18. Holan G, Fuks AB. A comparison of pulpectomies using ZOE and KRI paste in primary molars: A retrospective study. Pediatr Dent 1993;15:403-7.
19. Mortazavi M, Mesbahi M. Comparison of zinc oxide and eugenol and Vitapex for root canal treatment of necrotic primary teeth. Int J Paediatr Dent 2004;14:417-24.
20. Primosch RE, Ahmadi A, Setzer B, Guelmann M. A retrospective assessment of zinc oxide-eugenol pulpectomies in vital maxillary primary incisors successfully restored with composite resin crowns. Pediatr Dent 2005;27:470-7.
21. Chugal NM, Clive JM, Spangberg LS. Endodontic infection: Some biologic and treatment factors associated with outcome. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;96:81-90.
22. Tannure PN, Barcelos R PM, Gleiser R, Primo LG. Histopathologic and SEM analysis of primary teeth with pulpectomies failure. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2009;108:e29-e33.
23. Estrela C, Estrela CR, Barbin EL, Spano JC, Marchesan MA, Pecora JD. Mechanism of action of sodium hypochlorite. Braz Dent J 2002;13:113-7.
24. Loel DA. Use of acid cleanser in endodontic therapy. J Am Dent Assoc 1975;90:148-51.
25. Zehnder M, Schmidlin P, Sener B, Waltimo T. Chelation in root canal therapy reconsidered. J Endod 2005;31:817-20.
26. Yamaguchi M, Yoshida K, Suzuki R, Nakamura H. Root canal irrigation with citric acid solution. J Endod 1996; 22:27-9.
27. Sceiza MF, Daniel RL, Santos EM, Jaeger MM. Cytotoxic effects of 10% citric acid and EDTA-T used as root canal irrigants: An in vitro analysis. J Endod 2001;27:741-3.
28. Malheiros CF, Marques MM, Gavini G. In vitro evaluation of the cytotoxic effects of acid solutions used as canal irrigants. J Endod 2005;31:746-8.
29. Amaral KF, Rogero MM, Fock RA, Borelli P, Gavini G. Cytotoxicity analysis of EDTA and citric acid applied on murine resident macrophages culture. Int Endod J 2007;40:338-43.
30. Primosch RE, Glomb TA, Jerrell RG. Primary tooth pulp therapy as taught in predoctoral pediatric dental programs in the United States. Pediatr Dent 1997;19:118-22.
31. Sadrian R, Coll JA. A long-term follow-up on the retention rate of zinc oxide eugenol filler after primary tooth pulpectomy. Pediatr Dent 1993;15:249-53.
32. Coll JA, Sadrian R. Predicting pulpectomy success and its relationship to exfoliation and succedaneous dentition. Pediatr Dent 1996;18:57-63.
33. Mani SA, Chawla HS, Tewari A, Goyal A. Evaluation of calcium hydroxide and zinc oxide eugenol as root canal filling materials in primary teeth. J Dent Child 2000;67: 83, 142-7.
34. Yacobi R, Kenny DJ, Judd PL, Johnston DH. Evolving primary pulp therapy techniques. J Am Dent Assoc 1991;122:83-5.
35. Holan G. Long-term effect of different treatment modalities for traumatized primary incisors presenting dark coronal discoloration with no other signs of injury. Dent Traumatol 2006;22:14-7.
36. Lesaffre E, Garcia Zattera M-J, Redmond C, Huber H, Needleman I. Reported methodological quality of split-mouth studies. J Clin Periodontol 2007;34:756-61.

Abstract of the Scientific Literature

Evaluating the impact of a Prenatal Dental Public Health Program

This paper describes findings from an evaluation of a prenatal dental public health program providing limited clinical care along with oral health education to pregnant women at increased risk for negative birth outcomes. Women are referred for these dental services from the Healthiest Babies Possible program serving low-income women at high-risk for preterm and low-birth-weight pregnancies. Referral is based upon women self-reporting a dental problem or if they have not seen a dentist in > 2 years. A one year evaluation was undertaken to assess the effects of the oral health counselling and periodontal care provided. Participants completed questionnaires, interviews, and clinical assessments during the different phases of the project. Visits 1 and 2 were during pregnancy, while visit 3 was postnatal. A total of 61 women were enrolled with a mean age of 27.7 years at an average of 22.8 weeks gestation. Gingival health improved significantly between visit 1 and 2 in all parameters like plaque, calculus, bleeding on probing, and mean pocket depth (P<.01). These clinical improvements in periodontal health were maintained over time as they were significantly better even at the postnatal visit when compared with the first study visit. Maternal oral health knowledge also improved after completing this study. Significantly more women believed that gingival bleeding during pregnancy is not normal (P<.001) and that baby's should not go to sleep with a bottle (P=.019). Further, 93% reported that they had begun to provide infant oral care for their newborn, and dental care for their other children significantly increased after taking part in this project (P<.001). Overall, participants found the oral health information useful and appreciated the fact that it was provided verbally from the dental hygienist rather than via a pamphlet.

Comments: *This program provides simple and relatively low-cost examples on how to improve access to clinical care and counselling for high-needs pregnant women by dedicating time in the clinical schedule to accommodate referrals from the local prenatal support program. Such strategies could easily be adopted by other dental public health clinics that want to improve the oral health of women, their infants, and their other children. Such programs may improve family oral health for high-risk groups and may also reduce the dental disease burden among their children.* ***RJS***

Address correspondence to Ms. DL Lin, University of British Columbia, 2199 Wesbrook Mall, Vancouver, BC V6T 1Z3; e-mail: dianallin@aol.com

Lin DL, Harrison R, Aleksejuniene J. Can a prenatal dental public health program make a difference? J Can Dent Assoc 2011;77:b32.

33 references

19. Rhodes A, Wilson S. Research in pediatric dental postgraduate programs and residencies: Results of a survey. Pediatr Dent 2004;26:75-8.
20. D'Eramo EM. Morbidity and mortality with outpatient anesthesia: The Massachusetts experience. J Oral Maxillofac Surg 1992;50:700-4.
21. D'Eramo EM, Bontempi WJ, Howard JB. Anesthesia morbidity and mortality experience among Massachusetts oral and maxillofacial surgeons. J Oral Maxillofac Surg 2008;66:2421-33.
22. Flick WG, Katsnelson A, Alstrom H. Illinois dental anesthesia and sedation survey for 2006. Anesth Prog 2007; 54:52-8.
23. Jastak JT, Peskin RM. Major morbidity or mortality from office anesthetic procedures: A closed-claim analysis of 13 cases. Anesth Prog 1991;38:39-44.
24. Krippaehne JA, Montgomery MT. Morbidity and mortality from pharmacosedation and general anesthesia in the dental office. J Oral Maxillofac Surg 1992;50:691-8; discussion 698-9.
25. Cravero JP, et al. Incidence and nature of adverse events during pediatric sedation/anesthesia for procedures outside the operating room: Report from the Pediatric Sedation Research Consortium. Pediatrics 2006;118: 1087-96.
26. Day PF, et al. Effectiveness of oral midazolam for paediatric dental care: A retrospective study in two specialist centres. Eur Arch Paediatr Dent 2006;7:228-35.
27. Sheroan MM, et al. A prospective study of 2 sedation regimens in children: Chloral hydrate, meperidine, and hydroxyzine versus midazolam, meperidine, and hydroxyzine. Anesth Prog 2006;53:83-90.
28. Wilson KE, Girdler NM, Welbury RR. A comparison of oral midazolam and nitrous oxide sedation for dental extractions in children. Anaesthesia 2006;61:1138-44.
29. Gilchrist F, Cairns AM, Leitch JA. The use of intranasal midazolam in the treatment of paediatric dental patients. Anaesthesia 2007;62:1262-5.
30. Rai K, Hegde AM, Goel K. Sedation in uncooperative children undergoing dental procedures: A comparative evaluation of midazolam, propofol, and ketamine. J Clin Pediatr Dent 2007;32:1-4.
31. Torres-Perez J, et al. Comparison of three conscious sedation regimens for pediatric dental patients. J Clin Pediatr Dent 2007;31:183-6.
32. Damle SG, Gandhi M, Laheri V. Comparison of oral ketamine and oral midazolam as sedative agents in pediatric dentistry. J Indian Soc Pedod Prev Dent 2008;26: 97-101.
33. Uldum B, Hallonsten AL, Poulsen S. Midazolam conscious sedation in a large Danish municipal dental service for children and adolescents. Int J Paediatr Dent 2008; 18:256-61.
34. Al-Zahrani AM, Wyne AH, Sheta SA. Comparison of oral midazolam with a combination of oral midazolam and nitrous oxide-oxygen inhalation in the effectiveness of dental sedation for young children. J Indian Soc Pedod Prev Dent 2009;27:9-16.

Abstract of the Scientific Literature

Using numeric pain scores with children: What do they really mean?

The purpose of this study was to determine how self reported pain score measurements by children are interpreted for clinical meaning. This observational, prospective study evaluated the relationship between a 0 (no pain) -10 (most pain) numeric rating scale for pain and the child's perceived need for medication (PNM); their preception of feeling better or pain relief (PR); and their perceived satisfaction with pain management (PS) in an operative setting. The study received IRB approval by the University of Michgan with assent and consent forms signed by children participants and their parents. One hundred thirteen children aged 7-16 years old were in the study and 397 observations were recorded. These observations included 86 two pair sets and 19 unpaired in 10 and 1 pair in 17 cases. Each child was undergoing surgery, presenting with post operative pain. Included in the study were children who spoke English and who passed tests confirming their ability to self report post operative pain. The children used patient controlled anesthesia (PCA) and were observed for data independent of their caretakers after at least one hour of being awake. Observations were done in the first 24 hours after surgery by trained research personnel, who were blinded to clinical interventions between their observations, the children where asked to score their pain from 0-10 NRS, rate their PMN and their PS. Assessments were repeated every 2 hours. Only 1 paired observation was recorded the day of surgery. Parents were not included in the child's data observation. Data was analyzed using SPSS statistical software, and applicable statistical analyses were used resulting in P values of <0.0125 as significant. To determine if the relationships between pain scores and other measures could be modified, gender, age and previous surgeries were considered. Pain scores for perceived need (PNM) were significantly higher than the "no need" group. Pain scores associated with perceived feeling better (PS) was significantly lower for children with NRS<5. For age, gender and previous surgeries, female children with a history of previous surgeries reported somewhat or very satisfied at higher pain scores. Numerical rating scales are generally reliable in reflecting children's level of pain associated with perceived need for medication, pain relief and perceived satisfaction with pain management.

Comment: *According to this study a 0-10 numeric rating scale can be a reliable tool for evaluating pain in children. As pediatric dentists, much of what we do may provoke post -op pain in child patients. It may be worthwhile to add age appropriate pre- and post -op pain scores to our standard progress note records.* ***JGJ***

Address correspondence to Terri Voepel-Lewis, MS, RN, F3900 Mott Hospital SPC 5211, University of Michigan Health Systems, 1500 E. Medical Center Drive, Ann Arbor, MI 4809-5211; e-mail: terriv@umich.edu

Voepel-Lewis, T, Burke, CN, Jefferys, N, Maliviya, S, Tait, AR, Do 0-10 numeric rating scores translate into clinically meaningful pain measures for children? Anesth & Analg 2011:415-21.

42 references

Copyright of Pediatric Dentistry is the property of American Society of Dentistry for Children 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.