that we got in surveys that, the population of CSHCN showed more deficiency in education, control, and dental treatment.

Dreyer E, Fernandez M, Jorquera R and Contreras R.
Facultad de Odontología, U. de Chile.

PURPOSE: Problem Based Learning (PBL) is a strategy that promotes divergent thinking a highly desirable strategy for clinical decision-making (CDM). The purpose of the present research work was to characterize and compare results of clinical decision-making when using PBL.

METHODS: The specialist Periodontics program from University of Chile Graduated Dental School is a three-year program. The Oral Rehabilitation Unit (ORU) for the second and third years students of the program was design and developed in one semester and four ours weekly (72 direct ours). Mid term evaluations by PBL from second and third year students during 2015 of the ORU were analyzed. Not all students (n=10) attended regularly the session's also design and developed by PBL. ORU interdisciplinary contents were: Implants Decision Making (IDM), Fixed and Removable Prosthodontics Decision Making (FRPDM) and Elderly – Frailty (E-F), with their competencies in Diagnosis, Treatments and Follow-Ups. CDMs were pictured in flow charts and flow charts were compared.

RESULTS: Marks went from 4.5 to 7 (average of 5.85). Eight students (80%) rank over mark 5 and two (20%) were below. When analyzing the bellow marks 5 student CDMs were all dichotomy alternatives with low hierarchy. The most poorly developed contents and competencies were FRPDM in Diagnosis, Treatments and Follow-Ups (two alternatives each) and the richest developed contents and competencies were in E-F Diagnosis (four alternatives). As for the over mark 5 student CDMs were multiples (from 5 to 18) with an average 9.5 and large hierarchy in IDM, FRPDM and E-F in all Diagnosis, Treatments and Follow-Ups competencies.

CONCLUSIONS: For the study sample PBL promotes Clinical Decision Making of interdisciplinary contents of ORU in Periodontics' students in a wide range and gradient.

35 Clinical Experience of the Bulk-Fill Composite. Clinic Report

Zúñiga Mauricio, Rodríguez Sara, Vildósola Patricio
Facultad de Odontología, Universidad Andrés Bello (Santiago)

OBJETIVOS: Composite resins have been routinely used for posterior restorations. Nevertheless, clinical problems related to polymerization shrinkage need specific techniques for placement of the composite layers. New composites are marketed for bulk filling of cavities without the need of a multiple layering. Thus the restoration can be built in one layer. The objective this clinic report was assessing immediately clinically a composite Bulk-Fill using modified Ryge criteria.

MÉTODO: Selected 5 volunteers adults patients 25-35 years old healthy with one occlusal lesion caries in vital molar and medium deep. Caries were removed under constant water cooling. No bevels were prepared. The operative field was absolute isolated with rubber dam and before restoration it measured the preparation with a periodontal probe. After etching enamel with orthophosphoric acid 37%(Condac, FGM, Joinville, Brasil) for 15 seconds, rinsed, dried and adhesive Single Bond Universal (3M-ESPE, St. Paul. MN. USA) was applied to the entire preparation with a microbrush and rubbed it for 20 seconds, and light polymerize for 20 seconds. Applied Tetric N-Ceram Bulkfill (Ivoclar Vivadent, Schaan Liechtenstein, Germany) in one layer adapting carefully on preparations and using LED light curing unite set at 1200 mW/cm² (Bluephase Style, Ivoclar Vivadent, Liechtenstein, Germany) for 30 seconds. After checking the occlusion and contouring with finishing diamonds burs and final polishing was performed. Two weeks ago the restorations were assessed by a calibrated examiner (Kappa 0.8) with modified Ryge criteria (marginal adaptation, color match, luster, anatomic form, roughness, occlusal contact, postoperative sensitivity)

RESULTADO: The deep average was 3.8 mm and large buccal-palatal was 2.6mm. 100% of the restorations were assessed alpha by criteria Ryge.

CONCLUSIONES: Within the limitation of this clinic report, the Bulk-Fill composite could be a new choice material being simpler technical restoration, but is need clinical trial for to confirm the performance to long term.

36 Clinical importance of anatomical study of the sphenoidal emissary foramen

Nilton Alves, Naira Figueiredo Deana
Universidad de La Frontera

OBJECTIVE: The aim of this study was to evaluate the incidence of sphenoidal emissary foramen (SEF), also known as foramen venosum or foramen of Vesalius in macerated skulls, considering gender and ethnicity. We intend to provide relevant information on this anatomical structure, which when present, is crossed by an emissary vein that connects the pterygoid plexus with cavernous sinus and which can be route of spread of odontogenic infections to intracranial areas.

MATERIAL AND METHOD: One hundred seventy-eight macerated skulls of both sexes, black and white individuals, aged 20 to 100 years (average 40.38 years) were examined. The presence of SEF (bilateral or unilateral) and the side in which it appears in each hemihead was analyzed. For analysis between races and genders the chi-square test was used. It was considered significant $p < 0.05$.

RESULTS: The SEF was found in 57 individuals (32.02%) with location, generally, anteromedial to the foramen ovale. 23.6% of the foramina were presented bilaterally and 8.42% unilaterally, being 4.21% on each side (hemi-head). In men and white individuals the SEF was more frequent on the right side, in women and in black individuals was more frequent on the left side; however there was no significant statistical difference. In black individuals this foramen was more frequent than in white individuals (18.82% and 13.2%, respectively) and in men was more often than in women (20.8% and 11.22%, respectively); but there was no significant statistical difference.

CONCLUSIONS: The SEF is a very frequent anatomic variation. Generally it is bilateral and when it presents unilaterally, has no preference for side. The presence of the SEF is not related to gender and race. Taking into account the incidence observed in this study we can conclude that the SEF is an important anatomical variation in clinical situations of dental interest.

37 Comparison of endodontic files tips diameters: an in vitro study

Fuenzalida A, Ruiz M, Acosta S.
Facultad de Odontología, Universidad de Chile.

OBJETIVOS: To measure D1 diameter of Ni-Ti rotary instruments RaCe, HERO Shaper, and K-Files. -To evaluate the ISO standard compliance by comparing the measured D1 diameter with the ISO specification. -To compare D1 diameters of all the evaluated instruments.

MÉTODO: Four hundred new endodontic instruments were sorted by diameter and taper into 20 groups of 20 samples each one. One hundred and twenty K-Files (#15 to #40 diameter), two hundred RaCe instruments (#15 to #30 diameter taper 2%, #20 to #35 taper 4% and #20 to #30 diameter taper 6%) and eighty HERO Shaper instruments (#20 to #30 diameter taper 4%) were used. Each instrument was measured three times by one calibrated operator equipped with a digital caliper. One silicon marker was placed at D1 diameter for facilitating the measurements. The results were analyzed using a statistical test comparing diameters between different systems and with the manufacturer's specification.

RESULTADO: Only 10 K-File instruments, 6 RaCe instruments and 4 HERO Shaper instruments had D1 diameter according to manufacturer's specification. The majority of the D1 diameter measurements were smaller than manufacturer's specification and they were not within dimensional tolerances according to ISO standardization. Instruments within dimensional tolerances were: RaCe #20 6% (Mean:18,5) RaCe #25 6% (Mean: 23,75); HERO Shaper #20 6% (Mean:18,35), K-File #15 (Mean:13,10) and K-File #30 (Mean: 28,10).

CONCLUSIONES: The instrument D1 diameters measured are not according to ISO standard given by the manufacturer. Thinner instrument diameters are less accurate than wider diameters. K-File instruments are closer to ISO standardization than Ni-Ti rotary instruments. RaCe and HERO Shaper instruments have similar levels of inaccuracy. 2% tapered Ni-Ti rotary instruments tend to be less accurate than more tapered ones.

Matus D, Cantín M.
Facultad de Odontología, Universidad de la Frontera.

OBJECTIVES: Ex-vivo description of the intern configuration of the canalicular system of the mesiobuccal root for the first maxillary molar. Identify the numbers of canals, the type of isthmus, and the cement-to-dentin interface's thickness around the root canal found between 1.3 to 5 millimeters from apical to coronal by the use of microscopy.

METHOD: An ex-vivo descriptive and observational study of transversal cut was made with a sample of 150 sections of mesiobuccal roots obtained from the first permanent maxillary molar. The molars extracted were cleaned, sanitized and attached with buffered formalin to 10%. The mesiobuccal root was identified in each molar and the distance was determined between 1.3 to 5 millimeters from apical to coronal and there were three transversal sections of each root, identified as A, B, C (from apical to coronal) A microscope Olympus 2x was used for this study and sections were tinted with methylene blue. It was observed the apical and the coronal surface of each section and pictures were taken of each sample. Subsequently, the pictures were analyzed with the ImageJ program. A descriptive statistic was obtained (Media \pm DE) with all the studied data and the variance analysis for comparing the sections.

RESULTS: It was observed an amount of 445 root canals, which 289 of them were an accessory type inside the sections of the mesiobuccal roots studied. The 41.6% of the cases corresponded to the presence of a secondary mesiobuccal root and the 5.1% was an accessory canal. The major quantity of accessory canals was observed at the 3.3 millimeters of the tip. In the sections, the quantity of isthmus was increased from apical to coronal. The majority of the isthmus was type 1 (48) followed by Type 4 (26). The types 2, 3 and 5 didn't exceed 15%. In roots with just one canal, the thickness of the oral cement-to-dentin wall was 1.42 ± 0.61 millimeters, palatal was 2.08 ± 0.93 millimeters, mesial was 1.04 ± 0.39 and distal was 1.03 ± 0.38 millimeters. In cases with a secondary mesiobuccal root, the thickness of the oral dentin-to-cement wall was 2.64 ± 1.05 millimeters, palatal was 1.50 ± 0.57 millimeters, mesial was 0.99 ± 0.36 millimeters and distal was 0.95 ± 0.38 millimeters. When there was the presence of a third accessory canal, the thickness of the oral dentin-to-cement wall was 3.32 ± 1.05 millimeters, palatal was 1.06 ± 0.44 millimeters, mesial was 0.91 ± 0.33 millimeters and distal was 0.83 ± 0.33 millimeters. The average distance between the mesiobuccal canal and the MB2 was 1.35 ± 0.62 millimeters. The average distance between the mesiobuccal canal and the accessory canal was 2.31 ± 0.77 millimeters. The average distance between the MB2 canal and the second accessory canal was 1.18 ± 0.72 millimeters.

CONCLUSIONS: This study reaffirms the complex morphology of the apical canalicular system of the mesiobuccal root of the first permanent maxillary molar. This tooth was treated endodontically with a low rate of success. It is important to considerate the factor of the frequent anatomical variations, like the secondary mesiobuccal canal, the accessory canal and the isthmus at the moment of planning and performing endodontic treatments or periradicular surgeries on these back teeth. With that consideration it is possible to obtain successful results. It is recommended that the apicoetmies were extended at least 3.3 millimeters from the tip in this root.

39 Dental plaque and salivary enzymatic activity in 6 year-old children and their relationship with dental caries

Concha C.¹; Yevenes I.¹; Neira M.¹; Palma P.¹; Faleiros S.¹; Corsini G.²; Moncada G.³

¹Dentistry School, University of Chile; ²Biomedical Research Center, University Autónoma of Chile; ³Dentistry School, University Mayor of Santiago Chile.

OBJETIVOS: This cross sectional study assessed the enzyme activity of urease and arginine deiminase (ADS) on dental plaque and saliva in 6 year-old children and correlated them with their experience and severity of dental caries.

METHOD: Seventy 6 year-old children, were randomly chosen for assessment of the enzyme activity of urease and ADS on saliva and dental plaque. Calibration curves ammonium and total protein was performed to measure ammonium concentration and specific enzymatic activity of ADS and ureases by spectrophotometry. DMFT/dmft and ICDAS rates (inter-examiner Kappa=0.77) were gathered. Caries activity was scored and divided in 3 groups: low, moderate and severe. The saliva and dental plaque of children was sampled under fasting condition and children refrained from any oral hygiene procedures during the 12 hours that preceded the sample collection. Kruskal-Wallis and Mann Whitney tests were used for group comparisons.

RESULTED: Increase activity of Urease and ASD on saliva and supragingival biofilm oral are not associated with decrease of index DMFT/dmft. There is a tendency that increase activity of urease and ADS on saliva and dental plaque, there less risk of caries lesions in caries free groups (low) clasificated by ICDAS. A significant negative associated between caries level y specific urease activity in saliva ($p=0,038$).

CONCLUSIONS: There is significance negative associated between urease activity and caries severity. Therefore, concluded, increased severity and risk of caries lower urease activity.

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40 Dental Radiographic Abnormalities in Patients with SMIH

Tapia R, Meléndez C, Maldini MA

Facultad de Odontología, Universidad de los Andes

OBJETIVOS: The syndrome of “Molar Incisor Hypo-mineralization” is defined as a clinical condition characterized by hypo-mineralization with systemic origin that affects one to four permanent first molars, and may or may not be associated with incisors affected. The available evidence is based on clinical studies that do not include radiographic analysis. The objective of this research is to describe the presence of radiographic abnormalities in teeth affected by hypo-mineralization of the incisor molar syndrome (SMIH) in children 8-12 years old.

MÉTODO: Cross-sectional study. The sample was consecutively selected among patients diagnosed with SMIH who attended the Health Center of the University of the Andes San Bernardo, between June and October 2012. The approval of the Ethics Committee of the University of the Andes was obtained as informed by the consent of parental guardians and the verbal consent of patients. A calibrated operator took conventional standardized periapical radiographs of teeth, to identify radiographic abnormalities. All radiographs were diagnosed by a specialist in imaging. Statistical analysis was performed using STATA v.11.2. The variables were tabulated by their absolute and relative frequencies.

RESULTADO: 121 teeth of 14 patients (9 women and 5 men) were diagnosed with mild and moderate SMIH, 30 teeth corresponded to permanent first molars (24.7%) and 91 (75.3%) to incisors. Only 39 teeth (32.2%) had radiographic abnormalities and 100% of these radiographic alterations corresponded to incisors.

CONCLUSIONES: In the sample we observed, 67.8% of teeth affected by mild and moderate SMIH and presented no radiographic abnormalities.

42 Effect of different hydrophobic-resin coating approaches associated with a Universal-Adhesive

Garrido-Bravo O1, Gonzalez-Alarcon X1, Cademartori-Borquez F1, Luque-Martinez I2, Sarmiento-Cornejo J1, Loguercio AD3, Reis A3, Muñoz MA1

1Facultad de Odontología, Universidad de Valparaíso; 2 Facultad de Medicina, Pontificia Universidad Católica de Chile; 3 Facultad de Odontología, Universidade Estadual de Ponta Grossa.

OBJECTIVE: To evaluate the effect of photoactivation moment and application mode of an additional hydrophobic resin coating (HB) on the resin-dentine microtensile bond strengths (μ TBS) and nanoleakage (NL), of the universal adhesive used in etch-and-rinse (ER) and self-etch (SE) strategies.

METHODS: Sixty extracted caries-free third molars were divided into 10 groups according to the combination of the factors: 1) photoactivation (Ph) moment of the HB (adhesive system and HB were Ph together [PhTg]; adhesive system and HB were Ph separately [PhSp], and 2) application mode of HB (active or passive), into two levels corresponding to the adhesive strategy (ER and SE). As controls, ER and SE were applied according to the manufacturer. After restorations were constructed, specimens were stored in water (37°C/24h) and sectioned into resin-dentine beams (0.8mm²) to be tested under tension (0.5mm/min). Selected beams from each tooth were used for NL evaluation. Data from each adhesive were analyzed with two-way ANOVA and Tukey's test ($\alpha=0.05$).

RESULTS: The application modes influence the μ TBS. In PhSp moment, the active application of HB resulted in higher μ TBS for ER and SE strategies ($p<0,01$). For PhTg moment, the active application decreases the μ TBS values only for SE strategy ($p<0,01$). Lower NL was observed when the HB was applied independent of strategies and Ph moment.

CONCLUSIONS: The optimum effectiveness of the HB on the immediate μ TBS is dependent of the application mode, photoactivation moment and adhesive strategy.

43 Effect of music therapy in patients undergoing third molar extraction

Espinoza C, Baeza Solange, Hernández M

Facultad de Odontología, Universidad Andrés Bello. Facultad de Odontología, Universidad Andrés Bello. Facultad de Odontología, Universidad de Valparaíso.

OBJETIVOS: The purpose of this study is to determine if music therapy has anxiolytic effect in patients undergoing mandibular third molar surgical extraction in operating room, evaluating cardiovascular parameters and anesthetic reinforcement requirement.

MÉTODO: 45 patients with indication of mandibular third molar surgical extraction in operating room were partially random assigned into three groups of 15 subjects: a group treated with music (A), another group treated with noise isolating headphones (B) and a control group (C). Preoperative anxiety level was determined by Modified Dental Anxiety Scale. The parameters of blood pressure, heart rate and anesthetic reinforcement need were monitored throughout the surgery.

RESULTADO: Group A showed a reduction in the magnitude and fluctuation of cardiovascular parameters and requiring less anesthetic reinforcement during surgery.

CONCLUSIONES: The use of receptive music therapy has an anxiolytic effect, keeping blood pressure and heart rate values within normal ranges, while reducing the reinforcement anesthetic requirement in patients undergoing mandibular third molar surgical extraction.

44 Effect of polymer matrix and nanoparticles in bone repair scaffolds

Cádiz M, Covarrubias C, Agüero A, Soler C, Trepiana D, Díaz M, Morelli E
Facultad de Odontología, Universidad de Chile

OBJETIVOS: 1. Preparation of nanocomposites based on a synthetic (PU) and natural (CG) polymer matrix loaded with bioactive nanoceramics. 2. Characterize the structure of CG and PU nanocomposites. 3. Compare the effect of nanoparticle type and nature of polymer matrix on their bioactive properties.

MÉTODO: Chitosan/Gelatin (CG) nanocomposites were prepared by incorporating nBG, MBG, n-MBG and nHA at 5% w/w into the CG matrix. The mixture was crosslinked with polymetaphosphate and lyophilized until dry. Polyurethane (PU) nanocomposites were synthesized by adding isophorone diisocyanate containing nBG, MBG, n-MBG and nHA to castor oil. Then, stannous octoate catalyst, butanediol and water were added. The foaming process was completed at 120 °C. Nanocomposites were examined by using scanning electron microscopy (SEM) with elemental microanalysis (EDX). Bioactivity was assessed in vitro in simulated body fluid (SBF). The nanocomposites were characterized by infrared spectroscopy (FTIR-ATR), X-ray diffraction (XRD). Mechanical properties were evaluated in compression mode.

RESULTADO: The PU and CG scaffolds presented a regular and interconnected macroporosity with a pore size in the 50-400 µm range. PU nanocomposites showed higher elastic modulus than those of the CG nanocomposites. The formation of bone-like crystalline apatite was detected in both nanocomposites surfaces from three days of immersion in SBF, however a higher apatite formation was found on the PU nanocomposites. In both polymers, the incorporation of nBG and nMBG produced a higher bioactivity than nHA and MBG.

CONCLUSIONES: A higher formation of crystalline apatite was observed on PU nanocomposites as compared to CG matrix, which could be attributed to the higher nanoparticle content per scaffold volume. BG and n-MBG particles accelerate the apatite crystallization process because of their nanometric particle size and more reactive glass structure. Nanocomposites exhibit promissory properties for future applications in bone tissue repair Acknowledgements: FONDECYT Project 1130342.

45 Effectiveness of dental floss impregnated in “clavo de olor” compared with normal dental floss on patients with gingivitis induced by dental plaque biofilm, users of the Dental Clinic of Universidad del Desarrollo Concepcion, 2015.

Weissglas B.

BACKGROUND: Gingivitis is a periodontal disease with high prevalence in the population. A correct hygiene and using coayudantes as dental floss provides for adequate monitoring. The “clavo de olor” according to its medicinal properties, which come from its essential oil, which is rich in eugenol; produces bactericidal, antiseptic, anesthetic, anesthetic effects, favoring the removal of plaque. In order to evaluate the effectiveness of impregnated floss in “clavo de olor” compared with normal dental floss in patients with gingivitis induced by dental plaque biofilm.

METHODOLOGY: a randomized clinical trial was conducted. The sample size was calculated according to the analysis of variance. Accepting an alpha risk of 0.05 and a beta risk of 0.2, 31 subjects were needed in each group to detect a minimum difference of 3 between two groups, assuming there are 3 groups and a standard deviation of 2. It was controlled at 0, 7 and 14 days. Statistical analysis involved descriptive, Shapiro-Wilk, and Wilcoxon test. Expected

RESULTS: Health Index: Health index increased practically in most patients sampled. Dental Plaque biofilm: Plaque using silk considerably lower at 14 weeks of use of the impregnated floss in clavo de olor ($p = 0.01$) Inflammation: Inflammation decreases in most cases, after using the impregnated dental floss ($p = 0.01$) Bleeding Index: The index also significantly reduces bleeding ($p = 0.02$).

CONCLUSION: The use of dental floss impregnated in clove is effective.

46 Effectiveness of non-vital bleaching measured by Vita Classic Guide. Pilot-Study

Fresno MC, Bersezio C, Peña F, Sánchez F, Martín J, Fernández E.

OBJECTIVES: The aim of this study was to compare the clinical effectiveness of 35% hydrogen peroxide versus 37% carbamide peroxide upon bleaching in discolored non vital teeth.

METHOD: In this randomized clinical trial, 12 adults subjects with non-vital teeth discoloration were included comprising a convenient sample. All of those teeth had to have an optimal endodontic treatment as verified by a periapical x-ray. Subjects were randomly assigned to two groups: G1= 35% hydrogen peroxide (n=6) and G2= 37% carbamide peroxide (n=6). The intracameral bleaching was performed with a walking bleaching technique. The color was assessed in 6 opportunities: baseline, after each 4 sessions of intracameral bleaching (b1-b2-b3-b4) and a week after the whole treatment (c). Two calibrated independent examiners used the 16 tabs of the Vita Lumin Classic° shade guide (Vita Zahnfabrik), which were arranged from the highest (B1) to the lowest (C4) value. The mean and standard deviation for the color change (Δ SGU), weekly in each group were calculated. For comparisons between groups, the Mann-Whitney test ($\alpha = 0.05$) was used.

RESULT: There were not significant difference found between G1 and G2 in mean color change (Δ SGU) at different times ($p > 0.05$). (Δ SGUb1 $p = 0.818$, Δ ESGUb2 $p = 0.589$, Δ SGUb3 $p = 0.394$, Δ SGUb4 $p = 0.589$, Δ SGUc $p = 0.699$).

CONCLUSIONS: In this study, no significant differences in the effectiveness of intracameral bleaching was found upon using 35% hydrogen peroxide gel or 37% carbamide peroxide.

47 Effects of Chlorhexidine-Containing Acid on the 5-year Resin–Dentin Interfaces.

Gutierrez MF.(1,2), Loguercio AD.(1), Luque-Martinez IV.(1,3), Hass V.(1), Szesz AL.(1), Reis A.(1),

1 Faculty of Dentistry, State University of Ponta Grossa, Brazil

2 Faculty of Dentistry, University of Chile.

3 Faculty of Dentistry, University of Valparaiso.

OBJETIVOS: This study evaluated the effect of 2% chlorhexidine-containing acid (Ac/CHX) and 2% chlorhexidine digluconate solution (CHX) on immediate and 5-year resin–dentin bond strength and silver nitrate uptake for one simplified etch-and-rinse adhesive.

MÉTODOS: Forty-two caries-free extracted molars had a flat dentin surface exposed. In the control groups (CON), the surfaces were acid etched with conventional phosphoric acid and the adhesive Prime&Bond NT was applied after rinsing, drying and rewetting with water (60 s). In Ac/CHX groups the adhesive was applied in a similar manner; however an Ac/CHX was previously applied. In CHX group, the adhesive was applied according to the CON group; however the rewetting procedure was performed with an aqueous solution of 2% CHX for 60 s. Composite build-ups were constructed incrementally and microtensile specimens (0.8 mm²) were prepared for micro-tensile bond strength testing in the IM or 5Y periods at 0.5 mm/min. For SNU, 2 bonded sticks from each tooth were coated with nail varnish, placed in the silver nitrate, polished down with SiC papers and analysed by EDX-SEM. The data was submitted to a two-way repeated measure ANOVA and Tukey's test ($\alpha = 0.05$).

RESULTADO: After 5Y, significant reductions of BS were observed for all groups ($p < 0.0001$); however this decrease was much more pronounced for the control group (reduction of 60%) compared with the CHX and Ac/CHX groups (reduction of 28–32%, respectively). SNU was more evident in the control than in the experimental groups ($p < 0.05$) both in IM and 5Y periods.

CONCLUSIONES: The use of CHX in an aqueous solution or associated with the acid conditioner was effective to reduce the degradation of dentin bonds over a 5-year period, despite a continuing and accelerate dentin-bonding degradation.

48 EMG Activity by Ms/Ta Ratio in Different Skeletal Facial Types

Ogalde A*, Aguirre M*, Roa J* and Albornoz M** .
*Universidad de Concepción. **Universidad of Talca.

AIM: Evaluate the EMG activity by Ms/Ta ratio in different skeletal types determined from the angle ANB Steiner adjusted according to Miralles.

METHODS AND PATIENTS: 68 individuals were studied, all students at the University of Concepcion, whose age range is from 18 to 22 years, distributed by genre (24 F, 44 M). All of them took a lateral cephalometric standard and SNA, SNB and ANB angles were determined. From this angle different skeletal types Normo, Mesio and Disto according to Miralles were classified. The electromyography (EMG) during MIP was done simultaneously in anterior temporal and masseter muscles, left and right (Mslz, Talz, TaD and TaD) respectively according to the technique of Cardenas and Ogalde and Ferrario and cols. All individuals were informed based on the Helsinki protocol.

The docimasia was performed using t student ($p < 0.05$)

RESULTS: The EMG mean for each muscle were determined. We found a significant difference in EMG amplitude between Ms and Ta on both sides (Mslz = 226.62; Taiz = 170.05; MsD = 219.21, TaD = 183.13 μ Volt). The Ms/Ta ratio for the whole sample shows a statistically significant difference ($p < 0.05$) in the role of Ms in the lateral and contralateral side. When making the sample distribution in different craniofacial architectures based on the angle ANB adjusted according to Miralles (Normo n= 40; Mesio n= 12; Disto n= 16), only significant difference found in the ratio Ms/Ta for Normo group.

CONCLUSIONS: The Ms muscle activity has a significant role based on Ms/Ta ratio in the group of individuals whose craniofacial architecture corresponds to class Normo according to ANB adjusted by Miralles.

49 Estado de primeros molares permanentes en niños de 12 años

Aliste P, Bustamante M, Torres A.

Facultad de Odontología, Universidad de Concepción, Facultad de Odontología, Universidad de Concepción, Facultad de Odontología Universidad de Chile

OBJETIVOS: General: Determinate the state of first permanent molars of 12 year old children from Pemuco commune with ICDAS II criteria. Specific: Evaluate first permanent molars surfaces with ICDAS II criteria in 12 year old children from Pemuco commune.

MÉTODO: From a total of 103 12 year old students of municipal schools in Pemuco during 2015, the first permanent molars of 71 children were diagnosed with ICDAS II criteria. They were evaluated with a standardized clinical examination. There was an ICDAS II calibration by a theoretical, practical and clinical training until there was Kappa higher than 0,75.

RESULTADO: 76% of the surfaces of the first permanent molars didn't present restoration or decay and are considered as healthy. 9,9% of the surfaces presented enamel lesions. 1,5% of the surfaces presented dentin carious lesions. 55,3% of the occlusal surfaces from the first permanent molars were sealed, 17,6% presented esthetic restoration, 68% was found with no decay lesion, while 27% has enamel decay lesion. There was 1 tooth lost by decay in the whole sample.

CONCLUSIONES: -The occlusal Surface is the most affected by decay. - 9,9% of the surfaces are in need of preventive or minimally invasive treatment. - 1,5% of the surfaces are in need of restorative treatment. - 2,2 first permanent molar per person is sealed. - There were more upper molars sealed than lower molars.

50 Evaluation in vitro of the antibacterial effect of Poleo (*Mentha Pulegium*) and Melisa (*Melissa Officinalis*) infusion about the growth of *Streptococcus Mutans*.

Galindo F.
Facultad de Odontología, Universidad del Desarrollo.

INTRODUCTION: The main bacteria responsible for tooth decay is *Streptococcus mutans*. (*S. mutans*), which can be reduced or inhibited using antiseptics.

OBJETIVE: Determine the antibacterial effects of Poleo and Melisa on the *S. mutans* bacteria in an experimental study in the science lab UDD 2014.

Subjects and method: An experimental quantitative study was conducted basic science. The sample represents a total of 108 boreholes in 30 *Mitissalivarius* agar plates colonized by *S. mutans* strain to contain dried and fresh Poleo, dry and fresh Melisa in concentrations of 50, 60, 80 and 100% . The sample was calculated by the method of Anova.

RESULTS: The results were negative for dry Poleo, Melisa dry and fresh .For fresh Poleo the results were positive halo of bacterial inhibition from 50% concentration.

CONCLUSION: The Melisa and dry Poleo not have antimicrobial effect for the bacteria under study, whereas the fresh pennyroyal if it would. Especially 100% of the concentration of the infusion. It could be considered as an economic and natural method of reducing dental caries.

51 Evaluation of Border Movements of the Mandible through Electromagnetic Articulography

Rivera E, Herrera L, Ottone NE, Fuentes R
Facultad de Odontología, Universidad de La Frontera, Temuco, Chile

OBJETIVOS: The electromagnetic articulography (EMA) is an equipment that provides data about movement by placing sensors at multiple points, allowing real-time displacement measurement of the structures, also the acoustic. The aim of this research is to describe border movements of the mandible in all three spatial planes (frontal, sagittal and horizontal) with the use of EMA.

MÉTODO: The EMA is provided with transmitter coils that determine magnetic fields for obtaining motion information from different structures (tongue, palate, mouth, incisors, skin, etc.) and in all orientations within a 300 mm area sensor. After the measurement performed with the EMA, the information was transferred to a computer and was read with Visartico software to display the recording of mandible movements in the EMA. It can be observed the sensors placed in the space between the three axes XYZ, and then displayed the lines generated from mandible movements within the corresponding protocol allowing to be performed the interpretation of these data. This is a case study in which 20 people Class I without functional symptomatology were evaluated.

RESULTADO: There were obtained through the software Visartico the border movements, in real time, in the frontal, sagittal and horizontal planes. The recordings and figures generated in the three planes were not uniform individually for each subject and between individuals.

CONCLUSIONES: Measurements with EMA allow obtained more accurate data from the mandibular dynamics. We concluded that there is significant variability in ranges of trajectory of the mandibular movements individually and between subjects.

52 GCF biomarkers as side-diagnostic tool for shallow sites in periodontitis

Tobar A¹, Soto I¹, Endo. N¹, Salinas M¹, Castro A¹, Baeza M¹, Hernández P¹, Contreras J¹, Hernández M¹.
¹Dental School, University of Chile

AIM: To determine levels and diagnostic accuracy of MMP-8, MMP-13, OPG and TRAP5 in GCF in patients with chronic periodontitis (CP) and PD ≤5mm (Shallow sites), PD > 5mm (deep sites) and healthy individuals.

MATERIALS AND METHODS: Patients diagnosed with chronic periodontitis (CP) and healthy (N=33) attending at the Dental School of the University of Chile were included. Clinical parameters (Clinical attachment loss (CAL), Probing depth (PD) and bleeding on probing) were evaluated and grouped into three categories (N = 138): Healthy (without PC and PS <5mm), CP with PD <5mm (shallow sites) and CP with PD ≥5 mm (deep sites) and FGC respective GCF samples were obtained and eluted. Samples were analyzed with Multiplex panels (MMP-13, OPG and TRAP) in LuminexMR platform and immunofluorometric assay (IFMA).

Statistical analysis was performed with STATA11. SPSS19 was used for the construction of ROC curves.

RESULTS: Statistically significant differences were found between the three groups for MMP8 and TRAP5 while OPG differed only severe versus shallow and healthy sites. MMP-8 and TRAP sites identified shallow sites from periodontitis patients with good diagnostic accuracy (AUC 0.83 and 0.73, respectively). While MMP-8 showed greater sensitivity, TRAP demonstrated greater specificity. Both yielded very high diagnostic accuracy to identify deep periodontal sites.

CONCLUSION: GCF MMP-8 and TRAP have diagnostic potential to identify shallow and deep sites in CP.

53 Greater palatine artery: a microdissection study

Sánchez-Bizjak R, Valdivia-Gandur I, Manzanares-Céspedes MC
Departamento de Odontología, Universidad de Antofagasta; Departamento Biomédico, Universidad de Antofagasta; Departamento de Patología y Terapéutica Experimental, Universitat de Barcelona

OBJETIVOS: To evaluate morphological aspects and pathway of the greater palatine artery by microdissection and direct observation in human cadaveric samples.

MÉTODO: Two heads from unfixed human cadavers (Human Anatomy and Embryology Unit, University of Barcelona) were used for this study. The heads were perfused with red latex, from the external carotid artery. Le-fort I-type fracture was used to separate the palate from the head. Microdissection of the palate was performed using microsurgery instrument and a Leica EZ5 stereo microscope.

RESULTADO: The greater palatine artery emerges from the palatine foramen attached to the upper/lateral wall of the greater palatine canal in a lateral position related to the nerve and vein. Artery caliber remains stable in his anterior path until it narrows close to the apex of second bicuspid where it divides into medial and lateral branches. The lateral branch follows an anterior and deep path giving several terminal branches heading to the palatal mucosa and marginal gingiva. The medial branch follows an anterior and superficial path with branches heading the anterior palate and penetrating the incisive foramen. During the anterior pathway, the artery also presents several small branches with diverse direction. A similar distribution was observed in both samples studied.

CONCLUSIONES: The greater palatine artery has a complex morphology and relationships with surrounding structures that are usually not described in detail in textbooks. The arterial caliber remains stable during half of its pathway and then it divides into two mayor branches with different directions. Several small branches with diverse direction are found during the pathway of the artery. These observations demonstrate that a better understanding of the human anatomy is important to perform surgical procedures of the palate in a safe and predictable way.

Francisco González*, Christian Huiriqueo**, Juan Carlos Caro***, Pablo Caro*** y Erik Vallejos***.

*Departamento de ciencias básicas, Universidad Viña del Mar.

**Experto en salud pública, práctica privada.

*** Escuela de la salud, carrera de odontología, Universidad Viña del Mar.

AIM: Analyze the impact of an incendiary catastrophe on general and oral health of a determined population.

Methods: The research focuses on an interpretive qualitative methodology based on Grounded Theory (Glaser & Strauss, 1967). Consistent with the methodological choice and after a convenience sampling, the main technique for data collection was unstructured interviews in depth to residents of the hill "Las Cañas" and different entities related to the problem until achieve the interest dimensions (saturation). All interviews were conducted with informed consent.

RESULTS: 6 interviews with residents, 2 to community leaders, 2 to health service professionals locally (nurse and dentist), 2 to academics in public health and 1 to emergencies director (SEREMI, V Region) were obtained. Not only the information content of the interviews was analyzed, but through observation of faces, places and emotions, was possible give depth to the analysis. Due to the great material loss that leaves a fire, high levels of anxiety and stress are generated, so that mental health is the most affected aspect. The medical and pharmacological control of chronic diseases is interrupted and more the new environmental risk factors that people are exposed, these diseases are aggravated. In oral health, the loss of cleaning supplies and removable appliances are considerable. In addition, due to the psychological impact, lack of basic services and the change in the daily routine; oral hygiene and self-care are greatly diminished thereby worsening the state of oral health.

CONCLUSIONS: The biggest impact on the health of people is given in mental health. In oral health, the most affected aspects are the loss of removable appliances and self-care and oral hygiene.

55 Indirect Composites Repaired with Direct Composites

Teresa Azócar, Daniel Bravo-Cavicchioli, Jorge Barahona

Unidad de Biomateriales, Departamento de Rehabilitación Bucomaxilofacial, Universidad de Talca, Talca, Chile

OBJECTIVE: Compare tensile strength and failure mode of indirect composites, repaired with direct composites, using different surface treatments.

MATERIALS AND METHODS: Thirty indirect composite resin specimens were made (SR Adoro®, Ivoclar, Vivadent). Specimens were randomly distributed in five groups (n=6). Control: Bur roughening and adhesive (Heliobond), and direct microhybrid composite resin (Heliomolar Ivoclar, Vivadent). Group 1: roughening, single-component adhesive (Adper™ Single Bond 2, 3M ESPE) and direct microhybrid composite (3M, ESPE Filtek™ Z250); Group 2: roughening, air microabrasion (50 micron Aluminum oxide), single-component adhesive and direct microhybrid composite, as in Group 1; Group 3: roughening, air microabrasion, 37% acid etch, single-component adhesive and direct composite; Grupo 4: roughening, air microabrasion, 37% acid etch, double layer of silane (RelyX Ceramic Primer, 3M ESPE). For the quantitative analysis tensile strength was used in an Instron machine (Instron Corp. U.S.A). Qualitative analysis was performed using an electric optic microscope (Olympus, CX21FS1) with 40X. A calibrated observer (Kappa=0,85) classified failures as adhesive, cohesive or mixed, according to the surface features of the indirect composite. Data was analyzed using Kruskal-Wallis and Chi-square tests (p<0.05).

RESULTS: No statistically significant differences were observed between groups when comparing tensile strength (p=0.61); likewise, no differences were observed when comparing failure mode (p=0.5).

CONCLUSIONS: Tested indirect resin could be repaired using direct composite resins. Surface roughening, air abrasion with 50 µm Aluminum oxide and single-component adhesive resulted in simple and comparable results, when compared to more complex and time-consuming chemical surface treatments.

56 Inequalities in dental caries distribution in adolescent

Cortés C, Bruna F, Jiménez J, Mella I, Cabello R, Cornejo M, Díaz M, Yévenes I

Facultad de Odontología, Universidad de Chile, Santiago, Chile

OBJETIVOS: The aim of this study is to establish dental caries distribution among adolescents of different socioeconomical level in a community with fluoridated tap water.

MÉTODO: This is an observational, transverse, descriptive, study. The sample corresponded to 249 12-year-old teenagers from the commune of Valparaíso, belonging to different types of schools (public, government subsidized and private). A dental exam was realized by calibrated dentist using the ICDA criteria. Prevalence of caries, DMFT index, Caries significant index were determined. Also, a survey was applied to assess socioeconomic position. Samples of tap water were analyzed to determine the concentration of fluorides. The chemical analysis of the samples was done using the fluoride specific selective electrode ion protocol, the socioeconomic analysis was carried on according to the last level of studies approved by the mother and Gini Index was calculated.

RESULTADO: The prevalence of caries was 52,61 % ($\pm 0,03$). The DMFT index was of 1,94 ($\pm 0,18$) and the significant index of caries, SiC, was of 5,07 ($\pm 0,33$). The prevalence of caries according to educational level of the mother was 78,57 % in the low educational position, 53,65 % in media educational position and 45,76 % in high educational position. The concentrations of fluoride ion in the schools were between 0.5 to 0.84 ppm. The Gini Index of 0.16.

CONCLUSIONES: High prevalence was observed and a high concentration of the dental caries burden is observed in the most affected third.

57 Innervation pattern of temporomandibular joint disc using silher method

Rosa A, Lemus J, Córdova R, Hernández R, Sanzana C, Aguilar W, Rodríguez A, Hernández A.
Facultad de Medicina, Facultad de Odontología, Universidad de Chile

OBJETIVOS: Describe the nerve distribution in the temporomandibular joint disc.

MÉTODO: Anatomical dissection of 8 articular disc of temporomandibular joints on the right side of preserved corpses was performed. The discs were subjected to Sihler staining method and then observed under stereomicroscope and transillumination. Standardized photography was performed arbitrarily dividing the disk into 5 zones and innervation pattern was characterized by computer software. Innervation pattern established through an anatomical description and a sketch.

RESULTADO: From dissection and silher method, 8 dissected articular disc properly obtained and stained. Presence of nerve structure was observed in all areas of the articular disk except the central area. Nerve structures run as single or multiple trunk in anterior-posterior direction with a variable number of branches by the medial and lateral areas of the disk, communicating anterior and posterior zone with subsequent variable ramification.

CONCLUSIONES: It is possible to identify a common pattern in the studied joint innervation discs, existing variation in ramification. This pattern is mostly anteroposterior and allows communication between retrodiscal area and the lateral pterygoid muscle.

58 Internal Reabsorption, a Clinical Surprise

Contreras R, Dreyer E
Clínica Alemana de Santiago, Facultad de Odontología, U de Chile

OBJETIVOS: Purpose: Internal reabsorptions (IR) is a clinical asymptomatic condition, when reaching periodontum may cause the lost of the tooth. For these reason they need early diagnosis and treatment. The purpose of the present research work was to characterize this lesion amongst a group of patients between 2005 and 2015.

MÉTODO: Methods: Between 2005 and 2015, 3575 patients were referred for endodontic treatment at Clinica Alemana's Dental Service. They were diagnose and treated. Among them 16 patients were diagnosed and treated for IR. All patients signed the Institution Informed Consent Form. Standard cavity access, abundant irrigation due to haemorrhage, cotton compression and calcium hydroxide as haemostatic were used in the first clinical session. A week later by the use of endodontic ultrasound, calcium hydroxide and clots were eliminated. Mechanic and manual instrumentation were used to shape the canal and obturation were performed by gutta percha and thermo plastic lateral, injected, vertical, gutta condensor and restorative glass ionomer according to the clinical needs.

RESULTADO: Results: IR represents X% of the total needs for endodontic treatments. 9 male and 8 females aged average X form 9 to 67 years of age were treated. Canines (n=2) 12.5%, incisors (n=10) 62.5%, premolars (n=1) 6.25% and molars (n=3)18.75 were affected. Clinical conditions for endodontic referral were caries (n=2) 12.5%, Dental Trauma (n=10) 62.5%, Bruxism (n= 1) 6,25%, Orthodontic (n= 3) 18.75% all asymptomatic. Radiographic location of IR were cervical (n=5) 31.25 %, middle (n=8) 50%, both cervical and middle (n=3) 18.75 % no apical location were found amongst the study sample.

CONCLUSIONES: Conclusions: In relation to IR for the study population, there were infection or trauma associations in asymptomatic patients.

59 Intraoral Pressure In Young Patients Dental Class II and III

Salamanca C, Flores T, Navarro P, Curiqueo A.
Facultad de Odontología Universidad de La Frontera

OBJECTIVES: Describe the variations of the intraoral pressure of the subpalatal compartment in different physiological conditions in patients dental class II subdivision I and dental class III.

Compare measurements of intraoral pressure among the studied groups in each functional phase.

METHOD: A case series study was performed with the Ethical Committee of La Frontera University approval. 30 subjects participated. Subjects were between 18 and 25 years old from Dental School in La Frontera University. Both sexes were included, subjects with dental class II subdivision I and dental class III as no teeth absent, no intraoral lessons, no orthodontics appliances and no mouth breathing were included as well.

Intraoral pressures were recorded using a cannula system connected to a digital pressure recorder in the subpalatal compartment during the 7 physiological phases of the stomatognathic system such as breathing, swallowing, phonemes production and apnea beside of the calibration phase. Data was analyzed using descriptive statistic, parametric statistic was used for continuous quantitative variables. T-test was used for independent samples, a value of $p < 0,05$ was chosen as the significance umbral.

RESULTS: Pressure variations under physiological conditions were recorded. -61mbar negative pressure during swallowing in subjects dental class II and -34mbar in subjects dental class III were found. Positive intraoral pressure variations during the phonemes and inspiration reach 38mbar in subjects dental class II and 48mbar in subjects dental class III. There were no intraoral pressure variations under open or semiopen mouth conditions.

According to t-test for independent samples, there are significant differences between dental class II and dental class III according to the observed pressure ($p=0,001$).

CONCLUSIONS: Subjects dental class II generate more negative intraoral pressure compared to subjects dental class III which generate an important mechanism for the tongue and soft palate stabilization during physiological functions such as swallowing.

60 Levels of evidence and research designs in dentistry: bibliometric vision

Navarro P, Ottone N, Cantín M
Facultad de Odontología, Universidad de la Frontera

OBJETIVOS: The aim of this research was to identify the types of study and levels of evidence in dental journals indexed in the SciELO network through an bibliometric descriptive study.

Método: A reviewing of dental journals, indexed in SciELO network between the first half of 2013 and first half of 2014, was conducted. In each case an independent review was performed manually and were classified by type of study and level of evidence. At the same time an stratified sampling with proportional allocation was performed, where from a total of 4,262 original papers published were obtained 309 papers.

RESULTADOS: According to the design used in the original articles, we noted that the most used designs were Cross-Sectional (121) Case-Control (68), In Vitro (34), Case-Series (25), Clinical Trial (13), Cases Review (12), review of a case (7), also were observed the following types of papers: in Vivo, Systematic Review, correlational, cohort. Others papers designs: website review, preliminary study, bibliometric analysis, etc. In terms of levels of evidence, type III was the most often used (66.4%), followed by the type V (18.3%), type IV (9.18%), type II (4.24%) and type I (1.77%). "Brazilian Oral Research" (Brazil) is the journal which published the most quantity of level III studies.

CONCLUSIONES: The most widely used design was cross-sectional with a total of 121 articles, followed by Case-Control with 68 items, and finally in vitro studies (34 articles). The best levels of evidence were obtained by Brazilian journals, highlighting the level of evidence III (cohort, case-control and cross section), while the SciELO journals with lower levels of evidence correspond to Mexico, Colombia, Cuba and Uruguay (Systematic Reviews, Clinical Trials and Case Series).

González-Arriagada WA, Hernández C, Montecino P, Ramos LMA, Lopes MA
Facultad de Odontología, Universidad de Valparaíso, Chile; Faculdade de Odontologia de Piracicaba, Universidade Estadual de Campinas, Brasil

OBJETIVOS: Radiation therapy is a treatment for head and neck cancer, however has several side effects. Low-power laser therapy has been associated with reduction of the severity of secondary effects of radiation. To evaluate the effectiveness of low-level laser therapy as supportive care tool for side effects associated with radiotherapy in patients with squamous cell carcinoma of head and neck.

MÉTODO: A retrospective case-control study was performed, examining 286 patients in an Oncology center. Of these patients 211 met the inclusion criteria. Clinicopathological data was obtained from the patient's charts and all the background associated with side effects during radiotherapy was recorded. The statistical analysis of all the obtained information was performed.

RESULTADO: The patients were classified in two groups with 102 patients that received laser therapy while 109 that were controls. It was observed that laser therapy was associated with less interruption caused by radiation-induced mucositis (11.7% vs 18.3% control group) and less need for use of nasogastric tube during therapy (1.9% vs 15.5 % of the control group), even though the presence of mucositis in both groups was similar. Trismus and candidiasis also declined with the use of laser therapy.

CONCLUSIONES: The present study showed less interruption of radiotherapy mucositis in patients treated with low-level laser therapy low, which is mainly associated with the analgesic and protective exerted by the laser on the oral tissues. This situation is confirmed in the literature, where they observed that patients have mucositis, but with less symptoms. The use of laser therapy has benefits for the side effects of radiotherapy, reducing the discontinuation of the therapy and the use of nasogastric tube, the duration and cost of the treatment, favoring prognosis.

Aceituno O, Sánchez R, Astudillo W, Manzanares MC, Valdivia I.

Facultad de Medicina y Odontología, Universidad de Antofagasta. Facultad de Ciencias de la Salud, Universidad de Antofagasta.

OBJETIVOS: To determine the presence of lingual foramen (LF) and accessories lingual foramina (ALF) related to mental spines by direct observation in dry mandibles. Additionally, the relation of vascular and nervous structures with these foramina and their clinical implications are analyzed.

MÉTODO: Forty-seven dry human mandibles from the Anatomy Unit of the University of Antofagasta, were observed and the presence and distribution of LF and ALF were recorded. Direct observation and photographic register were used. Additionally, anatomical dissection of two cadaveric samples injected with latex by vascular way, from the Anatomy and Embryology Unit of the University of Barcelona, were realized for observation of vascular and nervous distribution in the sublingual space.

RESULTADO: Lingual foramen was found in 95% of the analyzed samples. Other foramina related to mental spines were found, 61% in the upper position, 95% in the lower position and 80% in the lateral position. Anatomical dissection showed several vessels and nerves in the region near to the foramina, some in direct relation with the LF or ALF. The main vascular contribution was from submandibular space and secondarily from submandibular or submental space. The innervation showed difficult identification. The main contribution to innervation was from sublingual space (Lingual Nerve) but several nerve branches from cutaneous nerves of submental space were observed.

CONCLUSIONES: Results related to LF are similar to previous studies. A large number of accessory foramina usually not described were found related to the mental spine. These results are important to consider and to describe due to clinical risks associated with surgical approaches in the anterior mandible. Further studies using a larger sample size are needed to assess the frequency and location of these accessory foramina and their vessels and/or nerves associated. Acknowledgements: Special thanks to the working group from the dissecting room of the Bellvitge Campus, University of Barcelona.

63 Methylglyoxal modified collagen promotes fibronectin remodeling in human gingival fibroblasts

Retamal I, Zapata P, Martínez C, Smith P.
Carrera de Odontología, Facultad de Medicina, Pontificia Universidad Católica de Chile

OBJETIVOS: Methylglyoxal corresponds to an advanced glycation end product derived from glucose metabolism relevant to aging and diabetes. One of the main effects of diabetes is the glycation and cross linking of extracellular matrix proteins that may change the phenotype and remodeling behavior of connective tissue cells. In the present study we have analyzed whether glycation of type I collagen by methylglyoxal may alter two important responses involved in wound healing in the periodontium that include the differentiation of myofibroblasts and the remodeling of fibronectin.

MÉTODO: Primary cultures of human gingival fibroblasts were obtained from healthy donors after signing an informed consent. The local ethics committee approved this study. Type I collagen glycation was induced in vitro by methylglyoxal. Cell viability and apoptosis was evaluated through the MTS/Tunel assays respectively. Immunofluorescence, western-blot, ELISA and flow cytometry were used to identify smooth muscle actin (alpha-SMA) and fibronectin. Matrix remodeling was analyzed using collagen gel contraction assays. Statistical analysis was performed by non-parametric statistics.

RESULTADO: Methylglyoxal induced collagen glycation and Aminoguanidine (AMG) inhibited this response. Fibroblasts cultured over methylglyoxal-treated collagen did not differentiate into myofibroblasts. Methylglyoxal-treated collagen did not alter TGF-beta1-stimulated myofibroblastic differentiation. However, culture of cells over-methylglyoxal treated collagen induced a strong reorganization of fibronectin. In addition, methylglyoxal induced the contraction of collagen gels even in the absence of cells and AMG inhibited this response.

CONCLUSIONES: The present study shows that methylglyoxal induces the glycation of collagen and this in turn stimulates collagen gel contraction and fibronectin polymerization. This modification in the organization of the extracellular matrix may contribute to the degenerative changes that occur during aging and diabetes in gingival connective tissue cells. Funding: FONDECYT/1130618 (PS).

64 Methylglyoxal modified-collagen reduces focal adhesions in human gingival fibroblasts

Von Bischhoffshausen K, Chavarría T, Retamal IN, Smith P.
Carrera de Odontología, Facultad de Medicina, Pontificia Universidad Católica de Chile

OBJETIVOS: Methylglyoxal (MGO) corresponds to toxic compound derived from glucose metabolism that may play a pathogenic role in aging, diabetes and inflammation. MGO interacts with collagen altering key properties of the extracellular matrix. During wound healing, the interaction between fibroblasts and collagen molecules may modulate tissue repair. In the present study we have evaluated whether methylglyoxal-modified collagen may modify the formation of focal adhesions in human gingival fibroblasts.

MÉTODO: Human gingival fibroblasts were obtained from healthy donors after signing an informed consent. The ethics committee at PUC approved the present study. Cells were cultured over MGO-treated collagen and after 24 and 48 hours were fixed and stained for vinculin and actin. The cell nuclei stained by DAPI. Immunofluorescence images were analyzed using ImageJ. The number and area of focal adhesion contacts were analyzed using the students "t" test.

RESULTADO: A significant reduction in the number of focal adhesions was detected in fibroblasts cultured over MGO-treated collagen when compared to normal collagen. However, the average area of focal adhesions was not modified by MGO-treated collagen.

CONCLUSIONES: The present study shows that MGO-treated collagen reduces the number of focal adhesions in gingival fibroblasts. This altered response may alter the adhesion and function of gingival connective tissue cells during wound healing. This could eventually modify the behavior of fibroblasts during tissue healing in patients exposed to hyperglycemia, such as diabetics. Funding: FONDECYT grant 1130618 (PS).

65 Mirror Neuron System in Musculoskeletal Orofacial Pain Treatment

Arizcain C*, Oyarzo JF.

Oral Neurophysiology Laboratory, Faculty of Dentistry, Universidad Andres Bello.

A mirror neuron is a neuron that fires both: when a human acts and when the human observes the same action performed by others. Jaw exercises has been proven as a pain relief therapy for Myofascial Pain. Our objective is to assess and compare the mirror neuron system (MNS) role in jaw isometric exercises.

METHOD: A double blind randomized control trial will be held in women with myofascial pain (N = 30, RDC/TMD). They will be assigned to carry out a daily mandibular isometric exercise treatment (n:15) or a following-instructions-video (FIV) whit hand movements over the face in a "pain relief" environment (n:15) for 21 days. Masseter, temporal and forearm muscles pressure pain threshold (PPT), pain tolerance (PPTol) and VAS would be measured on days 1, 7, 14 and 21. Electroencephalography diagnosis in F5 area - inferior frontal gyrus and inferior parietal lobule- will be evaluated (EEG headset) at baseline and at day 21. In order to evaluate psycho-social variables possible involved, Psychometric questionnaires would be performed (Axis II from RDC/TMD: GCPS, PHQ-4, PHQ-9, PHQ-15, GAD-7 and Pain Drawing).

EXPECTED RESULTS: We hope to find that there is a similar analgesic effect (VAS) in isometric and in FIV treatment and PPT, PPTol variation. In the other hand, the mirror neuron system would be activated in the FIV treatment.

66 Mortality risk differences in Oral and pharyngeal cancer by locality

Duran D, Monsalves MJ

Instituto de Políticas Públicas de Salud, Universidad San Sebastián. Escuela de Salud Pública, Universidad de Chile.

OBJETIVOS: To estimate the differences in the mortality risk of oral and pharyngeal cancer by sex and region. Chile 2002-2012.

MÉTODO: Time series study with mortality information obtained from national mortality records. The datasets are available online for researchers in the Information and statistics of health department website. Each dataset was processed to maintain the codes C00 to C148 in the ICD-10 classification, belonging "Malignant neoplasms of lip, oral cavity and pharynx" group. The mortality rates were amplified by 100000, and standardized by age and sex using as standard population the national reference. Mortality age-sex-standardized rates were obtained in STATA 13.0. The standardized mortality ratio (SMR) was calculated taking the ratio between the crude rates in each group and the standardized rate of each year, for every region.

RESULTADO: 2286 cases of oral and pharyngeal cancer were observed, 1577 men and 705 women. The three groups with the higher number of cases trough the series are 60-64 years in 2010, 70-74 in 2011 and 80 and more in 2012. The highest number of deaths is in metropolitan region in several years, with a maximum 70 in 2011. The SMR showed no significant statistical difference for man/women.

CONCLUSIONES: During this time series with data of each locality per year, differences in absolute frequencies were observed, however there are no significant differences between the SMR calculated per year, locality and sex. Though the literature sustain men are at higher risk of death from oral and pharyngeal cancer, the SMR calculated in this study showed no significant differences for men and women. It's worthy to distinguish that in this study, oral and pharyngeal cancer were treated as a group of diagnosis, not observed one by one. It could be interesting to see if there is a pattern of higher risk for each diagnosis by regions and sex.

Valdivia I, Torres MA, Ferrer N, Lozano de Luaces V.

Facultad de Ciencias de la Salud, Universidad de Antofagasta. Facultad de Medicina y Odontología, Universidad de Antofagasta.

Facultad de

Odontología, Universidad de los Andes. Facultad de Odontología, Universidad de Barcelona

OBJETIVOS: The main of this work is to show the anatomical aspects of musculoskeletal disorder caused by a wrong wrist position during dental practices by anatomical dissection and photographic record, considering the anatomical structures in the working position.

MÉTODO: Anatomical dissection was performed in the hand and forearm segment of six upper limbs of human cadaver without musculoskeletal pathology or local affection. The anatomical structures involved in Carpal Tunnel Syndrome, Guyon Syndrome and De Quervain Tenosynovitis were exposed. A detailed analysis was performed considering the correct and incorrect wrist position. The clamp action holding a dental instrument among finger was recreated. The work position recommended and a wrong position were reproduced with the segment dissected, simulating a clinical action. Photographs were obtained to capture anatomical detail of the positions observed in the structures studied.

RESULTADO: Through this systematic study, it was achieved a didactic anatomical view of structures involved in musculoskeletal pathologies of the wrist. Dissection by planes of the anatomical region, together with the working position simulated of the wrist reveals several details of the anatomical structures involved. When the working position of dissected segment was modified from correct to incorrect, it was possible to observe directly the effect of these changes on the median nerve and the blood supply. Similar evidence on structures involved in the Guyon syndrome and De Quervain tenosynovitis was observed.

CONCLUSIONES: The description of the anatomical structures involved in a musculoskeletal pathology by anatomical dissection and simulated bad position facilitates understanding the problem. This kind of material can be useful for dentist training about the prevention of occupational pathology. Furthermore, detailed observation of anatomical structures involved can be beneficial from the therapeutical point of view. Acknowledgements: Special thanks to the working group from the dissecting room of the Bellvitge Campus, University of Barcelona.

68 Novel therapeutic strategy against epithelial tumors

Herreros E, Ciuchi P, Fernández-Ramires R
Facultad de Odontología, Universidad de Chile

OBJETIVOS: Epithelial tumors are the most common type of the malignancies. Breast, ovarian and oral carcinomas are, still a challenge in developing targeted therapies that overcome resistance. Oral squamous cell carcinoma (OSCC) is the most common type of oral malignancies, the 5 and 10 year survival rates are low: 56 and 41%, respectively. The standard treatment for OSCC varies depending the stage it is diagnosed. In early to moderate stage, treatment consists in surgery with radiotherapy. Adjuvant chemotherapy (platinum-based) is given to advanced tumor patients, but it is common that these patients develop resistance due to an important impairment of double-strand breaks repair by non-homologous end-joining or elevated homologous recombination. Based on an in vitro model, we assume that 26S proteasome inhibition, involved in protein degradation and ubiquitination during DNA repair, induces cells sensitization to Carboplatin in ovary, breast and OSCC cell lines. Aims To evaluate pharmacological effects of proteasome inhibitor MG132 alone and in combination with carboplatin in epithelial cell lines.

MÉTODO: Epithelial cell lines CAL-27, SKOV3, UCI-101 and HCC-1937 were sensitized for 24h with MG132 followed by a combined or individual treatment with carboplatin for 48h. Cell viability was evaluated through MTT assay. Migration assay was performed with Transwell from Corning.

RESULTADO: In order to evaluate resistance to Carboplatin cells were treated during 48h. Results showed that UCI-101 cell line was the only sensitive model to Carboplatin. Next, it was added a pre-treatment during 24h with MG132 followed by 48h of carboplatin co-incubation and MTT evaluation. Results demonstrated an important re-sensitization of the chemoresistant cells, decreasing cell viability and inhibiting cell migration.

CONCLUSIONES: MG132 in combination with Carboplatin is a powerful tool inhibiting the proteosomal activity.

69 Oral alterations in patients with chronic hemodialysis private centers

Cuevas C, Machuca C, Cordero K.
Facultad de Odontología, Universidad de Valparaíso.

OBJETIVOS: The main objective of the study is to compare the state of oral health among patients with chronic kidney disease undergoing hemodialysis during different time periods, treated in private hemodialysis centers in the cities of Valparaíso and Viña del Mar (Chile), throughout the first six months of 2015.

MÉTODO: A descriptive cross-sectional study was performed in 72 patients on chronic hemodialysis of private care of Viña del Mar and Valparaíso, selected through a non-probabilistic convenience sample. Patients were divided into 4 study groups according to the time under hemodialysis therapy, these are: Group 1, 3-12 months (n = 21); Group 2, 12-60 months (n = 24); group 3, 60-120 months (n = 15); and group 4, of more than 120 months (n = 12). COPD index, index CPITN, Green Vermillion Simplified index, dental erosion index, sialometry stimulated, xerostomia using a standardized questionnaire and visual evaluation of intraoral soft tissues was evaluated. The association between variables was analyzed using Kruskal-Wallis and Chi-square test, with a significance level of 5%.

RESULTADO: No significant differences between the assessed variables in the study groups were evident; however an upward trend of COPD index and number of teeth lost in the study group 4. In addition, a direct association between the use of removable prosthesis and the presence of oral candidiasis was observed.

CONCLUSIONES: The presence of oral alterations in chronic renal patients undergoing hemodialysis, it is an indisputable fact; so it is necessary to implement preventive health policies to ensure dental care from diagnosis of the disease, promoting self-care oral and limitation of personal and public costs associated with treating the effects in the oral cavity.

70 Oral and pharyngeal cancer in Chile: Mortality tendencies 2002-2012

Duran D, Monsalves MJ

Instituto de Políticas Públicas de Salud, Universidad San Sebastián. Escuela de Salud Pública, Universidad de Chile.

OBJETIVO: To explore tendencies in oral and pharyngeal cancer mortality in Chile between 2002 and 2012 by year and sex.

MÉTODO: Time series study with mortality information obtained from national mortality records. The datasets are available online for researchers in the Information and statistics of health department website. Each dataset was processed to maintain the codes C00 to C148 in the ICD-10 classification, belonging "Malignant neoplasms of lip, oral cavity and pharynx" group. The mortality rates were amplified by 100000, and standardized by age and sex using as standard population the national reference. Mortality age-sex-standardized rates were obtained in STATA 13.0. ANOVA test was used to see differences by year.

RESULTADOS: For this time series, 2286 cases of oral and pharyngeal cancer were observed. The mortality rates obtained were higher for men in the entire period. They ranged from 1.5 to 2.1 x100000 for men and from 0.6 to 1.0 x100000 in women. The age group with the higher number of cases is the 80 years and more, with 496 cases (21.74%), and the increase begins at age 55. The ANOVA test showed no statistical difference between time-series years ($p < 0.05$).

CONCLUSIONES: During this time series, the standardized mortality rates remain stable, for man and women. There are no significant differences between years. According to prior Chilean and international studies, the mortality rates for oral and pharyngeal cancer remain higher for men, and for adults (83.58% of the cases were 55 and older). The stability in the standardized rates showed that this disease has not increased in time. However, the same stability, tells us that there has been no intervention to reduce mortality. The current initiatives in different parts of our country to educate people about it and to try to reduce deaths for this cause could have an impact differentiating the years to come.

71 Oral health knowledge of kindergarten educators and your trained in magic-therapy.

Olivares C, Tapia P, Cordero K.

Facultad de Odontología, Universidad de Valparaíso.

The purpose of this research was to determine the level of Oral health knowledge of kindergarten educators and your trained belonging to kindergartens JUNJI and Integra, which were trained between 2012 and 2014 by the School of Magic therapy of Valparaíso, Chile.

MATERIALS AND METHODS: An observational analytical cross-sectional study was conducted. We selected randomly 59 trained in the school of Magic therapy and 59 respondents categorized as a personal educator Replica-trained, a survey compiled academic and work of the surveyed data was used, frequency of application of the technique in oral health, among other data, then a questionnaire of 10 questions related to the knowledge taught in school Magic therapy, analyzed globally and by questions Student t and χ^2 was conducted with a level 95% significance

RESULTS: The group trained in school Magic therapy obtained an acceptable average of 77.96% and Replica-trained group one 73.73%, with a statistically significant difference that the trained group mean is higher (p -value = 0.03), but in turn this magnitude difference in their percentage is not (p value = 0.059), with statistically significant differences in some specific items, and differences between years, professional title or age.

CONCLUSION: The level of knowledge on oral health Replica-trained and trained in kindergartens JUNJI and Integra educator staff is acceptable, and should reinforce knowledge to Replica-trained educator staff in certain aspects of the specific knowledge of oral health.

Juan Pablo Ochoa, Loreto Núñez

Gloria Mejía, ARCPOH University of Adelaide.

Depto. Salud Pública Facultad de Ciencias de la Salud, Universidad de Talca.

OBJETIVOS: To describe the caries experience and oral health related quality of life (OHRQOL) in 3 years old children and their families.

MÉTODO: Cross-sectional study with a sample size of 151 3 years old children and their parents or caregiver. Children were recruited from kindergartens of Talca and Linares, Maule Region, Chile during July to October 2014. A clinical examination was performed to evaluate dmft index. A self-administered questionnaire (Early Childhood Oral Health Impact Scale, ECOHIS) was applied to care givers to asses oral health related quality of life and sociodemographic information. The data was analyzed with a significance level of 95%. The study protocol was approved by the scientific ethic committee of University of Talca.

RESULTADO: Caries prevalence was 41.7% (95% CI; 34.2-49.7), with an average dmft of 1.66. The prevalence of impact on the OHRQOL was 66.8% with an average score of 4.06 points (95% CI; 3.2-4.9) in the ECOHIS. There was an inverse linear correlation ($r = -0,183$, Tau-C de Kendall, $p = 0.024$) between socioeconomic status of families and prevalence of impact on the OHRQOL. There was an inverse linear correlation between parents educational level and prevalence of impact of OHRQOL ($r = -0,205$, Tau-C de Kendall $p = 0.015$). Oral symptoms in children and parents/caregivers anguish are the areas that most influence OHRQOL (T. Friedman).

CONCLUSIONES: A high prevalence of children has caries experience. A high proportion of children and their families had impact on their OHRQOL. Increased socioeconomic status or educational level of parents/caregivers reduces the impact on OHRQOL of families and children.

73 **P.gingivalis O antigen contributes to apoptosis inhibition of Epithelial Cells.**

Soto C, Sandoval M, Venegas D, Salinas D, Hoare A, Bravo D.
Faculty of Dentistry, University of Chile

OBJETIVOS: Porphyromonas gingivalis has been proposed as a key etiological agent in periodontitis, a multifactorial infectious disease that causes inflammation in tooth supporting tissues. This bacteria is able to invade gingival epithelial cells resulting in many of the clinical signs of the disease. Among its main virulence factors there is the lipopolysaccharide (LPS), a membrane molecule important in Gram-negative bacteria able of being recognized by Toll-like receptors causing Pro-inflammatory cytokine secretion as a defense mechanism to invasion.

The aim of this work is to define the participation of the O-antigen region of the P. gingivalis lipopolysaccharide (LPS) in the inhibition of apoptosis in infected gingival epithelial cells (GECs). Also, we investigated whether this mechanism is dependent on bacterial invasion or adhesion to host cells.

MÉTODOS: The aim of this work is to define the participation of the O-antigen region of the P. gingivalis lipopolysaccharide (LPS) in the inhibition of apoptosis in infected gingival epithelial cells (GECs). Also, we investigated whether this mechanism is dependent on bacterial invasion or adhesion to host cells.

We used 1 referential strains (W50), an isogenic mutant in the O-antigen ligase gene (Δ PG1051), lacking the O-antigen moiety, and the complemented strain (CPG1051). All were grown on an anaerobic jar in Blood Agar plates or Liquid Brain Heart Infusion medium (BHI), both containing 1% Hemin and 1% Menadione, in atmosphere of 5% CO₂ at 37°C.

This strains were used to infect gingival epithelial cells (GECs) (OKF6/TERT2 line). Once infected, the following were evaluated:

-Apoptosis of infected GECs (2 and 24 hrs of infection) was evaluated by Annexin V assays and flow cytometry.

-Survival of infected cells was evaluated by MTS assays.

-Bacterial invasion and adhesion were measured by gentamicin/metronidazole protection assays at 2 hrs post-invasion. Cells were lysed and the resultant medium were plated. UFC were counted.

RESULTADO: P. gingivalis strain Δ PG1051 was unable to inhibit apoptosis in GECs as compared to the reference strain W50 or the complemented strain (CPG1051), indicating that the presence of the O antigen is necessary to the apoptosis inhibition mediated by P. gingivalis. The three strains were equally able to invade and adhere to GECs, indicating that apoptosis inhibition mediated by the O antigen is not a consequence of the bacterial internalization.

CONCLUSIONES: P. gingivalis O antigen contribute to the apoptosis inhibition of GECs. This mechanism is not dependent on the invasion or adhesion ability of the bacteria.

74 Pain perception in children using Wong-Baker Facial scale

P. Alvear, A. Seelmann, V. Ramirez, C. Naranjo
Facultad de Odontología Universidad de los Andes

AIM: Studies related to pain perception in pediatric medicine and dentistry have revealed inconclusive results. This study aimed to determine pain assessment in pediatric dental care through the Wong-Baker Facial scale.

Materials and Methods: Cross-sectional study. Sample was selected consecutively among patients that attended the University of Los Andes Health Center, between June and November of 2014. The approval of the Ethics Committee was obtained, as also informed parental consent and child verbal consent. Pain assessment was carried out in 60 children, using the Wong-Baker Facial scale, after receiving inferior alveolar nerve local anesthesia. Software STATA 12.1 was used for statistical analysis. Median, minimum and maximum values, tables with absolute frequencies and percentage were described for description and comparison of variables studied.

RESULTS: The sample consisted in 35 men (58.3%) and 25 women (41.6%) average age of 7.5 years. 76.7% reported pain, 35% rated their pain as "2" (feels just a little pain); 23.3% answered "0" (no pain), 16.6%, "4" (feels little pain), 16.6%, "6" (feel even more pain), 6.6% "8" (feel much pain) and 1.6% in "10" (worst pain imaginable). When comparing pain assessment by gender, it was found that girls perceived more pain than boys.

CONCLUSIONS: In this sample, 76.7% of children expressed pain. There are gender differences in pain assessment. Wong-Baker Facial scale proved to be a simple method to assess pain in children.

75 Patient's self-perception of dental aesthetics after intracoronary bleaching. Pilot-study

Sáez M, Bersezio C, Sánchez F, Rubio M, Martín J, Fernández E.
Faculty of Dentistry, University of Chile.

OBJECTIVES: Compare the self-perception of dental aesthetics before and after intracoronary whitening done with carbamide peroxide 37% and hydrogen peroxide 35% in two study groups.

METHODS: Was included 12 patients who underwent intracoronary whitening. Self-perception of oral aesthetics were determined before and after bleaching using the OHIP-Aesthetic (Slade, 1997) questionnaire. This consists of 14 questions related to cosmetic dentistry divided into seven domains (functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, handicap). The patient should respond how often a particular problem has occurred on a scale with 5 options (and their scores): very often (4), quite often (3) sometimes (2) rarely (1) never or can not (0). The scores of the 14 responses are summed, yielding values between 0 and 56 points. The change between the initial and final measurement was determined using the Wilcoxon test ($p < 0.05$).

RESULTS: Data obtained in each evaluation were: initial 18.33 ± 9.70 ; final 13.58 ± 5.98 , There was decreased from the initial evaluation results and final evaluation ($p = 0.006$). There was a significant change in the values of the domain functional limitation ($p = 0.005$) and psychological disability ($p = 0.015$).

CONCLUSIONS: Intracoronary bleaching have a positive effect on the self-perception of dental aesthetics.

76 Predictability of 3 models caries incidence at 9 months applied in children

Paula Pino , Magdalena Letelier, Fernanda Correa, Patricia Jiménez
Department of Pediatric Stomatology, University of Talca, Talca, Chile.

The determination of the dental caries risk is important to determine diagnosis and treatment plan. Various models have been proposed, the more widely used are CAT, CAMBRA and CARIOGRAM. It becomes relevant to elucidate the effectiveness of these risk models.

AIM: To evaluate the predictability of CAT, CAMBRA and CARIOGRAM caries risk models for incidence in 7-8 year old children, after 9 months after their first assessment.

MATERIALS AND METHOD: A longitudinal 9 months observational study on a sample of 160 children (7 and 8 year-old) who had been evaluated for the first time in 2013 at the age of 6 and 7 using three 3 caries risk models. In their second assessment, children were evaluated clinically by two examiners using ICDAS system, recording the results in a dental chart. This study was approved by the bioethics committee of Universidad de Talca.

Results: In 2013, caries prevalence by surface was 73.75% (Binomial Exact Test), being affected an average of 3.31% of tooth surfaces (T-Test). 2014 caries prevalence by surface was 98.12% (Binomial Exact Test), being affected 9.52% of tooth surfaces (T-Test). A 6.2% caries incidence by tooth surface being was also determined (T-Test). Furthermore sensitivity/specificity was obtained for each model, being 70,4/42,8% for CAT, 72,7/46,1% t for CAMBRA and 73,4/57,1% for CARIOGRAM, respectively.

CONCLUSIONS: CARIOGRAM obtained the best results when analyzing the ROC curves, sensitivity/specificity and the area under the curve, demonstrating it has better predictive power and accuracy as a diagnostic test. Nevertheless, the difference in the results between models was not statistically significant, thereby the choice in clinical practice is selecting the diagnostic method that is simpler and less costly for the clinician.

77 Prevalence of Canal of Serres in Digital Panoramic Radiographs

Arias A, Fuentes R, Bucchi MC.
Facultad de Odontología, Universidad de La Frontera

OBJETIVOS: To determine the prevalence and position of Canal of Serres (CS), through digital panoramic radiographs, in Chilean population of different age groups.

MÉTODO: Cross-sectional study in which digital panoramic radiographs, taken between March and November 2014, were analyzed. Exclusion criteria: radiographs with distortion or alteration in contrast, presence of pathology, including teeth, orthognathic surgery or titanium plates in the jaw area. The CS was classified as present when it was possible to observe a canal with an enter and exit foramen, that were independent to the mandibular canal in all its extension. ImageJ software was used for measurements. For statistical analysis the SPSS/PC software was used. The media and standard deviation was calculated in the descriptive statistics. The homogeneity of variance was determined with Levene Test and Pearson Chi-square and one-way ANOVA test was used.

RESULTADO: After the application of exclusion criteria, 200 radiographs (114 women, 86 men) constituted the sample. The radiographs were classified by age range (7-9 (n = 33), 10-13 (n = 40), 14-18 (n = 62), 19-59 (N = 46) and 60 or more years (N = 19). CS prevalence for these age ranges was 20%, 13%, 8%, 3% and 0%, respectively. In the 100% of cases, CS was located in a lower position to the mandibular canal. A statistically significant difference in the prevalence of CS among different age groups was found.

CONCLUSIONES: The CS is an observable structure on digital panoramic radiographs, and its prevalence decreases with age. The prevalence is highest among children and absent in adults over 60 years.

78 Prevalence of gingivitis and periodontal treatment needs: adults. Santiago, Chile.

Fuentes Filemón, Solanes Fernando, Melgar-Rodriguez Samanta, Vernal Rolando, Gamonal Jorge and Carvajal Paola.
Department of Conservative Dentistry, Faculty of Dentistry, Universidad de Chile.

OBJETIVOS: The periodontal diseases are the most prevalent oral diseases worldwide. Chile is no exception. But not only the high prevalence is a health problem, but also the limited epidemiological information from oral pathologies. The aim of this cross-sectional was to determine the prevalence and severity of gingivitis associated to plaque and the periodontal treatments needs in adults of Santiago, Chile

MÉTODO: A sample study of 550 adults, ≥ 18 years, and proportionally distributed by age and gender was determined using standard size-sample calculation methods and probabilistic sampling stages involving districts, houses, and individuals. Using the basic periodontal examination (BPE) for screening the need for periodontal treatment and the Loe-Sillnes gingival index (GI) assessment of the prevalence and severity of gingivitis. A single operator carried out the examinations by using a periodontal probe UNC15, recording the highest code BPE per sextant and GI.

RESULTADO: The age composition of individuals is 42.4 ± 16 years. The prevalence of gingivitis in subjects is 99.1%, the distribution of the severity of gingivitis was 3.3% with mild, moderate 91.4% had severe gingivitis and 5.3%. Of these, 58.5% of health promotion and prevention procedures periodontal diseases (BPE=1or2), 18% required periodontal treatment simple (BPE=3), and 23.5% required treatment complex periodontal (BPE=4). The complexity of the recommended treatment increased with age and showed no association with gender. In addition, the number of sextants toothless teeth increased with age. Sextants (S) most affected are S1 and S3 periodontal requiring complex treatment (EBP4) of 25.1% and 25.8% respectively.

CONCLUSIONES: All adults living in Santiago need some kind of periodontal treatment. The complexity of periodontal treatment increases according age; thus, it is relevant the early detection and treatment of the periodontal disease. Funding: Colgate Palmolive grant.

79 Probability distribution of DMF index in childhood. Región Metropolitana, Chile

Valdés M, Monsalves M, Moya P, Aubert J, Duran D.
Instituto de Políticas Públicas de Salud, Universidad San Sebastián. Escuela de Salud Pública. Universidad de Chile. Facultad de Odontología, Universidad Finis Terrae.

OBJETIVO: The Poisson regression is often employed in public health to evaluate the relationships between exposures of interest and a count outcome as Decay-Missing-Filled (DMF) index. However when the outcome variable displays overdispersion and many zeros, other distributions are appropriate such as Negative Binomial Regression or Zero-Inflated Regression. The aim of this study is to compare the Poisson regression and negative binomial regressions inflated zeros in the study of DMF index.

MÉTODO: Cross-sectional study (FONIS SA13I20130) with stratified sampling in 9 municipalities belonging to Región Metropolitana, Chile. The sample size was 1299 children. Questionnaires and oral exams were taken and all participants gave written consent. Poisson, negative binomial and zero-inflated regression were made to evaluate association with DMF index using children age, household income, educational level, feeding bottle and toothbrushing as independent variables. Statistical analysis were performed in Stata 12.0.

RESULTADOS: Descriptively the expected distribution of DMF index varies between Poisson, negative binomial and zero-inflated regression. The Goodness of fit test for the Poisson Regression was statistically significant (p -value < 0.0001). For Poisson regression, children age, household income and feeding bottle were associated with DMF index. On the other hand, household income, feeding bottle and toothbrushing were associated with DMF index in negative binomial and household income and feeding bottle were associated in zero-inflated regression.

CONCLUSIONES: Poisson regression was not suitable for the analysis of DMF index, given the overdispersion of the data and the large number of zeros in this sample. The goodness of fit test for Poisson regression indicated that the negative binomial or zero-inflated regression are more appropriate. However, the validity of these models depend on the explanatory variables included.

80 Psychosocial impact of intracoronal bleaching of discolored non-vital teeth

Sánchez F, Bersezio C, Peña F, Rubio M, Martín J, Fernández E.
Faculty of Dentistry, University of Chile

OBJECTIVE: Determine the psychosocial impact of intracoronal bleaching of discolored non-vital teeth.

METHODS: 12 patients who underwent intracoronal bleaching using the Walking Bleaching technique, completed the Spanish version of the questionnaire psychosocial impact of dental aesthetics (PIDAQ) before and 1 week after treatment (4 sessions of intracamerameral bleaching). This questionnaire consists of 23 questions divided into four domains (self-confidence, social impact, psychological impact and aesthetic perception). The patient must answer each question on a scale from 1 (no impact on dental aesthetics) to 5 (maximum impact on dental aesthetics). The sum of the answers for each question determines the value obtained in the questionnaire. The change was determined by the values of the questionnaire between the initial measurement and control by Student's t-test ($p < 0.05$).

RESULTS: The averages of the data obtained in each evaluation were: baseline 60.42 ± 16.03 ; after treatment 54.67 ± 11.97 . The total value of the questionnaire was decreased from the baseline results and final evaluation post-treatment ($p = 0.021$). There were statistically significant changes in the values of the domains social impact ($p = 0.021$) and aesthetic perception ($p = 0.009$).

CONCLUSIONS: Intracoronal bleaching has positive psychological impact on the patient after treatment in the domains of social impact and aesthetic perception.

81 Radiopacity of alloplastic bone grafts in different time periods

Bucchi C, Garay I, Fuentes R
Facultad de Odontología, Universidad de La Frontera

OBJECTIVES: To compare through TCCB, the radiopacity of alloplastic bone grafts at 0, 3, 4, 6, 8, 10, 12 weeks in rabbit calvarial defects.

METHODS: 11 New Zealand rabbits were used. Each animal underwent surgery and 4 defects of 8 mm in diameter were created in the calvaria, which were filled randomly with Osteon, Osteon II and Osteon collagen, and one defect was left unfilled. Rabbits were sacrificed at 3 ($n = 1$), 4 ($n = 1$), 6 ($n = 2$), 8 ($n = 2$), 10 ($n = 2$) and 12 ($n = 2$) weeks. Additionally, one rabbit serve as control, which was sacrificed immediately after the creation and filling of the defects. The imaging test of the samples was performed using Cone Beam Computed Tomography. The "coloring map" tool of the EZ3D2009 software was used to establish the ranges of radiopacity (ROI histogram) of the defects. It is important to notice that, this is just one of the analyzes that will be performed to the samples.

RESULTS: Radiopacity range (RR) of the unfilled defects was between -1750 and 200 at week zero and at 12 week the RR was between -1419 and 960. The RR of the defect filled with Osteon was between -427.3 and 2733.3 at week zero and at 12 weeks RR was between -167.3 and 3,533.3. The RR of defects filled with Osteon II was between 50 and 2666.6 at week zero and at 12 weeks RR was between -636.3 and 2,120.6. Radiopacity range of defects filled with Osteon Collagen was between -391 to -2818.5 at week zero and at 12 weeks was between -17.6 and 2910.

CONCLUSION: Only the unfilled defects had a constant increasing of radiopacity through time, compatible with regenerated mineralized tissue. The radiopacity of alloplastic bone grafts did not increased steadily over time.

82 RANKL/OPG ratio and TRAP in Symptomatic and Asymptomatic Apical Lesions

Macarena Salinas, Valeska Fariña, Alfredo Castro, Mauricio Garrido, Mauricio Baeza, Andrea Dezerega, Jocelyn García, Pablo Ahumada, Marcela Hernández.

AIM: To determine the levels and diagnostic accuracy of Tartrate-Resistant Acid Phosphatase (TRAP), Receptor Activator of Nuclear Factor κ B Ligand (RANKL) and osteoprotegerin (OPG) in apical lesions (AL) of Symptomatic Apical Periodontitis (SAP), Asymptomatic Apical Periodontitis (AAP) and healthy periodontal ligament.

Methods: AL were obtained from patients diagnosed with SAP (n=17) and AAP (n=35), and healthy periodontal ligament (n=26) from volunteers consulting at the School of Dentistry, University of Chile. Apical tissues were homogenized and analyzed by multiplex assay in Luminex platformTM to determine TRAP, RANKL and OPG levels. Data were analyzed with Stata v11 software, and significance was considered if $p < 0.05$. Diagnostic accuracy was assessed by ROC curves in SPSS19.

RESULTS: SAP group showed higher TRAP levels when compared to AAP group and healthy periodontal ligaments ($p < 0.05$), whereas RANKL/OPG ratio was significantly higher in AAP and SAP groups compared with controls ($p < 0.05$). Only RANKL/OPG ratio showed diagnostic accuracy to identify AAP (AUC=0.70). Both, TRAP and RANKL/OPG ratio showed very high diagnostic accuracy to identify SAP (0.83 and 0.82, respectively), but the former showed high specificity and the later sensitivity.

CONCLUSION: RANKL/OPG ratio and TRAP have diagnostic potential to identify SAP. Furthermore, their combined use might differentiate progressive from stable AL, with high sensitivity and specificity based on their reference values for healthy periodontal tissue, which represents basal bone homeostasis. This could provide important knowledge for the development of diagnostic and therapeutical strategies to improve the clinical management of apical lesions.

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83 Relationship of Maximum bite forces with Anthropometric Indexes

Curiqueo A, Flores T, Salamanca C, Navarro P
Facultad de Ciencias de la Salud, Universidad Adventista. Facultad de Odontología, Universidad de la Frontera

OBJECTIVE: Get maximum bite force (MBF) at a molar and incisor level and relate anthropometric indexes.

METHODS: A convenience study was conducted with 33 young people: Female (19) and male (14), between 18 and 25 years of age who did not have dysfunctional symptomatology. The force measuring device GM10, Nagano Keiki, Tokyo, Japan was used as instrument. Measuring range is 0 to 1000 Newtons. The subject was sitting upright without support of the head with the Frankfort plane almost parallel to the ground. He was told to bite the instrument with the greatest possible force. To quantify the degree of intraevaluator association and / or intraobserver, the intraclass correlation coefficient (ICC) was used. Anthropometric measurements were made, using a millimeter ruler calibrated and a craneómetro. Data were analyzed using descriptive statistics (mean \pm SD), nonparametric statistics was applied to quantitative continuing data using the U-Mann Whitney test and for the parametric statistics a t-test for independent samples was applied, using a value of $p < 0.05$.

RESULTS: There were significant differences in relation to the value of MBF at the molars level and the Total Facial Index ($p = 0.02$).

There were significant differences in relation to the value of MBF at the molars level and the Horizontal Cephalic Index ($p = 0.02$).

There were no significant differences in relation to the value of MBF at the incisors level and both indexes ($p = 0.35$)

CONCLUSIONS: The data suggest that the molar MBF is determined, among other parameters, by some anthropometric indexes.

Soler C, Covarrubias C, Cádiz M, Trepiana D, Vildósola P, Silva C., Dr. Eduardo Fernandez
Facultad de Odontología, Universidad de Chile.

OBJECTIVES: Antibacterial bonding agents are promising to hinder the residual and invading bacteria at the tooth-restoration interfaces. The objective of this study was to develop an antibacterial bonding agent by incorporation of copper nanoparticles (CuNP), and to investigate the effect of CuNP-modified adhesive on *Streptococcus mutans* growth.

METHODS: Experimental adhesive were made by adding CuNP powder into Prime & Bond 2.1 adhesive (PB). PB control and PB modified with CuNP in the 0,015% - 0,045% range were tested. Adhesives were characterized by infrared spectroscopy (FTIR-ART) and scanning electron microscopy coupled with elemental analysis (SEM-EDX). Adhesives were applied on a 2x4x6 mm surface of teeth blocks. *Streptococcus mutans* were grown on the adhesive surface by incubating for 48 hours. Antibacterial activity was assessed by measuring the quantity of *Streptococcus mutans* biofilm grown by using crystal violet staining (n=3). The counting of colony-forming unit (CFU) (n=6) were carried out by previously removing the bacteria from surface with a surfactant solution. In addition, the copper released from adhesives was measured in artificial saliva as a function of time by using a specific copper electrode.

RESULTS: Adding CuNP into adhesive did not compromise the chemical structure of the polymer adhesive. SEM-EDX examinations revealed the presence of CuNP distributed in the entire adhesive volume. Experimental adhesive markedly inhibited the biofilm formation and viability of *Streptococcus mutans* (~98%), compared to control (p<0.05). The CuNP-modified adhesive released copper levels in the 0.007-0.24 µg/cm² range.

CONCLUSIONS: For the first time, it was found that the CuNP-modified adhesive achieves a strong antibacterial effect against *Streptococcus mutans*, and without compromising optical properties and chemical structure of the adhesive. CuNP-modified adhesive is promising to combat residual bacteria in tooth cavity and invading bacteria at the margins, thereby to inhibit secondary caries. CuNP incorporation may have a wide applicability to other dental bonding systems.

85 Salivary characterization for carriers of denture stomatitis associated with candidiasis

Ayala F; Lozano C; Aitken J; Vergara C; Cortés V; Lee X (*)
Universidad de Chile, Facultad de Odontología.

OBJETIVOS: To characterize the salivary parameters, salivary flow rate (SFR), pH, total concentration of salivary proteins (TCSP) and the presence of xerostomia in elderly subjects wearing removable dentures (RD) with denture stomatitis (DS) associated with candidiasis and to compare them with a group of subjects with RD and without the disease.

MÉTODO: 70 volunteers over 60 years of age were invited to participate in the study, from a long-stay retirement home for the elderly and from the Total Prosthetics Clinic (Universidad de Chile). The sample was divided into two groups, both carriers of PR: 1) Experimental, consisting in DS subjects associated with candidiasis; 2) Controls, who did not have the disease. After signing the informed consent, data collection was performed by a medical record where the presence of xerostomia was recorded; saliva samples were obtained. They were analyzed for SFR, pH and TCSP.

RESULTADO: There were no statistical differences in the SFR, prevalence of xerostomia and TCSP between the two study groups. As for the pH, it was lower in the experimental group compared with the control group, with statistical difference. Besides, the SFR was lower in the group with xerostomia than in the group that did not present the symptom.

CONCLUSIONES: There is little evidence regarding the salivary parameters and their relationship with DS associated with candidiasis. In this study, significant difference was only found in the pH of subjects with and without DS. However, further studies that isolate the confounding variables are required to elucidate the role of saliva in the pathogenesis of the disease, and thus to know their implications in the diagnosis and therapy of DS associated with candidiasis. Source of funding: Assigned to Project FONIS SA13110116

86 Sihler's staining and its application in craniomandibular structures.

Sanzana C, Sandoval M, Hernández A, Hernández JM, Hernández R, Cisternas M, Rosa A, Cordova R, Lemus J.
Facultad de Odontología, Universidad de Chile. Facultad de Medicina Universidad de Chile

OBJETIVOS: Evaluate the effectiveness of Sihler's stain in different tissues and structures of the maxillofacial area in preserved cadavers from Head and neck laboratory, Medicine faculty, University of Chile.

MÉTODO: Samples from masseter and lateral pterygoid muscles, parotid gland and Temporo Mandibular Joint disc were obtained through anatomical dissection from the parotid masseteric and infratemporal region from eight preserved cadaveric individuals that met the inclusion criteria. Samples were subjected to Sihler's staining method; each stage was visually controlled, modifying the protocol according thickness, size and nature of the tissue. At the end of the process the transparentized samples were observed under stereomicroscope and direct vision with transillumination, photographed in a standardized approach and processed by computer software for a further analysis.

RESULTADO: From the samples subjected to staining protocol, a correct view of the pattern of innervation was achieved in: 5 out of 8 masseter muscles, 6 out of 8 joint discs and 7 out of 8 lateral pterygoid muscles. None of the stained parotids achieved adequate visualization.

CONCLUSIONES: Sihler's technique is effective for nerve tissue staining at inner of various structures of the maxillofacial territory and particularly on muscle tissue. A careful dissection technique is necessary to isolate the sample, as fatty tissue and fascia acts as a physical barrier preventing staining. Maceration stage is crucial being this greater in time to bulkier muscles, like the masseter

88 Tabacco counseling in adolescents

Saavedra L., Cueto A., Luxardo G.

OBJECTIVE: Characterize the smoking counselling to adolescents performed by primary care dentists in Valparaiso, Chile.

METHOD: In this cross-sectional study, done between September and November of 2013, 45 primary care dentists from Valparaiso filled an anonymous survey composed by 28 self-applied questions, prior informed consent and authorization of the Municipal Corporation of Valparaiso. The data obtained was analysed using SPSS 18.0 and descriptive statistics was used to describe the results.

RESULTS: A total of 36 dentists participated, accounting for the 80% of the population. Sixty eight percent were women and 32% men; with an average age of 35 years old and 7,2 years of dental practice in primary care attention. A 90 % of them declared knowing that the smoking counselling guide was available at their local health care centre, 67,7% knew the existence of the guide and 52,9% recognized having applied it. Of these, 39% considered ideal to implement it since the age of 12 and 18,2% believed that 3 sessions would be necessary to apply it effectively. Limitations: 60 % of the dentists didn't know if the smoking counselling guide was really effective, 22% didn't know how to use it and 23,5% lacked the time needed to applied.

CONCLUSIONS: The preventive strategy of smoking counselling applied to adolescents requires, for a proper dentist application, a review of it's content, distribution and applicability.

89 Tensile strength of anatomical and conventional posts cemented with different cements

Araya C *, Cayupán B *, Valdivia M. **
Facultad de Odontología, Universidad Andrés Bello, Santiago

INTRODUCTION: Prefabricated posts are frequently used in the current dental practice. Those have the weakness of not following properly the anatomy of the root canal. To solve this problem arises the Anatomic Post technique, where the resin based post reproduces the anatomy of the root canal by personalizing it with light-curing resin, reducing the gap occupied by the cement and reducing the odds of displacement.

OBJETIVE: This In Vitro study aims to determine the tensile strength of anatomic versus conventional posts cemented with different cements in endodontically treated teeth.

METHODOLOGY: 90 upper and lower singlerooted premolars underwent root canal therapy, and posterior decrowning and desobturation was performed. The sample was divided into two groups: 45 teeth where anatomical posts were cemented and 45 teeth where conventional posts were cemented. Each group subdivides in 15 teeth using RelyX U200 cement, 15 teeth using Panavia F2.0 cement and the remaining 15 cemented with Multilink Speed. Each of them were exposed to a tensile strength testing using an Instron device, with a crosshead speed of 5 mm/min and a load cell with a capacity of 200 kg. The data obtained were analyzed via analysis of variance (ANOVA) and Scheffe test. Results: For group 1 of anatomical fiber post, average tensile strength for RelyX U200 cement was 11.32 MPa, for Panavia F2.0 cement was 13.22 MPa and 6.76 MPa for Multilink Speed. For group 2 of conventional fiber post, average tensile strength for RelyX U200 cement was 9.06 MPa; 9.86 MPa with Panavia F2.0 cement and 4.09 MPa for Multilink Speed cement.

CONCLUSION: The anatomic posts have a higher tensile strength than conventional posts cemented using the three cementing agents. The Panavia F 2.0 cement has the highest average of tensile strength in the cementation of both types of posts; then followed by RelyX U200 cement, and the lower tensile strength achieved with Multilink Speed cement.

90 Evaluating the thickness of the vestibular bone in anterosuperior teeth

Saravia D, Flores T, Fuentes R, Borie E, Salamanca C.

Facultad de Odontología, Universidad de La Frontera.

RESUMEN: The aim of this study was to analyze the thickness of the vestibular bone wall from the teeth of the anterior section of the maxilla, based on CBCT images from a southern population in Chile.

OBJETIVOS: The aim of this study was to analyze the thickness of the vestibular bone wall from the teeth of the anterior section of the maxilla, based on CBCT images from a southern population in Chile.

MÉTODO: A retrospective cross-sectional study was performed using 50 CBCT from patients of the Dental School at La Frontera University, Temuco. The sample was chosen by convenience including CBCT that met selection criteria. The height of bone crests were evaluated using the longitudinal axis of the tooth as a reference, setting levels as follows: 1: Vestibular crest higher; 2: palatal crest higher; 3: same height in both crests. The thickness of the vestibular bone was determined by five lines at different heights between apical and cervical points, equidistant and parallel to a first line called E.

RESULTADO: The media vestibular wall thickness of the central incisor, lateral incisor and canine were 1.14(+/- 0.65), 0.95 (+/- 0.67) and 1.15 (+/- 0.68) respectively. Wall thickness less than 1mm were found in 42.4% of the central incisor sites, in 57% of the lateral incisor sites and in 41.8% of the canine sites. Significant differences were found between the left lines CI ($p=0.010$), LI ($p=0.012$) and CI ($p=0.045$) among the three age ranges. Significant differences between C ($p=0.024$), D ($p=0.03$) and E line ($p=0.00$) were found in canines. No significant differences regarding to the crest height among sex and age were found.

CONCLUSIONES: Less than 10% of the sites showed an ideal condition of more than 2mm of thickness in the vestibular bone, except in central incisors where 14.4% of the cases had 2mm or more, showing a predominance thinner vestibular bone in the maxillary esthetic region of the sample.

91 The dimension of clinical and anatomic crown in the designing of smile.

Lopes Jr. F, Gomes JGN, Tatakis DN, Rego, DM
UFRN (Federal University of Rio Grande do Norte) and OSU (The Ohio State University)

The indication of treatment for the excessive gingival display require the observation of anatomical crown dimension before surgery, in special when we do not need to complete of the treatment with restorative procedures. This study examined the dimension of clinical crown (cc) and anatomic crown (AC), before and during esthetic periodontal surgery, respectively. All 21 patients enrolled in the study shown ages (20-46 years) and good general health. The study protocol was approved by the institutional ethical committee and all the subjects agreed to participate in the study about “Gummy Smile” and gave informed consent. One hundred twenty six maxillary anterior teeth (right upper canine to left upper canine) had measure the clinical and anatomical crown dimension immediately before and after flap elevation, with a periodontal probe. Clinical measurements were taken from the margin gingival to edge incisal in the central of the tooth. This was the dimension of cc. The another measurement (AC) was obtained from the CEJ (Cemento Enamel Junction) to edge incisal in the central of the tooth. Some patients or teeth, did show the CEJ covered by bone and the measurements of AC was realized after osteotomy step. A comparison was made between: 1) cc x AC for each tooth; 2) cc X cc and AC X AC for each type of tooth; Six groups of teeth were compared (Right upper canines, lateral incisors, central incisor and Left upper central incisors, lateral incisors and canines). The statistical analysis used was Spearman test. All the teeth showed AC more higher than cc ($p \leq 0.05$), except the left lateral incisor ($p 0,135$). The larger dimensions of cc and AC went to the central incisors. There were significant differences between the cc of each tooth in relation to the adjacent tooth on the opposite side, as well as between AC. Therefore careful planning must be done, considering the dimensions of each tooth, in special for the left lateral incisor in the esthetic crown length surgical procedure.

92 Treatment planning using ICDAS vs conventional methodology for caries detection

Henríquez MJ, González K, Molina C, Díaz M, González S
Facultad de Odontología, Universidad Mayor

OBJETIVOS: Dental caries is a complex, chronic, and multifactorial disease, characterized by localized destruction of dental hard tissues as consequence of imbalance between protective factors (favoring remineralization) and destructive factors (favoring demineralization). Many criteria have been developed for caries detection, among them the International Caries Detection and Assessment System (ICDAS), which was designed to unify visual aspect of sound dental surfaces and caries lesions, based on best scientific evidence. Our objective was to identify differences in the number of caries lesion and treatment planning, using ICDAS vs conventional methodology of caries detection (visual-tactile criteria).

MÉTODO: Twenty patients of “Odontología Integral del Adulto I (OIA-I)” course, at Universidad Mayor, were randomly selected. Conventional methodology (visual-tactile criteria using sharp probe, and D3MFT) and ICDAS was performed and planning treatment was designed based on risk assessment, to both situations. Number of lesions and treatment criteria (non invasive and invasive) were determined. T test and Chi-square were performed.

RESULTADO: Number of caries lesions detected by ICDAS was higher than conventional methodology, particularly in enamel lesions. Non-invasive treatment was more frequently indicated using ICDAS than conventional methodology.

CONCLUSIONES: There exist differences between ICDAS and conventional approach used in OIA-I, related to detection and assessment of caries lesions, and management of caries diseases. Theses results showed an inconsistency with the current caries disease paradigm, as well as the perpetuation of surgical approach in caries lesions treatment in our teaching and dental education programs. Discussion and implementation about current concept of caries lesion detection, diagnosis, treatment decisions (non invasive and invasive interventions), and risk assessment, must be included in preclinical and clinical teaching.

93 Upper airway Volumetric changes after orthognathic surgery: A CBCT Study

Rizik R*, Lunecke G, Labraña G, Oyarzo JF
Facultad de Odonología, Universidad Andrés Bello

INTRODUCTION: Orthognathic surgery (OS) pursues to correct maxillofacial abnormalities in patients with skeletal, aesthetic and functional alterations. This surgery can also modify the airway volume, solving or triggering some kind of obstructive phenomenon, being an important issue to consider. The objective is to assess three-dimensional imaging changes produced in the upper airway volume before and after OS through Cone Beam technique.

MATERIALS AND METHODS: A prospective cohort study was performed in patients with recommendation of an orthognathic surgery (n=20, age $26,5 \pm 9,86$) because of skeletal problems (class II n=13, class III n=7). The images were obtained from Cone Beam Computed Tomography (CBCT; Planmeca Oy, Finlandia - Promax 3D Max) before and 30 to 45 days after the surgery. The aerial volume of the images was calculated with Planmeca Romexis software. Data of the total volume of the upper airway before and after surgery was analyzed for samples related to each skeletal class and according to the kind of surgery by using t-test (STATA 13).

RESULTS: By comparing the initial and final upper airway volume of all patients, it was notice that all suffered modifications ($t=-6,31; p=0,007$). Patients with skeletal class II showed significant differences when analyzing volumetric changes after surgery ($t=-7,81; p=0,009$), while class III patients did not show those differences ($t=-1,93; P=0,1009$).

CONCLUSION: OS produces airway volumetric changes when evaluated with CBCT images. OS is capable to produce significant changes in the total airway volume in class II patients and keeps airway permeability in class III patients.

96 Determination of pulpal status in carious deciduous teeth

López L, Tapia M, Cartagena A.
Facultad de Odontología, Universidad Finis Terrae.

INTRODUCTION: Dental caries is a disease with high incidence and prevalence indexes in child population. During pediatrics attention, it must be determined the pulpal status in order to have a correct diagnosis, which is traditionally done considering the patient history (generally tolled by a third), clinical exam and X-rays. This protocol can induce a problematic issue, because pulpal diagnosis is often done by indirect means. Based on that, we believe that is important to consider the use of accesory pulpal tests which can help to determinate the pulpal status in deciduous teeth.

OBJETIVE: To analyze the efectivity of accesory pulpal tests to determinate pulpal status in carious deciduous teeth.

METHODS: Sixty molar teeth were included in this study after the recruitment of thirty patients, which were divided in thirty experimental and thirty controls in a split mouth design, according to inclusion criteria. Three pulpal tests were performed: cold, hot and electric pulpal test (Vitalometry). All tests were made within two or three minutes intervals between them. Each patient accuse his/her pain sensation in a Visual Analog Scale of Pain (VAS). The results were statistically analized with Whilcoxon's and Fisher's exact tests.

RESULTS: Comparing the VAS results in healthy vs carious teeth, it was obtained higher values in carious teeth in all tests. The higher significance was obtained in the cold test with $1,67 \bar{x} \pm ds 1,71$ for healthy and $3,7 \bar{x} \pm ds 2,61$ for carious teeth. The higher sensibility result was obtained with hot with an 80%, and with higher specificity, predictive positive value and predictive negative value, the cold test (86, 90 and 70%, respectively). Nevertheless, the differences were not statistically different, probably due to the small of the sample.

CONCLUSIONS: Even the tried tests performed positively, is necessary to rise the sample to obtain statistical significance.

98 Failure risk at 11 years of repaired amalgam restorations

Valdivieso Sastre J, Viera Sapiain V, Villablanca Martínez C, Fernández E, Estay Larenas J, Martín J.
Facultad de Odontología, Universidad de Chile.

OBJECTIVE: The aim of this prospective, blind and randomized clinical trial was to determinate the failure risk of repaired amalgam restorations with localized clinical defects that were initially scheduled for replacement.

METHODS AND MATERIALS: A cohort of 20 patients with 40 Class I and II amalgam restorations that presented one or more clinical features that deviated from the ideal, Bravo or Charlie according to Ryge/USPHS criteria, were randomly assigned to the repair or the replacement group (A: repair, n=19; and B: replacement, n=21). Two examiners who had calibration expertise (Cohen's Kappa 0.61-0.8) evaluated the restorations at baseline and 11 years after, according to 7 parameters: marginal occlusal adaptation, anatomic form, surface roughness, marginal staining, secondary caries, sensitivity and luster.

RESULTS: 23 amalgam restorations were evaluated at the eleven year recall exam (Group A: n=15; Group B: n=8). The failure risk showed statistical significant difference between the repair and the replacement group only for the sensitivity parameter ($p < 0,05$). In general, all parameters presented a similar failure risk in both groups, but higher for the repair group.

CONCLUSIONS: Repaired and replaced amalgam restorations tended to downgrade over time and finally fail. The failure risk showed that the main reason to indicate replacement is the presence of dental sensitivity. Otherwise, a failure in another parameter can be improved by reparation or replacement.

99 Effectiveness 6%HP for tooth bleaching at long-term Vita-Bleaching Guide

Godoy I, Avalos F, Bottner J, Fernández E, Martín J, Bersezio C.
Facultad de Odontología, Universidad de Chile

OBJECTIVE: The aim of this clinical randomized double-blind split-mouth study was to assess the effectiveness at 9 months of a 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated bleaching agent, using VITA Bleachedguide.

METHOD: 25 patients were treated with: one upper hemiarcade with a 35% hydrogen peroxide bleaching agent and the other hemiarcade with a 6% hydrogen peroxide. Two applications were completed each treatment session and three sessions were appointed, with one week interval between them. Tooth colour was registered each session and 1 week and 1 and 9 months after completing the treatment by subjectively VITA Bleachedguide 3D- Master. Tooth colour variation and were compared between both bleaching agents.

RESULTS: Both treatment showed a change between baseline colour and nine months after completing the treatment with a median $\Delta\text{sgu}=6$ for 6% and of $\Delta\text{sgu}=5$ for the 35%. No statistical differences were seen when subjective evaluations were compared $p=0.008$ ($p < 0.05$).

CONCLUSIONS: A 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated agent is effective for tooth bleaching, reaching a Δsgu 6 to nine months after completing the treatment, with no clinical differences to a 35% agent neither in colour change.

CLINICAL SIGNIFICANCE

A low concentration hydrogen peroxide bleaching agent may reach good clinical results.

KEYWORDS

Bleaching teeth; Low concentration; Effectiveness; Titanium dioxide; Clinical randomized trial; VITA Bleachedguide 3D- Master.

100 Influence two different application protocols on 6%PH bleaching-effectiveness by VI-TA-EasyShadeCompact

Ramírez J, Rencoret J, Vera F, Fernández E, Letelier C, Martín J.
Facultad de Odontología, Universidad de Chile

OBJECTIVE: The aim of this clinical randomized double-blind split-mouth study was to assess the effectiveness at of a 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated bleaching agent assess the impact of shorter interval times on tooth sensitivity and to compare the efficacy with 2 different protocols of application.

Method: 22 patients were treated with: one upper hemiarcade with a one application of 36 minutes and the other hemiarcade with 3 applications of 12 minutes each with a 6% hydrogen peroxide. Two sessions were appointed with 48h of intervals between them. Teeth color was registered each session and 1 week after completing the treatment by spectrophotometer, registering parameters L^* , a^* and b^* . Teeth color variation and sensitivity were compared between both bleaching protocols.

RESULTS: Both treatment showed a change between baseline colour and all check-points with a $\Delta E = 5.37$ for one applications and of $\Delta E = 5.71$ for the three applications ($p = .096$). No statistical differences were found. Only two patients showed mild sensitivity.

CONCLUSIONS: 6% hydrogen peroxide activated with nitrogen-doped titanium dioxide light demonstrate to be an effective bleaching agent with almost no tooth sensitivity. Based on the analysis of the two 36 minutes/2 sessions bleaching protocols results, we concluded that 6%peroxide hydrogen longer applications is not a factor that affects the effectiveness of the treatment.

101 Influence two different application protocols on 6%PH bleaching-effectiveness by VITA-Classical

Vera F, Rencoret J, Ramírez J, Fernández E, Martín J, Dra Letelier C
Facultad de Odontología, Universidad de Chile

OBJECTIVE: The purpose of this clinical study was to evaluate by Vita Classical guide, the effectiveness of a 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated bleaching agent, the impact of shorter interval times on tooth sensitivity and to compare the efficacy with 2 different application protocols.

METHOD: This is a clinical randomized double-blind split-mouth study. 22 patients were treated with: one upper hemi arcade with one application of 36 minutes and the other hemi arcade with 3 applications of 12 minutes each with a 6% hydrogen peroxide. Two sessions were appointed with 48h of intervals between them. Tooth colour was registered by VITA Classical guide by two blinded assessors in the beginning, immediately after each session. Tooth colour variation and sensitivity were compared between both application protocols.

RESULTS: Both treatment demonstrated a change between baseline colour and all check-points with a Δ SGU = 6.41 for one applications and of Δ SGU = 7.2 for the three applications ($p < 0.919$). No statistical differences were observed when subjective evaluations were compared.

CONCLUSION: The two protocols of application were equally effective by this design; therefore, it is not necessary 3 applications of 6% hydrogen but, per session. A low concentration hydrogen peroxide bleaching agent may reach good clinical results with less adverse effects under a resumed protocol of one 36m application per 2 sessions.

102 Effectiveness 6%HP for tooth bleaching at long-term VITA classical guide.

Godoy I, Avalos F, Bottner J, Fernández E, Martín J, Bersezio C.
Facultad de Odontología, Universidad de Chile

OBJECTIVE: The aim of this clinical randomized double-blind split-mouth study was to assess the effectiveness at 9 months of a 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated bleaching agent, using VITA classical guide.

METHOD: 25 patients were treated with: one upper hemiarcade with a 35% hydrogen peroxide bleaching agent and the other hemiarcade with a 6% hydrogen peroxide. Two applications were completed each treatment session and three sessions were appointed, with one week interval between them. It was recorded the tooth colour of the upper central left and right each session and 1 week and 1 and 9 months after completing the treatment by subjectively VITA Classic A1-D4® guide, which was arranged from the highest (B1) to the lowest (C4) value.

RESULTS: Both treatment showed a change between baseline colour and after 9 months initiation of the treatment with a median \square SGU= 2 for both. No statistical differences were seen when subjective evaluations were compared ($p < 0.05$).

CONCLUSIONS: A 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated agent is effective for tooth bleaching, reaching a Δ SGU of 2 nine month after completing the treatment, with no clinical differences to a 35% agent neither in colour change.

103 Effectiveness 6%HP for tooth bleaching at long-term with Cielab-VitaEasyshadeCompact

Avalos F, Godoy I, Böttner J, Bersezio C, Martin J, Fernández E.
Facultad de Odontología, Universidad de Chile

OBJECTIVE: The aim of this clinical randomized double-blind split-mouth study was to assess the effectiveness at 9 months of a 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated bleaching agent by VITA Easyshade Compact Spectrophotometer.

METHOD: 25 patients were treated with: one upper hemiarcade with a 35% hydrogen peroxide bleaching agent and the other hemiarcade with a 6% hydrogen peroxide. Two applications were completed each treatment session and three sessions were appointed, with one week interval between them. Tooth colour was registered each session and 1 week and 1 and 9 months after completing the treatment by spectrophotometer, registering parameters L*, a* and b*. Tooth colour variation and sensitivity were compared between both bleaching agents.

RESULTS: Both treatment showed a change between baseline colour and all check-points with a $\Delta E = 5.31$ for 6% and of $\Delta E = 7.84$ for the 35% nine months after completing the period with a statistical difference in colour ($p < 0,000$), maintain the effectiveness along the period assessed.

CONCLUSIONS: A 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated agent is effective for tooth bleaching, reaching a ΔE of 5.31 nine months after completing the treatment, however the traditional concentration is more effectiveness.

104 Influence two different application protocols on 6%PH bleaching-effectiveness by VITA-Bleaching-guide

Ramírez J, Rencoret J, Vera F, Fernández E, Letelier C, Martin J.
Facultad de Odontología, Universidad de Chile

OBJECTIVE: The aim of this clinical randomized double-blind split-mouth study was to assess the effectiveness at of a 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated bleaching agent assess the impact of shorter interval times on tooth sensitivity and to compare the efficacy with 2 different protocols of application.

METHOD: Twenty-two patients were treated with: one upper randomly hemiarcade with a one application of 36 minutes and the other hemiarcade with 3 applications of 12 minutes each with a 6% hydrogen peroxide. Two sessions were appointed with 48h of intervals between them. Tooth color was registered each session and 1 week after completing the treatment by spectrophotometer, registering parameters L^* , a^* and b^* , and subjectively using VITA bleaching guide. Tooth colour variation and sensitivity were compared between both bleaching agents by Mann Whitney test.

RESULTS: Both treatment showed a change between baseline color and all check-points with a $\Delta SGU = 4,0$ for one applications and of $\Delta SGU = 3,8$ for the three applications ($p > 0.05$). No were statistical difference when subjective evaluations were compared.

CONCLUSIONS: Both clinical procedures were equally effective, therefore it is not necessary to realize 3 applications of the 6% hydrogen peroxide. A low concentration hydrogen peroxide bleaching agent may reach good clinical results with short period intervals and extended mode of application.

105 Aesthetics Psychosocial-Impact post in-office bleaching at long-term follow-up by PIDAQ

Werner A, Herrera A, Inda D, Martín J, Vildósola P, Fernández E
Facultad de Odontología, Universidad de Chile

OBJECTIVE: To evaluate the changes in Psychosocial Impact of dental aesthetics in patients undergoing bleaching teeth in-office with low concentration of PH at 9 month follow-up.

MATERIALS AND METHODS: 31 patients older than 18 years, of both gender, who were subjected to tooth bleaching were evaluated. PIDAQ questionnaire was applied to measure the self-perception of dental aesthetics in 4 times (prior to bleaching, in the week after treatment, one month and nine months later). After the data were compared by T test.

RESULTS: The results show that there is statistically significant difference between measuring the perception of Psychosocial Impact prior to bleaching versus the post-evaluation ($p < 0.05$) in all times. The dimensions self-confidence, social impact, psychological impact and aesthetics concern were a positive impact during the assessed times. ($p < 0.05$)

CONCLUSIONS: There are a positive effect on psychosocial impact in patients undergoing teeth whitening by comparing the baseline time and 9 months follow-up

106 Influence Ph on in-office bleaching effectiveness by Vita-Classical long-term follow-up

P.Vildósola, P. Meneses, J.Martín, C.Letelier, MV Letelier, E.Fernández
Facultad de Odontología, Universidad de Chile

OBJECTIVE: The objective in this study is to evaluate color regression after 12 months of an in-office tooth bleaching with two different pH, 35% hydrogen peroxide, using VITA Classical shade guide.

METHOD: Evaluation of color regression in patients ($n=15$) who were previously bleached with an in office procedure, using 35% hydrogen peroxide gels with different pH, in an Split mouth design study. A pH= 7 Pola Office (SDI) gel was used in a randomly hermiarcade, a pH=2 Pola Office Plus in the other randomly hemiarcade. For long term color regression measurements, the VITA Classical shade guide as used and charted by valor 12 months post treatment. Mean and standard deviation were calculated to evaluate Δ SGU on each group. Data is evaluated via Saphiro Wilk test to analyze the normality of the distribution, and the Mann-Whitney test ($\alpha = 0, 05$) is used to compare independent variables.

RESULTS: With a total patients studied ($n = 15$), the difference in color change for both groups PO vs PO + were similar ($p > 0.05$). Difference between (Δ SGU PO and PO) was not statistically significant ($p = 0.704$).

CONCLUSION: There is no statistically meaningful difference in color regression between Pola Office and Pola Office Plus 35% hydrogen peroxide subjectively measured at 12 months post bleaching.

107 Influence Ph on in-office bleaching effectiveness by Vita-Bleach-Guide long-term follow-up

Meneses P, Prieto MV, Cereño V, Ortega K, Rojas MF, Fernandez E
Facultad de Odontología, Universidad de Chile

OBJECTIVE: To evaluate the color regression in patients undergoing In-Office Teeth bleaching with 35%HP of different pH at 12 months follow-up assessed by subjective evaluation by VITA Bleachedguide.

METHOD: 15 voluntaries previously bleached by hydrogen peroxide at 35% with model Split-mouth in a hemiarcade was treated with Pola Office (PO), SDI Ph = 2 (acid) and other hemiarcade with Pola Office Plus (PO +) Ph = 7 (neutral). Color variation by VITA Bleachedguide twelve months post bleaching (Δ SGU) was measured. The data obtained by visual subjective measurement were analyzed by Shapiro Wilk test to evaluate the normal distribution and the Mann Whitney test for multiple comparisons ($\alpha = 0.05$).

RESULTS: Total patients studied (n = 15), the difference in color change for both groups PO and PO + were similar ($p > 0.05$). Difference between (Δ SGU= PO and PO) was not statistically significant ($p = 0.906$).

CONCLUSIONS: There is no difference of color between the regression PO vs PO + with hydrogen peroxide 35% subjectively measured at 12 moth follow-up.

108 Influence Ph on in-office bleaching effectiveness by Vita-Easyshade long-term follow-up

Meneses P, Prieto MV, Cereño V, Ortega K, Rojas MF, Fernandez E

OBJECTIVES: To evaluate color regression in patients submitted to dental in office tooth bleaching with 35% hydrogen peroxide with two different pH gels at 12 months post treatment, objectively measured with VITA Easyshade spectrophotometer.

METHOD: 15 patients previously bleached with an in-office procedure, using two 35% hydrogen peroxide gels in and Split mouth design, one hemi arcade with Pola Office (PO); SDI pH = 2 (acid), and the other hemi arcade with Pola Office Plus (PO+) SDI, pH = 7 (Neutral). Color was measured with VITA Easyshade spectrophotometer in agreement with CIELab system by Vita, at twelve months post bleaching (Δ E). Color variation of both groups was calculated by Mann-Whitney test for multiple comparison ($\alpha = 0, 05$).

RESULTS: Total of patients analyzed (n=15), differences in color changes were similar ($p > 0, 05$). Difference between Δ E PO and Δ E PO+ was not statistically significant ($p=0,896$).

CONCLUSIONS: There are no differences in color regression between PO and PO+ with 35% hydrogen peroxide objectively measured at 12 months post treatment. Color stability between 1 month and 12 month post dental bleaching is similar in both groups.

110 Push-Out bond strength of fiber post cemented with two different luting systems.

Rodríguez D. S, Rivadeneira L, Leal C, Bersezio C, Vildósola P.
Facultad de Odontología, Universidad Andrés Bello (Santiago)

OBJETIVE: The aim of this study was to compare the push-out bond strength the fiber post cemented with resin cement rinse etching system RelyX Ultimate (RU) and self etching-adhesive system Relyx U200 (U2).

MAT-MET: Selected 10 single rooted teeth of adults 25-40 years old healthy, with indication extraction. Each tooth was endodontically instrumented with the same large coronal-apical. They were divided randomly in two groups for luting a fiber post Exacto number 2 (Angelus, Londrina, Brazil) with resin cement and light curing Coltolux (Coltene-Whaladent, USA) according to the manufacture's instructions. Group RU: Cement (RU) with Single Bond Universal (3M ESPE, Minnesota, USA). Before applying adhesive universal, it was performed intraradicular etching with orthophosphoric acid 37%(Condac, FGM, Joinville, Brasil) for 15 seconds, rinsed and dried. After adhesive was applied and the posts were cemented with RU. The light curing was performed for 40 seconds. Group U2: The posts were cemented with U2 (3M ESPE, Minnesota, USA) without acid etching and adhesive. After 48 hours, each root was sectioned into three 1mm thick slices at the third cervical, medium and coronal under water-cooling using Isomet saw. Test push-out load was extended in the apical-coronal direction in order to move the post toward the larger part of the root slice until failure (crosshead speed 1.0 mm/min). The data were expressed in megapascals and analyzed by Shapiro-Wilk and Student-T. In all the analyses the level of significance was set 95%.

RESULT: There was normal distribution and there was not significant difference ($p < 0.05$) between RS and RE. The average and standard deviation (\pm SD) for RS was 10.72 (\pm 2.66) and 12.72 RS (\pm 3.17).

CONCLUSION: Within the limitation of this study it showed that not statistically significant difference post push-out bond strength between both luting adhesive system RU and U2.

111 Push-Out bond strength of fiber post using universal adhesive with two etching technique

Rodríguez D. Sara, del Real María de los Ángeles, Cordich Sharon, Vildósola Patricio.
Facultad de Odontología, Universidad Andrés Bello (Santiago)

OBJECTIVE: The most common failure of the fiber post is its debonding. A new universal adhesive system had been utilized for its simplicity to be applied in the dental procedures. The aim of this study was to compare the push-out bond strength of the fiber post cemented with resin cement RelyX Ultimate - Single Bond Universal (SBU) with conventional etching acid (ER) and self-etching (SE).

MAT-MET: Selected 10 single rooted teeth of adults 25-40 years old healthy, with indication extraction. Each tooth was endodontically instrumented with the same large coronal-apical. They were divided randomly in two groups for luting a fiber post Exacto number 2 (Angelus, Londrina, Brazil) with resin cement adhesive RelyX Ultimate - SBU (3M ESPE, Minnesota, USA) and light curing Coltolux (Coltene-Whaladent, USA) according to the manufacturer's instructions. Group ER: Before applying SBU, it was performed an intraradicular etching with orthophosphoric acid 37% (Condac, FGM, Joinville, Brasil) for 15 seconds, rinsed, dried. After adhesive SBU was applied and light curing for 40 seconds. SE Group: Without acid etching, it was applied SBU. After 48 hours, each root was sectioned into three 1mm thick slices at the third cervical, medium and coronal under water cooling using Isomet saw. Test push-out load was extended in the apical-coronal direction in order to move the post toward the larger part of the root slice until failure (crosshead speed 1.0 mm/min). The data were expressed in megapascals and analyzed by Shapiro-Wilk and Student-T. In all the analyses the level of significance was set 95%.

RESULT: There was normal distribution and there was not significant difference ($p < 0.05$) between RS and RE. The average and standard deviation (\pm SD) for RS was 12.33 (\pm 3.17) and 12.02 RE (\pm 2.45).

CONCLUSION: Within the limitation of this study not statistically significant difference post push-out bond strength among ER and SE

112 Influence Ph on in-office bleaching effectiveness by Vita-Classical long-term follow-up

Vildósola P. Meneses P, Martín J, Letelier C, Letelier MV, Fernández E.
Facultad Odontología Universidad de Chile

OBJECTIVE: The objective in this study is to evaluate color regression after 12 months of an in-office tooth bleaching with two different pH, 35% hydrogen peroxide, using VITA Classical shade guide.

METHOD: Evaluation of color regression in patients ($n=15$) who were previously bleached with an in office procedure, using 35% hydrogen peroxide gels with different pH, in a Split mouth design study. A pH= 7 Pola Office (SDI) gel was used in a randomly hemiarcade, a pH=2 Pola Office Plus in the other randomly hemiarcade. For long term color regression measurements, the VITA Classical shade guide as used and charted by valor 12 months post treatment. Mean and standard deviation were calculated to evaluate Δ SGU on each group. Data is evaluated via Saphiro Wilk test to analyze the normality of the distribution, and the Mann-Whitney test ($\alpha = 0, 05$) is used to compare independent variables.

RESULTS: With a total patients studied ($n = 15$), the difference in color change for both groups PO vs PO + were similar ($p > 0.05$). Difference between (Δ SGU PO and PO) was not statistically significant ($p = 0.704$).

CONCLUSION: There is no statistically meaningful difference in color regression between Pola Office and Pola Office Plus 35% hydrogen peroxide subjectively measured at 12 months post bleaching.

113 Visual assessment by Vita Classical color guide in dental whitening

Rencoret J, Ramírez J, Vera F, Fernández E, Martín J, Letelier C
Departamento de Odontología Conservadora, Universidad de Chile

OBJECTIVE: The purpose of this clinical study was to evaluate by Vita Classical guide, the effectiveness of a 6% hydrogen peroxide with nitrogen-doped titanium dioxide light activated bleaching agent, the impact of shorter interval times on tooth sensitivity and to compare the efficacy with 2 different application protocols.

METHOD: This is a clinical randomized double-blind split-mouth study. 22 patients were treated with: one upper hemi arcade with one application of 36 minutes and the other hemi arcade with 3 applications of 12 minutes each with a 6% hydrogen peroxide. Two sessions were appointed with 48h of intervals between them. Tooth colour was registered by spectrophotometer, registering parameters L^* , a^* and b^* , and subjectively using VITA Classical guide by two blinded assessors in the beginning, immediately after each session. Tooth colour variation and sensitivity were compared between both application protocols.

RESULTS: Both treatment demonstrated a change between baseline colour and all check-points with a $\Delta SGU = 6.41$ for one applications and of $\Delta SGU = 7.2$ for the three applications ($p < 0.919$). No statistical differences were observed when subjective evaluations were compared.

CONCLUSION: The two protocols of application were equally effective in this design; therefore, it is not necessary 3 applications of 6% hydrogen but, per session. A low concentration hydrogen peroxide bleaching agent may reach good clinical results with less adverse effects.

114 **Determination of Parachloroaniline ex vivo in endodontic treatments after using 5% NaOCl and 2% Chlorhexidine.**

Alegre O, Yévenes I, Parada J, Maggiolo S, Neira M.
Facultad de Odontología, U de Chile. Facultad de Cs. Químicas y Farmacéuticas, U. de Chile.

OBJECTIVES: To determine the amount of Parachloroaniline in teeth during endodontic treatment after using 5% NaOCl and 2% CHX.

METHODOLOGY: In 20 teeth an endodontic treatment was performed according to an irrigation protocol of 13 phases, using 5% NaOCl, 0,9% NaCl, 10% EDTA and 2% Chlorhexidine. In the 13 volumes, NaOCl, EDTA and CHX concentrations were determined using UV spectrophotometry and visible spectrometry was used for establish Parachloroaniline concentration.

RESULTS: In phases 1, 2, 3 and 4 of the chemical-mechanical preparation of the root canal, 5% NaOCl reduced its concentration to 3.4% and 3.8%. In phases 5, 6 and 7, irrigation with 0.9% NaCl was carried out and NaOCl was measured at concentrations of 0.007%, 0.003% and 0.001%. In phase 8, 10% EDTA was used and the final concentration was 8.9%. In phases 9, 10 and 11, after irrigation with 0.9% NaCl, EDTA was quantified at concentrations of 0.013% to 0.002%. Also NaOCl was measured at concentrations of 0.0011% to 0.0006%. During phases 12 and 13, 2% Chlorhexidine was used and concentrations after irrigation were 1.85% and 1.8%. Finally PCA concentrations were 0.0005% and 0.0007% in phases 12 and 13, respectively.

CONCLUSIONS: The 5% NaOCl decreases significantly during the first four phases due to the effect of the root canal preparation. NaOCl is also detected in phases 5, 6, 7, 9, 10 and 11 at minor but measurable concentrations. 10% EDTA in phase 8 decreases due to its action on the smear layer, and is measurable in phases 9, 10 and 11. 2% CHX decreases after intracanal use possibly due to the substantivity with root canal dentin. PCA formation occurs in canals in the presence of 2% Chlorhexidine and NaOCl, and was detected in phases 12 and 13.

115 Intraobserver agreement and accuracy in detecting proximal caries between students

Estay J, Bersezio C, Arias R, Zambrano G*, Corvalán I, Fernandez E.
Universidad de Chile, UNESP.

OBJECTIVE: The aim of this study is to investigate intraobserver agreement and accuracy in proximal caries detection of undergraduate four-year students

Digitized images of a bitewing radiography set taken from a patient of the operative dentistry clinic (Roviscan (Posdion Co., Korea) at 600dpi/14bits. The radiographies were taken with a dental X-ray equipment Sirona Heliident Vario (Sirona Drive Suite 100 Charlotte, NC 28273, USA), with 65 kV, 7 mA and 0.63 s for molars and 0.5 s for premolars, using positioners and a D-Speed radiography films (Ektaspeed Plus, Eastman Kodak). The images were displayed without any information like name, gender, age or clinic history on a Laptop 15.5 "16: 9 (Sony Vaio SVS151A11U) with a resolution of 1920x1080 pixels (image size 16.27 x 11.44 cm) in a dark environment. The following scale was used: 0, no caries detected in the proximal surface; 1, proximal radiolucency in enamel (enamel caries); 2, proximal radiolucency in dentine (dentinal caries). Two assessment were conducted with a week of interval by a group of 30 four-year dentistry students (15 males – 15 females) randomly selected. Cohen's Kappa index and ROC curves and accuracy were calculated, using as reference standard the consensus of four experimented oral radiologists, due to the in vivo nature of this study.

RESULTS: Mean Kappa value was 0.38 (0.18 SD), and mean accuracy (area under curve ROC) was 0.61 (0.08 SD)

CONCLUSIONS: Students has a low agreement level and moderate accuracy level for detecting radiographic proximal caries lesion.

117 In vitro and ex vivo bioactivity of Biodentine® cement.

C Quintana, G Sepulveda, C Corral, C Covarrubias, E Fernandez, C Bersezio
Facultad de Odontología, Universidad de Chile

OBJECTIVES: To assess the in vitro and ex vivo capacity of Biodentine® to induce the formation of apatite.

METHODS: The ability of Biodentine® to induce apatite formation was assessed in Simulated Body Fluid (SBF). Biodentine® discs were immersed in SBF for 10 and 30 days, and discs not immersed in SBF were used as control. Fourier transform infrared spectroscopy (FTIR) analysis was performed to identify presence of hydroxyapatite (HA) on the surface of the samples. Scanning electron microscope (SEM) images were obtained and energy dispersive X-ray (EDX) analysis performed on the samples kept for 10 days in SBF.

Dentin discs were obtained from human third molars. Biodentine® was applied to discs treated with 37% phosphoric acid, and discs without prior treatment. These specimens were immersed in SBF for 10 days and then fractured perpendicular to the interface. The interface between the cement and dentin was examined using SEM. Representative micrographs of the interface at 1000x and 3000x were captured.

RESULTS: FTIR analysis detected the presence of characteristic HA signals on Biodentine® samples after 10 days of SBF immersion. SEM-EDX revealed the presence of globular Ca and P deposits at this time point.

In the interface between Biodentine® and pre-etched dentine a band of structurally altered dentin, with blocked dentin tubules was observed by SEM. In contrast, the interface between unetched-dentin and Biodentine® shows dentin tubules opened without the formation of novel mineral deposits.

CONCLUSIONS: Biodentine® is able to form an apatite layer on its surface under SBF conditions, this property is observed under ex vivo conditions only when smear layer is removed.

118 Effectiveness of MIT for defective resin-based composite. 11 years follow-up.

Viera V, Valdivieso J, Estay J, Martín J, Fernández E
Facultad de Odontología, Universidad de Chile

AIM: To assess the behavior of minimal invasive treatments (MIT) for defective resin based composite restorations at long-term

METHOD: Sixty-six patients (age 18 to 80 years, mean = 26.6) with 193 resin-based composite defective restorations were assigned to one of five different treatment groups: A) Repair (n=15); B) Sealing of margins (n=22); C) Refurbishing (n=18); D) Replacement (n=22) and E) Untreated (n=30). USPHS/Ryge criteria was used to determine the quality of the restorations. Two calibrated examiners (Cohen's Kappa 0.82) assessed the restorations independently at the beginning of the study (baseline) and at eleven years after treatment using seven parameters from the USPHS/Ryge criteria (Marginal Adaptation, Anatomic Form, Roughness, Marginal Stain, Occlusal Contact, Secondary Caries and Luster). A failed restoration was considered if any of the evaluated criteria was Charlie.

RESULTS: 107 resin-based composite restorations were examined at the eleven-year recall exam. All groups showed a 23% of failed restorations. The repair group showed the highest failure rate (60%), followed by refurbishing group (39%) and sealing group (27%). Replacement group showed a significantly lower percentage with 9% of failed restorations. The Untreated group showed 3% of failed restorations. The statistical analysis showed differences between the failure rates of the different groups.

CONCLUSIONS: The eleven-year recall examination showed that sealant has a lower failure rate compared to repair and refurbishing as alternative treatments for the replacement of resin-based composite restorations.

119 Fluoride Excretion estimation in a spot urine sample.

Bruna F*, Cortés C., Jiménez J., Mella I., Yevenes I., Díaz M., Neira M., Cabello R.
FOUCH, Universidad de Chile, Santiago, Chile

AIM: The aim of this study was to determine differences in a spot urine sample for the estimation of excretion of fluoride and the 24-h urine sample.

METHODS: A 24-h urine sample and a morning spot urine sample were collected from 12 Chilean adolescents. All the individuals had been residing in the same fluoridated area. All the urine samples were analysed, at most 24 h after collection, in duplicate. The fluoride content was determined directly using a fluoride ion selective electrode. Urinary creatinine was measured by the Jaffe method. Using the ratio Fluoride/Creatinine, we estimated the fluoride content of 24 hrs urine sample.

RESULTS: The media of fluoride content estimation from F/Cr ratio was 0,7 mg/day and the media of fluoride content from the 24 hrs urine sample was 0,19 mg mg/day.

CONCLUSION: A poor correlation between fluoride excretion estimated using the F/Cr ratio in a morning spot urine sample and fluoride excretion in a 24-h urine sample was found

Proyecto FIOUCh 13-016. Fouch-U. de Chile

Espinoza I, Cornejo M, Gamonal J, Arteaga O
Facultad d Odontología, Universidad de Chile

To analyze contextual and individuals determinants of dental caries experience (DMFT) in 35-44 year-old Chilean adults.

METHODS: This is a secondary and ecological analysis of the 1st National Dental Examination Survey Chile carry out in 2007-2008. 916 individuals aged 35–44 residents of the capital cities of 15 regions were included. The DMFT was evaluated following World Health Organization recommendations and compared by gender, education level and income, and contextual characteristics (fluoridated water and Human Development Index (HDI) of the place of residence). Five geographic conglomerated were building based in potencial time exposed to natural or fluoridated tap water related with caries prevention: (1) North of Chile I, II II, IV,XV region (44 years or more), (2) V region (22 years), (3) Metropolitan area (11 years); (4) South of Chile region VI, VII, IX, XII,XIV (4-8 years) and VIII region (never). A multilevel model fitted the adjustment of DMFT to individual and contextual covariates with a multiple linear regression. The data were analyzed using STATA 11.0.

RESULTS: Adults residents in VIII region had an average of three most affected teeth with caries experience (B1 Coefficient: 3.03 (95% CI:0,01;6.04) that the residents in the North of Chile. Participants without formal education (B1 Coefficient: 1,53 (95% CI:0,25;2,81) respect to tertiary and low income (B1 Coefficient: 2,11(95%CI:1,15;3,07)) respect to higher income show significant association with DMFT in the final model. No association was observed with the HDI and gender. The Intraclass Correlation Calculated (ICC) was 6%, their interpretation is that only 6% of the total variance corresponds to nesting variability in areas with different levels of fluoride in tap water and the highest percentage of variability was explained between individuals.

CONCLUSION: Socioeconomic and geographic inequalities associated to access to fluoridated tap water were observed in dental caries experience in Chilean adults

121 Effectiveness of non-vital bleaching with a walking bleaching technique. Pilot-Study

Letelier C, Bersezio C, Saéz M, Rubio M, Martin J, Fernández E.
Facultad de Odontología, Universidad de Chile.

OBJECTIVES: Compare the clinical effectiveness of the 35% hydrogen peroxide and 37% carbamide peroxide in a walking bleaching technique, measured by the vita bleachedguide 3D Master.

METHOD: In this randomized clinical trial, 12 patients with discoloration in non vital teeth with endodontic treatment in good conditions, participated. Two groups were randomly assigned: 35% hydrogen peroxide (Opalescence Endo-Ultra-dent, USA) (n=6) and 37% carbamide peroxide (Whiteness Superendo, FGM, Brasil) (n=6). The intracameral bleaching was performed with a walking bleaching technique. The color was evaluated in 6 times: baseline, after 4 sessions of intracameral bleaching and a week after treatment. Two calibrated evaluators used the Vita bleachedguide 3D to measure the color, the numerical units of the scale are based on the brightness levels and facilitate accurate recording of shade changes during the bleaching. A numerical value was assigned to the scale to calculate the color change between sessions (Δ SGU). The mean and standard deviation for the color change (Δ SGU), weekly in each group shall be calculated. For comparisons between groups, the Mann-Whitney test ($\alpha = 0.05$) was used.

RESULT: No difference in any session of intracameral bleaching or post-treatment control ($p > 0.05$). (Δ SGUB1 $p = 0.065$, Δ SGUB2 $p = 0.132$, Δ SGUB3 $p = 0,093$, Δ SGUB4 $p = 0.310$, Δ SGUC $p = 0.180$)

CONCLUSIONS: No significant differences in the effectiveness of walking bleaching technique using 35% hydrogen peroxide gel or 37% carbamide peroxide, measured with Vita bleachedguide 3D Master.

122 Effectiveness of non-vital bleaching with two gels measured by spectrophotometer. Pilot- Study

Rubio M, Bersezio C, Peñá F, Sáez M, Martín J, Fernández E.
Faculty of Dentistry, University of Chile

OBJECTIVES: Clinical comparison of the effectiveness of Non-vital Tooth bleaching using 35% hydrogen peroxide and 37% carbamide peroxide, measured with spectrophotometer Vita EasyShade®.

METHOD: A pilot clinical trial randomized and double-blind will be conducted. In volunteer patients (n = 12) with root canal treatment done in good conditions and dental tone A2 or larger in scale Vita Classical determined by the spectrophotometer Vita Easy Shade, will be bleaching with the Walking Bleaching technique. Two groups were randomly assigned: G1= 35% hydrogen peroxide (n=6) and G2= 37% carbamide peroxide (n=6). The color was evaluated in 6 times: baseline, after 4 sessions of intracameram bleaching (B1-B2-B3-B4) and a week after treatment (C). Vita Easy Shade spectrophotometer is used with the CIE L * a * b system to measure the total variation in color (ΔE), between the baseline and the different evaluation times. To ensure that the color register is in the same place with the instrument, a silicone matrix previously settle. The mean and standard deviation for the color change (ΔE), weekly in each group shall be calculated. For comparisons between groups, the Mann-Whitney test ($\alpha = 0.05$) is used.

RESULT: The difference in mean color change (ΔE), recorded after each bleaching session was higher in the group of hydrogen peroxide, but the difference between groups was not statistically significant in any comparison ($p > 0.05$). ($\Delta EB1 = 0.065$, $\Delta EB2 = 0.699$, $\Delta EB3 = 0.394$, $\Delta EB4 = 0.065$, $\Delta EC = 0.394$)

CONCLUSIONS: No significant differences in the effectiveness of intracoronary bleaching using hydrogen peroxide gel to 35% carbamide peroxide or 37%, measured with spectrophotometer Vita Easy Shade® in a walking bleaching technique.