

Endodontic Spotlight

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Introduction

Looks like spring is finally here and we getting to enjoy some nicer weather and longer days. We're going to continue to highlight articles we covered in the past and will be focusing on anesthesia today. The first paper makes an interesting finding about the effect of topical anesthetic. The two following articles evaluate supplemental anesthesia when an IANB doesn't numb a mandibular tooth with irreversible pulpitis, and are great studies to keep in mind when you are dealing with a hot lower molar!

Parirokh M, Sadeghi AS, Nakhaee N, Pardakhty A, Abbott PV, Yosefi MH. Effect of topical anesthesia on pain during infiltration injection and success of anesthesia for maxillary central incisors. J Endod 2012;38:1553-6.

This crossover double blinded clinical trial evaluated the effect of topical anesthesia on pain during local anesthetic injections. 25 volunteers received topical anesthetic or a placebo for one minute before an injection of one carpule of 3% prilocaine over the maxillary central incisor. The volunteers rated their level of pain during needle penetration and during anesthetic solution injection. An electronic pulp tester was then used to evaluate the efficacy of the anesthesia. The study was repeated two week later using the other topical gel (with anesthetic or placebo). The authors found that topical anesthetic did not affect the level of pain experienced during the injection. Additionally, they also noted that the success of anesthesia was not affected by the amount of pain experienced during the injection. Although this study demonstrates that topical anesthetic is not necessary, I personally plan on continuing to use it as doing so not only has a placebo effect but also helps demonstrates to the patient that I care that they are comfortable. *SUMMARY: Topical anesthetic does not reduce pain during local anesthesia.*

Kanaa MD, Whitworth JM, Meechan JG. A Prospective Randomized Trial of Different Supplementary Local Anesthetic Techniques After Failure of Inferior Alveolar Nerve Block in Patients with Irreversible Pulpitis in Mandibular Teeth. J Endod 2012;38:421-5.

This randomized controlled trial looked at four different supplemental anesthetic techniques used when an inferior alveolar nerve block (IANB) was unsuccessful. 182 patients with irreversible pulpitis in a mandibular tooth were anesthetized with an IANB with 2.0 mL of 2% lidocaine with epinephrine. If the patient experienced pain during treatment, one supplement anesthetic was given. The techniques were a repeated IANB (2.0 mL of 2% lidocaine with epinephrine), buccal infiltration with 2.0 mL of 4% articaine with epinephrine, an intraligamentary (PDL) injection (0.18 mL of 2% lidocaine with epinephrine), or an intraosseous injection (1.0 mL of 2% lidocaine with epinephrine). Of the 182 patients in the study, just 82 had pain free treatment with only the first IANB, while 60 continued to have a positive response to pulp testing and 40 had pain during treatment despite a negative pulp testing response. These latter 100 patients received one of the four additional anesthetic techniques. Following supplemental anesthesia, pain free treatment was obtained in 84% of patients receiving articaine buccal infiltration, 68%

with intraosseous anesthesia, 48% with intraligamentary, and 32% with a repeated IANB. Anesthesia using buccal infiltration of articaine or intraosseous was significantly more successful than the other techniques, but were not significantly different from each other. The authors also found similar results when just mandibular molars were analyzed and when treatment involved only pulp extirpation (versus pulp extirpation and extraction). *SUMMARY: In a randomized controlled trial, the authors found that IANB alone is often not adequate for pain free treatment of mandibular teeth with irreversible pulpitis, and that supplementary anesthesia using a buccal infiltration of articaine or intraosseous was the most effective way to obtain adequate anesthesia.*

Rogers BS, Botero TM, McDonald MJ, Gardner RJ, Peters MC. Efficacy of articaine versus lidocaine as a supplemental buccal infiltration in mandibular molars with irreversible pulpitis: A prospective, randomized, double-blind study. J Endod 2014;40:753-8.

This randomized controlled trial evaluated and compared the effectiveness of buccal infiltration of 4% articaine versus 2% lidocaine to provide additional anesthesia for lower molars with irreversible pulpitis that were still sensitive even after a successful inferior alveolar nerve block (IANB). 100 patients with irreversible pulpitis of a lower molar were anesthetized with an IANB with 1.7 ml of 4% articaine and had profound lip numbness. If the patient still had a positive cold response or pain during access, a buccal infiltration was performed using 1.7 ml of either 4% articaine or 2% lidocaine in a double blinded manner. Success was defined as no more than mild pain on access or instrumentation. The success rate of the IANB alone was just 26%, consistent with expected for a hot lower molar. The remaining 74 teeth received a buccal infiltration, and articaine was found to have a statistically significant higher success rate than lidocaine (62% versus 37%). The difference was even more pronounced in second molar region, possibly due to the thicker buccal bone. *SUMMARY: Articaine is more effective than lidocaine for a buccal infiltration to provide additional anesthesia to a lower molar with irreversible pulpitis when an IANB alone is inadequate.*

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