- Because younger patients may have difficulty complying with surgery and traction with a removable or fixed appliance, the dentist should carefully assess each individual patient's capabilities and maturity.
- Any dilacerated permanent maxillary incisors should be aligned in the dental arch using a closed surgical approach and orthodontic traction if possible.
- A multidisciplinary approach ensures that all aspects of care are considered, which can affect timing of interventions, best choice of surgery, and best position of any attachment, all of which will optimize the chance of obtaining a favorable outcome.

Seehra J, Yaqoob O, Patel S, et al: National clinical guidelines for the management of unerupted maxillary incisors in children. *Br Dent J* 224:779-785, 2018

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Articaine better against post-procedure pain in children

BACKGROUND

The relief of pain is a vital part of dentistry, particularly when the patient is a child. The most widely used local anesthetics (LAs) are lidocaine hydrochloride, which is considered the gold standard, and articaine hydrochloride. A systematic review and meta-analysis was done to identify the best LA solution for routine dental treatment in children.

METHODS

The systematic search was conducted in the Cochrane CENTRAL Register of Controlled Trials, MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), EMBASE, and SCI-EXPANDED (ISI Web of Knowledge) databases. In addition, key journals and bibliographies through June 2017 were also reviewed. The goal was to identify original research that compared articaine with lidocaine for dental treatment in children. Six randomized controlled trials (RCTs) were included in the final analysis.

RESULTS

The subjects were all age 16 years or younger. Three studies did not report subjects' mean age.

The dosage and amounts of articaine and lidocaine differed between studies, with just 2 comparing equivalent concentrations of the 2. Others varied amounts, with the maximum dose being calculated based on body weight.

Simple treatment was defined as a single extraction or routine operative treatment. In contrast, complex dental treatment included multiple extractions or crowns and surgical procedures. Just 2 studies reported on anesthesia in complex treatment scenarios.

Outcomes were all reported at the patient level. Either the patient aided by the parent or the parent alone reported on treatment outcome and adverse events. Among the postoperative complications were lip-biting, cheek biting, pain at the injection site, tooth tenderness, and aching in the jaw. Most information was gathered in postoperative phone calls. No significant differences in adverse events were noted between articaine and lidocaine.

Self-reported pain levels measured during the dental procedure were the same whether lidocaine or articaine was used. However, articaine was superior to lidocaine for reducing postoperative pain intensity. The difference between the 2 agents in respect to pain level reached statistical significance.

DISCUSSION

The quality of the evidence obtained in this study was low, but indicated that articaine given via infiltration and lidocaine administered as an inferior dental nerve (IDN) block had the same efficacy for routine dental treatments. No difference was noted between patient-reported pain during the treatment procedure, but articaine had greater efficacy than lidocaine for relieving post-procedure pain. There was no difference in the occurrence of adverse events between the 2 agents.

Clinical Significance

Pediatric patients experienced less pain after their dental procedure when they received articaine anesthesia compared to lidocaine anesthesia. Both agents appear to be equally safe and effective in all other aspects. This indicates that articaine may be a better choice for pediatric patients, since parents have to deal with the child's discomfort after the procedure, and having less pain is always considered a good thing when you're talking about children.

Tong HJ, Alzahrani FS, Sim YF, et al: Anaesthetic efficacy of articaine versus lidocaine in children's dentistry: A systematic review and meta-analysis. *Int J Paediatr Dent* 28:347-360, 2018

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TOOTH SURVIVAL

Implant and root canal treated tooth survival

BACKGROUND

Dental practitioners face a challenge in clinical practice when trying to determine when it is best to maintain a tooth with extensive carious lesions and pulpal or periapical pathology through root canal treatment and when the tooth needs to be replaced by a dental implant. Evidence-based dentistry sees the maintenance of natural teeth as the ultimate goal. Both root canal therapy and dental implants have high predictability, but the survival rates of single-tooth implants is as high as 97%, making this a highly attractive option for managing nonvital, compromised teeth. Root canal treatment has about an 84% success rate and fixed dental prostheses an 81% rate. There are also failures and complications associated with both treatment options, which must be considered. The literature offers a wide range of definitions of success for implants and for root canal treatment, making it difficult to compare outcomes. It's clear that success is compromised when factors related to the patient, the tooth, or the treatment adversely affect the situation, whether that is root canal therapy or dental implants. Clinicians must weigh all the factors and make a selection that fits each patient. A study was undertaken to gather information regarding the survival rates of implant therapy and root canal treatment, then to identify tooth-related and patient-related factors that are associated with each treatment option.

METHODS

This retrospective study evaluated the dental records of patients who received root canal treatment and implant therapy. Treatment outcome, demographic characteristics, dental insurance status, socioeconomic status, medical history, and tobacco use were noted for each of the 13,434 records. Four thousand five hundred nineteen (33.6%) patients had implants and 8519 (66.4%) underwent root canal treatment. The prevalence of root canal treatment and implant therapy failure and potential risk indicators for each were compared.

RESULTS

The sample was evenly divided between men and women; the mean age was 52.72 years. The majority of cases dealt with root canal treatment or implant therapy in the maxilla and posterior region. The systemic medical conditions identified most often were hypertension (23.9% of the sample), high cholesterol (20.4%), and arthritis (18.8%). Just over 14% self-reported that they smoked. About three-fourths of the patients were in a high socioeconomic group, and about 63% were self-payers.

Four hundred thirty-five treatments failed, for a failure rate of 3.2%. Follow-up lasted a mean of 34 months (range 1 to 76 months) for implant patients and a mean of 26 months (range 1 to 77 months) for root canal treatment patients. Fifty-one implants and 384 root canal treatments failed during the observation period. Most of the implants (58.82%) were removed during the first year after placement, with just 35.16% of the root canal treated teeth extracted during that time period. Most of the root canal treated teeth were extracted after the first 3 years of observation.

Survival rates for implants were 99.3% at 1 year, 99.1% at 2 years, and 98.7% at 3 years. Root canal treatment survival rates were 98.3% at 1 year, 96.8% at 2 years, and 95.1% at 3 years. Overall survival for implants up to 76 months was 98.3%, while that for root canal treated teeth was 72.7% up to 77 months. The difference in survival rates for the two approaches was statistically significant, with implant therapy have higher survival rates.

Retreatment was done in 689 of the 8915 teeth receiving root canal therapy. The overall survival of the initial root canal therapy was 72.1%, with retreatments having a survival of 78.9%.

The unadjusted Cox regression model showed root canal treatment was significantly associated with failure. Patients who had root canal treatment were at a 5.34 increased risk of experiencing failure compared to patients who had implant therapy. Multivariate Cox regression analysis showed patients who had root canal treatment were at a 6.82 higher risk of having treatment failure compared to those having implant therapy; the risk was considered significant for root canal treatment.

Age was significantly associated with treatment survival. Older persons who had root canal therapy or implant therapy had a significantly increased risk of treatment failure.

When a stepwise backward elimination method was applied, treatment, age, and anxiety were significantly associated with