Computer-Assisted Anesthetic Injection Method Decreases Dental Pain in Children

Researchers in a new study published in Anesthesia Progress test a new method of injecting dental anesthesia using a computer-controlled local anesthetic delivery system (CCLADS). Their findings indicate that this novel approach lessens pain, post procedure numbness and total procedure time.

LAWRENCE, Kan. (PRWEB) June 25, 2019 -- Local anesthesia is one of the most important aspects of dentistry. The ability to manage pain during procedures allows for the safest and most effective care dental professionals can provide. However, local anesthesia can create prolonged numbness in patients, which leads to biting of the soft tissues of the mouth, causing extensive damage, especially in pediatric dental patients. Researchers have found that using intraligamentary anesthesia (ILA) reduces the numbing effect, but unfortunately the ILA injection is very painful.

In an effort to find a new method of ILA application, researchers from the Employee State Insurance Corporation Dental College, Delhi, India, and the ITS Dental College & Research, Uttar Pradesh, India, published a study in the current issue of Anesthesia Progress that compared the traditional hand-administered, injection-based ILA delivery method with the use of a computer-controlled local anesthetic delivery system (CCLADS). The CCLADS system adjusts the volume, pressure and speed at which the anesthetic solution is delivered, thereby reducing the effect on the surrounding tissue and lessening the pain.

The researchers conducted a randomized control trial with 82 children, aged 6 to 13 years, in need of primary molar extraction. One hundred and two procedures were performed on 47 males and 35 females. Before the procedure, during the injection and during the extraction, the patients’ heart rate was measured to monitor their levels of pain and anxiety. The patients’ pain levels were also assessed using the Wong-Baker Facial Pain Scale (FPS), a series of pictorial facial expressions numbered 0 to 10 to help children rate their pain level, as well as the Sound, Eye, Motor (SEM) scale, which allows an observer to monitor sound, eye and motor pain reactions.

The researchers found no real difference in heart rate between the ILA and CCLADS injection methods in general. However, when the procedure type was considered, it was found that heart rates were significantly higher with maxillary (upper jaw) ILA injections and primary second molar extractions with ILA injections compared with the CCLADS method. The researchers also noted that all values with regard to the FPS and SEM scale were significantly higher in the ILA group than the CCLADS group. There were no differences found with regard to age- and sex wise comparisons.

The results of this study show that by combining ILA with CCLADS, patients experience a lower dose of anesthetic at a lesser pain level. As one of the researchers, Dr. Meenu Mittal, states, “We were seeing many instances of post-extraction lip biting because of prolonged numbness in young children or children with disability. Hence, we decided to use STA-Wand CCLADS to give intraligamentary anesthesia for extraction of primary molars to provide a less painful, less anxiety-provoking injection technique with minimal postoperative anesthetic effects.”

Overall, by reducing the amount of anesthetic used combined with a computer-assisted method of delivery, the post-procedure effects of tooth extraction on children are significantly better. This novel approach to pain management also lessens the procedure time, which aids in the patients’ anxiety control.

About Anesthesia Progress

Anesthesia Progress is the official publication of the American Dental Society of Anesthesiology (ADSA). The quarterly journal is dedicated to providing a better understanding of the advances being made in the science of pain and anxiety control in dentistry. The journal invites submissions of review articles, reports on clinical techniques, case reports, and conference summaries. To learn more about the ADSA, visit: [http://www.adsahome.org/](http://www.adsahome.org/).
Contact Information
Dominique Scanlan
Allen Press
+1 (785) 865-9226

Online Web 2.0 Version
You can read the online version of this press release here.