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Abstracts from other journals

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Abstracts are presented as originally published or with only minor modifications

Oral health and related factors in cystic fibrosis and other chronic respiratory disorders. Narang A, Maguire A, Nunn JH, Bush A. *Arch Dis Child.* 2003; **88**: 702–7.

AIM: To compare the prevalence of dental caries, dental calculus, and enamel defects in children with cystic fibrosis (CF) and children with other chronic respiratory disorders. METHODS: A cross sectional observational survey. One examiner (AN) undertook oral examinations to assess dental caries, periodontal health, and enamel defects in children attending respiratory outpatient clinics. RESULTS: A total of 74 patients with CF (35 male; mean age 10·7 years, range 2·5–16·5) were compared with a control group of 106 patients with other chronic respiratory disorders (52 male; mean age 9·1 years, range 3·0–16·5). There were significantly more defects of enamel in the permanent teeth of CF patients, compared with the teeth of those children with other chronic respiratory disorders. In addition, non-significant trends towards a lower caries prevalence in both dentitions, increased numbers of sextants with calculus deposits, and a reduced number of healthy gingival sextants were observed in the patients with cystic fibrosis. CONCLUSIONS: Enamel defects, particularly enamel opacities, which can be disfiguring, are more common in CF patients. Early, regular dental visits may prevent such defects becoming dentally disabling and would also permit the removal of dental calculus deposits. The use of long term antibiotics and pancreatic enzymes may confer some protection against the development and progression of dental caries in patients with cystic fibrosis. The inclusion of a specialist paediatric dentist, as part of the multiprofessional team managing the care of these children, would be an advantage.

A prospective clinical trial comparing preformed metal crowns and cast restorations for defective first permanent molars. Zagdwon AM, Fayle SA, Pollard MA. *Eur J Paediatr Dent.* 2003; **4**: 138–42.

AIM: This study investigated two methods for the restoration of permanent molars affected by amelogenesis imperfecta (AI) or severe enamel defects. METHODS: A prospective clinical trial was carried out on 17 subjects affected by AI or severe enamel defects of first permanent molars. A split mouth design was used so that each right or left permanent molar in both jaws was restored using either a preformed metal crown (SSC) or a cast adhesive coping (CAC). Subjects were followed for up to 24 months and assessed for longevity and quality of the restorations. Sequential analysis was used to compare longevity. RESULTS: Records for 42 restorations (19 SSC; 23 CAC) were kept. The split mouth design was possible on 24 occasions (right versus left = 14; maxilla versus mandible = 10). Three restorations, one SSC (at 6 months) and two CAC (at 2 and 19 months) failed and required replacement. There was no significant statistical difference between the two types of restorations. CONCLUSION: While there was no difference between the two restorations for quality and longevity, the SSC was considerably cheaper to use and needed only one visit, but more tooth tissue was lost in preparation and fitting. The CAC was significantly more expensive but left nearly all of the tooth crown intact. The choice of which restoration to use is indicated by the immediate and long-term needs of each individual patient.

Is attention-deficit hyperactivity disorder a risk factor for dental caries? A case-control study. Broadbent JM, Ayers KM, Thomson WM. *Caries Res.* 2004; **38**: 29–33.

Experience in practice has suggested that children with attention-deficit hyperactivity disorder (ADHD) tend to have higher numbers of diseased, missing and filled teeth (DMFT score) than children without the condition. To date, however, this impression has not been systematically investigated. A case-control study of children in Otago, New Zealand (case DMFT > or = 5; control DMFT < 5; case status determined from School Dental Service dental records) was conducted by postal survey and reference to the School Dental Service records. Cases and controls were matched on age, sex, ethnicity, and school socio-economic status. The purpose of the study was to assess whether having ADHD was associated with higher odds of having high caries experience. Questionnaires were returned for a total of 128 case-control pairs. Conditional logistical regression analysis showed that, after controlling for fluoride history, medical problems, diet, and self-reported oral hygiene, children with ADHD had nearly 12 times the odds of having a high DMFT score than children who did not have ADHD (OR = 11·98; 95% CI 1·13, 91·81). No other factors were significant predictors. Dental practitioners and parents should consider ADHD to be a condition that may affect children's dental caries experience.

What is the critical pH and why does a tooth dissolve in acid? Dawes C. *J Can Dent Assoc.* 2003; **69:** 722–4.

This paper discusses the concept of critical pH for dissolution of enamel in oral fluids. The critical pH does not have a fixed value but rather is inversely proportional to the calcium and phosphate concentrations in the solution. The paper also discusses why teeth dissolve in acid, why remineralization of white-spot caries lesions is possible and why remineralization of teeth eroded by acid is not possible.

Comparison of the efficacy of oral midazolam alone versus midazolam and meperidine in the pediatric dental patient. Musial KM, Wilson S, Preisch J, Weaver J. *Pediatr Dent.* 2003; **25**: 468–74.

PURPOSE: The purpose of this study was to compare midazolam alone (Group A: 1 mg/kg) vs midazolam plus meperidine (Group B: 0·5 and 1 mg/kg, respectively) in regard to physiology and behavior of young children sedated for dental restorative care. METHODS: Twenty healthy children who met selection criteria were randomly assigned to 1 of 2 groups and subsequently treated in a prospective, crossover design. All sedative agents were administered orally, and all sedations included 50% nitrous oxide administered via a nasal hood. Heart rate, systolic and diastolic blood pressure, and behavior were recorded at 8 procedural or time periods during the visits. Chi-square and ANOVA were used to analyze the data. RESULTS: No difference in physiology or behavior was found between groups. However, higher heart rates and disruptive behaviors occurred more frequently during or after local anesthesia administration. CONCLUSIONS: Oral midazolam alone is just as effective as midazolam with meperidine. Disruptive behaviors accounted for increased heart rates.

Randomized, controlled, cross-over clinical trial comparing intravenous midazolam sedation with nitrous oxide sedation in children undergoing dental extractions. Wilson KE, Girdler NM, Welbury RR. *Br J Anaesth.* 2003; **91**: 850–6.

BACKGROUND: The use of benzodiazepines for paediatric dental sedation has received limited attention with regard to research into clinical effectiveness. A study was therefore designed to investigate the use of midazolam, for i.v. sedation in paediatric dental patients. METHOD: The aim of the study was to assess the effectiveness of i.v. midazolam in a randomized, controlled, cross-over trial. Children aged 12–16 yr (ASA I and II), requiring two appointments for equivalent but contralateral dental extractions for orthodontic purposes, were recruited. Conscious sedation with either i.v. midazolam titrated at 0·5 mg × min(–1), to a maximum of 5 mg, or nitrous oxide/oxygen titrated to 30%/70%

inhalation sedation was used at the first visit, the alternative being used at the second visit. Vital signs including blood pressure, arterial oxygen saturation and ventilatory frequency, as well as sedation levels and behavioural scores, were recorded every 2 min. RESULTS: Forty patients, mean age 13·2 yr (range 12–16 yr), participated in the trial. A mean dose of midazolam 2·8 mg was administered in the test group. The median time to the maximum level of sedation was 8 min for midazolam compared with 6 min for nitrous oxide ($P < 0{\cdot}001$). Vital signs for both treatments were comparable and within acceptable clinical limits and communication with the patient was maintained at all times. The median (range) lowest arterial oxygen saturation level recorded for midazolam was 97 (91–99)% compared with 97 (92–100)% for nitrous oxide. The mean (range) recovery time for midazolam was 51·6 (39–65) min and 23·3 (20–34) min for nitrous oxide ($P < 0{\cdot}0001$). Fifty-one per cent said they preferred i.v. midazolam, 38% preferred nitrous oxide, and 11% had no preference. CONCLUSION: I.V. midazolam sedation (0.5 mg × min(–1) to a maximum of 5 mg) appears to be as effective as nitrous oxide sedation in 12–16-yr-old healthy paediatric dental patients.

Chemomechanical caries removal in primary teeth in a group of anxious children. Ansari G, Beeley JA, Fung DE. *J Oral Rehabil.* 2003; **30**: 773–9.

Chemomechanical removal of dental caries has considerable potential in the treatment of patients with management problems, especially in paediatric dentistry. The aim of this study was to assess the acceptance and success of the technique in young nervous patients. A group of 20 patients, aged between 4 and 10 years with a high level of dental anxiety was selected. The study achieved a success rate of over 90% in acceptance of cavity preparation by this procedure followed by placement of a restoration. The length of time required for cavity preparation was comparable with conventional methods. The need for local anaesthesia was reduced or eliminated and the children did not complain of any pain during the procedure. It is concluded that chemomechanical caries removal in vivo in primary teeth is an effective alternative to conventional mechanical caries removal and is advantageous in patients who have a phobia to the dental handpiece and/or injections.

Evaluation of a community fissure sealant programme in County Meath, Ireland. Parnell CA, O'Farrell M, Howell F, Hegarty M. *Community Dent Health.* 2003; **20**: 146–52.

OBJECTIVE: To evaluate the fissure sealant programme operated by the North Eastern Health Board Dental Service in County Meath, Republic of Ireland. The fissure sealant programme forms part of the school dental service aimed at children in first class (age group 6–7 years). DESIGN: Cross sectional study with retrospective analysis of dental records. CLINICAL SETTING: Schools in County Meath in 1999. PARTICIPANTS: Children in fourth class (mean age 9·6 years) in the school year 1999/2000 who had participated in the fissure sealant programme in the school year 1996/97. MAIN OUTCOME MEASURES: Sealant retention using the criteria of Simonsen. RESULTS: The mean age of sealant was 2·3 years. Fifty six percent of sealants were completely retained, 27% were partially retained and 12·8% were missing. The majority (73%) of children had some sealant on at least one tooth. Caries experience in previously sealed teeth was low (2·9%). Children who had all four first permanent molars sealed had a significantly lower DMFT (visual) than those who had no sealants (Wilcoxan $P < 0{\cdot}0001$). CONCLUSION: Despite lack of maintenance of sealants in this study, retention rates compared favourably with similar international studies and caries experience in previously sealed teeth was low. The use of a written sealant policy and protocol for sealant application and equipment maintenance could further improve retention rates. Children who had no sealants had significantly poorer dental health than children who had all four first permanent molars sealed.