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Abstract of the Scientific Literature

COMPARISON OF MANDIBULAR LOCAL ANESTHETIC TECHNIQUES IN CHILDREN

This article describes a study which tested the hypothesis that using infiltration/intrapapillary injection was less effective as a dental pain control method than inferior alveolar block/long buccal infiltration anesthesia in children. The study sample consisted of 101 5- to 8-year-old healthy children who required a pulpotomy and stainless steel crown placement. A 2-group, randomized, blinded, controlled design was employed using 2% lidocaine, 1:100,000 epinephrine, with all subjects receiving 40% nitrous oxide. The primary outcome assessments were the self-reported level of pain by each subject using the color analogue scale (CAS) and a 3-category dentist measurement scale of effective, partially effective, and ineffective used by the 2 operators/investigators to rate the overall effectiveness of the pain control. Preoperative assessments of each subject's dental fear were determined using the Dental Subscale of the Children's Fear Survey Schedule. A third investigator employing a computer algorithm to randomly assign the type of injection administered equal amounts of local anesthesia to all subjects without the operator being present.

The CAS was employed at 4 stages of treatment: (1) following the injection; (2) rubber dam clamp application; (3) pulpal amputation; and (4) the overall visit. The operators/investigators rated the pain control effectiveness after treatment completion and surmised the type of injection the child had received. T tests were used to compare the 2 injection routes and also rate the effects of preoperative dental anxiety in relation to the CAS scores.

The investigators found no significant difference in pain control effectiveness between those subjects receiving infiltration/intrapapillary injections and those receiving inferior alveolar block/long buccal infiltrations. The results were similar for subjects self reporting (CAS) and those for whom dentist/operator ratings were used. The results were also the same for both anxious and less-anxious children.

Comments: This study's results were consistent with 2 previous studies, which found no difference in pain control between the 2 routes of anesthesia administration. The use of nitrous oxide, which increases the pain threshold, may have affected the subjects' ability to accurately assess the level of pain experienced, thus altering the CAS scoring and the dentist measurement scales. This resulted in higher scores being recorded by both groups. Those subjects who needed additional local anesthesia to complete treatment (9%) should have been rated as ineffective, rather than reassessment after adequate anesthesia was achieved. This also resulted in higher overall ratings. Since the study was conducted in a private practice, no evidence was cited regarding controlling the environment to ensure constant conditions for all subjects and investigators. In summary, this clinical study further confirmed the equal pain control effectiveness of either route of anesthetic administration, especially when used in conjunction with nitrous oxide. ET

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16 references

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