INTERNATIONAL JOURNAL OF PAEDIATRIC DENTISTRY

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Editor-in-Chief Göran Dahllöf

Abstracts of the 22nd Congress of the International Association of Paediatric Dentistry Munich, Germany, 17–20 June 2009



Volume 19 – Suppl. 1 June 2009

The official journal of The International Association of Paediatric Dentistry The British Society of Paediatric Dentistry



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Oral Session O03 - Cariology 3

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O03–17

Dental caries and dental care index in children with type 1 diabetes

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Introduction: The aim of the study was to investigate the caries experience and dental care index in diabetic children and a control group.

Materials and methods: The study group consisted of 52 children and adolescents, 3–16 years of age with type 1 diabetes attending the outpatient diabetic clinic at Ghent University hospital, Ghent, Belgium. 50 healthy subjects recruited from the paediatric dental clinic at Ghent University hospital served as the control group. After signing a consent form, clinical oral examination was performed and consisted of recording DMFS/dmfs. Caries lesions were assessed both at cavity and noncavity levels. Bitewing radiographs were taken. Participants and/or their guardians provided information about oral hygiene habits and dietary habits. Diabetes-related data were collected from medical records. The study was approved by the ethical committee of the Ghent University hospital.

Results: Diabetics showed higher mean DMFS than the control group (4.75 and 3.6 respectively). However the difference was not statistically significant (P < 0.05). In the primary dentition, the mean dmfs was not statistically significant between diabetics and control subjects (2.92 and 4.98 respectively) (P < 0.05).

Conclusion: The findings suggest that caries experience in diabetic patients treated with the modern insulin regimens doesn't significantly differ from that of nondiabetics.

O03–18

Restorative Care Index of 12–19 year-old school children in Ibadan, Nigeria

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Introduction: Nigeria is a country with low dental caries prevalence although recent studies have reported slight increase in this prevalence. Despite this increase, dental service utilization is low with more than 90% of dental visits being symptomatic visits which need surgical methods of management. The objective of this study was to determine restorative care index of a representative sample of 12–19 year-old school children in Ibadan, Nigeria.

Materials and methods: Eleven government secondary schools in Ibadan, Nigeria were selected using a proportionate sampling method. Written consent for participation was obtained from parents through the principals of the schools and from the state Ministry of Education. Ethical clearance to carry out the study was obtained from the University ethical review board. Dental caries was diagnosed using the WHO standard method and criteria (1997) and DMFT index was determined. Statistical evaluation was by t- test. **Results:** 1532 12–19 year-old school children were examined. Caries prevalence was 7.1% and the mean DMFT was 1.85 (SD = 0.7). Female children had a significantly higher mean DMFT than males (P < 0.05). Care index expressed as FT/

DMFTx100 was 0.95% for females and 1.05% for males. None of the 16–19 year-olds had any restorative care.

Conclusion: Low restorative care index was seen in the studied population and untreated caries exposes them to tooth loss in adulthood. Thus, there is a call for more effort addressed to prevention as cost of management may be a reason for nondental visits.

O03-19

The validity and reproducibility of bitewing radiographs and a laser fluorescence device C. DEERY¹, Z. J. NUGENT², D. N. J. RICKETTS³ & L. SHOAIB⁴

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Introduction: Caries detection and diagnosis remains a difficult problem for clinicians, therefore the aim of this in-vitro study was to compare the validity and reproducibility of bitewing radiographs and a laser fluorescence device (DIAGNOdent pen, KaVo, Germany) (LFD) for the diagnosis of approximal caries in primary molar teeth.

Materials and methods: 112 extracted primary molar teeth (collected with written consent) were set-up in groups of 4, in pink impression putty, to mimic their anatomical positions. Three trained examiners independently examined these teeth. The LFD was scanned over the mesial and distal surfaces. Simulated bitewing radiographs were taken of each block (F-speed film, Kodak, UK). Each film was examined in a darkened room on a blacked-out light box with magnification (x5). All examinations were conducted blind and repeated after a break of at least 24 h. Subsequently, the teeth were serially sectioned for histological validation by two examiners. **Results:** For the LFD, at the D_1 (enamel and dentine caries) diagnostic threshold the mean specificity and sensitivity were 93.1 and 28.1, respectively. At the D_3 (dentine caries) threshold the values were 99.1 and 18.0, respectively. Regarding the radiographs the specificity and sensitivity at the D_1 threshold were 84.5 and 48.9, respectively. For the D_3 threshold the respective values were 89.9 and 49.8. The LFD had mean intra-examiner and interexaminer reproducibility values of 0.52 and 0.52, respectively and for the radiographs the equivalent values were 0.79 and 0.72.

Conclusion: The radiographs had superior validity and reproducibility compared to the LFD.

O03–20

X-Ray microtomography study of dentine remineralisation after caries removal by two techniques

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Introduction: It has been shown that there was a partially demineralised layer at the base of the carious lesion after dentinal

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caries was removed by the CarisolvTM technique. The aim was to investigate whether this layer had the potential of remineralisation.

Material and Methods: One carious deciduous molar with open cavities was bisected and scanned using a high definition X-ray microtomography (XMT) scanner (MuCat, developed at Barts and The London Dental School). After initial scanning, one half had its carious dentine removed using a hand excavator until the dentine 'felt' clinically hard (HE), while the other half was excavated using the CarisolvTM technique (CS). Afterwards, the specimen was re-scanned. The tooth was then immersed in a saliva-like remineralising solution, containing 1.5 mmol/l calcium chloride (CaCl₂), 0.9 mmol/l potassium dihydrogen phosphate (KH₂PO₄), 130 mmol/l potassium chloride (KCl), and 20 mmol/l [4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid] (HEPES), adjusted to pH 7.0 with 1 mol/l KOH. The tooth was rescanned at 2, 4, 6, 8 and 12 weeks after immersion.

Results: Subtraction XMT images showed that additional minerals were added in the partially demineralised dentine in the CS half tooth. Remineralisation occurred rapidly within the first 4 weeks up to 87.5% of sound dentine, and then levelled off. In the HE half, no additional mineral was added to the sound dentine.

Conclusion: If carious dentine removal is controlled using a chemomechanical technique, the partially demineralised layer has potential to remineralise, thus confirming that it is not necessary to remove carious lesion to level of sound dentine.

O03–21

Association of oral hygiene and dental caries status in children affected with β -Thalassemia Major S. NAMINENI¹ & D. DOSH²

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Introduction: The aim of this study was to determine, the oral hygiene and dental caries status in children suffering from β -Thalassemia Major and to compare with age and gender matched healthy controls.

Patients and methods: A total of 40 children suffering from β -Thalassemia Major and 40 healthy age and gender matched controls were included in the study. Ethical committee clearance and verbal consent was obtained from all the participants. Oral hygiene status was obtained using Simplified Oral Hygiene Index (OHI-S) and dental caries was examined using DMFT/dmft Index. Frequency distribution of the data was done using SPSS software. The mean of all the variables was obtained and comparison of mean OHI-S and mean caries status was done using Mann–Whitney U test. P < 0.05 was considered statistically significant. **Results:** Participants belonged to age range 4–16 years. Mean OHI-S score was higher in Thalassemic children, however no significant difference was observed between Thalassemic and healthy controls. Likewise there was no significant difference in

dental caries status between both groups. **Conclusion:** This study reveals that β -Thalassemia Major is not associated with poor oral hygiene or increased dental caries experience as compared to healthy controls.

O03–22

Snacking habits, dental caries and associated factors in urban Nigerian children

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Introduction: This study assessed the snacking habits and dental caries status of 3–10 year-old children attending the Child Oral Health Clinic of the Lagos University Teaching Hospital.

Materials and methods: A 2 part questionnaire was used for the study. Information on socioeconomic background, oral health practices and dietary pattern was obtained from the mothers in section A. Section B recorded findings of the clinical oral examination of the children. Ethical clearance was obtained from the institution's ethical committee, and informed consent from the mothers of the children

Results: A total of 431 children aged 3–10 years were investigated. There were 231(53.6%) males and 200 (46.4%) females. 52.0% of the children had active caries. 56.6% started snacking before their first birthday. Only 3.6% had snacks taken only on special occasions and 43.5% engaged in between meals snacking at least three times a day. 42.3% clean with tooth brush and paste, 48.0% brush on their on and 66.6% brushed once a day. There was a statistically significant association between age at onset of snacking, oral hygiene practices and pattern of dental caries.

Conclusions: The snacking pattern and dental caries status of the children was similar across the social groups. Child oral health promotion programs are recommended for nursing mothers, as well as school-based preventive programs in nursery and primary schools.

O03–23

Association between caries and body mass index

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Introduction: Childhood obesity is increasing in western populations, but its association with caries is unclear. Aim of the study was to investigate the relationship between body mass index (BMI) and caries.

Materials and methods: Data from the National Diet and Nutrition Survey (NDNS) for young people aged 4–18 years (n = 1525) was analysed. Obese and overweight children were classified using the International Obesity Task Force cut-offs.

Results: The prevalence of caries was 52% in the obese group, 48% in the overweight group and 53% in the normal group. The association between BMI categories and caries was investigated using a chi square test and was found to be statistically insignificant. Odds ratios were used to assess the likelihood of developing caries in the obese, normal and overweight groups after adjusting for sex, social class, age, gender and oral hygiene. The adjusted odds ratio for comparing obese with normal groups was 0.999 (95% CI, 0.541–1.843). The adjusted odds ratio for comparing overweight with normal groups was 0.782 (95% CI, 0.584–1.049). The odds of getting caries is slightly lower in obese or overweight compared to normal group but the difference was not significant. The effects of the named parameters were significant (P = 0.001). Children who brushed their teeth more than once daily had a lower odds of getting caries than those who brushed once or less (OR = 0.609, 95% CI 0.484–0.766).

Conclusions: Whilst over weight, obesity and caries share inadequate oral hygiene as a risk factor, no positive association was found between dental caries and obesity. Copyright of International Journal of Paediatric Dentistry is the property of Blackwell Publishing Limited and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use. Copyright of International Journal of Paediatric Dentistry is the property of Blackwell Publishing Limited and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.