

New Method of Local Anesthesia

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INTRODUCTION

Almost all the dental procedures are done under local anesthesia. Local anesthesia is inevitable in dental practice. Infiltration anesthesia is the most common method and conduction anesthesia is the second. Since new local anesthesia methods have been developed recently, the purpose of my lecture is to overview conventional methods and newer ones including new anesthetic devices, machines and systems. It is expected to review and think again the safe and efficient methods for dental anesthesia.

Topical anesthesia

At least now, all the effective anesthetic methods need injection needles. Every needle gives the patient prick and injection pain. To diminish the pain, topical (surface) anesthesia is often used. Twenty percent benzocaine (Hurricane), 8 % lidocaine or the equivalents are used for topical anesthesia. Does it, however, enough anesthetic effect to eliminate injection pain perfectly? Our recent research has revealed that complete anesthesia can be expected by not a commercially available topical anesthetic but our highly-concentrated experimental lidocaine gel.

Infiltration anesthesia

Slower injection, thinner needle, slower penetration is essential for painless infiltration anesthesia.

However, one hand and arm cannot completely control both slow penetration and slow injection at the same time. The newly developed anesthetic machines have been available in the property of dentistry. As long as they are

applied properly, infiltration anesthesia is administered painlessly and safely.

Conduction (block) anesthesia

Inferior alveolar nerve block is common in dental practice. Since penetration is deeper more than 20 mm compared with infiltration anesthesia, more precise needle placement is necessary for successful block. For this purpose, one of the new injection systems has a great advantage, because the needle can rotate lightly, which prevents from needle deflection.

A new conduction anesthesia was introduced several years ago. Anterior middle superior alveolar (AMSA) block. It anesthetizes six teeth, from the upper central incisor through the first molar by single injection. Our recent research revealed complete effect of the lateral incisor, the canine, and the first and second premolars. In addition, no numbness was found in the upper lip, which eliminates inadvertent biting. The AMSA block is enabled by a lightweight hand piece of a new injection system.

Palatal anterior superior alveolar block is another new conduction anesthesia. It provides maxillary incisors at one injection aimed into the incisive canal.

Periodontal ligament injection

Periodontal ligament injection, or intraligament injection, serves efficient anesthesia compared with infiltration anesthesia. Traditional syringes, specific syringe systems for PDL injection, new injection systems are used for this method.

Intraosseous anesthesia

Profound anesthesia is given by intraosseous anesthesia.

Hardly anesthetized tooth, like lower molar, can be completely done using the method. Specific needles, devices, machines are available these several years. No complication has been reported like contamination, infection, or needle breakage.

Iontophoresis

Iontophoresis is expected to be used for dental anesthesia in the very near future. Some researchers are concentrating on studying and developing needle-less anesthesia. This drug delivery technique will also be applied to drug delivery system for other agents.

CONCLUSION

Infiltration and conduction (field) anesthesia has been the only methods that are common in dental anesthesia.

Newly developed and introduced anesthetic techniques including new anesthetic devices and machines have enabled the dentist to select alternatives when insufficient local anesthesia is achieved. We are fortunately given these methods and techniques for efficient and safe local anesthesia.

REFERENCES

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