

Original Research

Evaluation of pain with greater palatine nerve block with conventional syringe and insulin syringe

Dr. Sagarika¹, Dr. Sunil Dogra²

¹PG 3rd year student, Department of oral & maxillofacial surgery, V S Dental College and Hospital Bangalore, Karnataka, India;

²Reader, Department of Prosthodontics crown bridge and implantology, Institute of Dental Sciences Sehora J & K, India

ABSTRACT:

Background: The present study was conducted to compare and evaluate pain associated with greater palatine nerve block with conventional syringe and insulin syringe.

Materials & Methods: 68 patients of both genders were divided into 2 groups. Group I patients were administered local anesthesia (greater palatine nerve block) using a conventional syringe and needle and group II using insulin syringe and needle. Each patient was evaluated for pain using visual analog scale (VAS).

Results: There were 20 males and 14 females in group I and 18 males and 16 females in group II. Table II, graph IU shows that VAS 0, VAS 1, VAS 2, VAS 3, VAS 4 and VAS 5 score was seen in 3, 8, 21 and 2 in group I and 10, 14, 6 and 4 in group II respectively. The difference was significant ($P < 0.05$).

Conclusion: The use of insulin syringe was useful for local anesthetic administration in greater palatine nerve blocks.

Key words: Greater palatine nerve, Insulin syringe, Pain.

Received: October 24, 2020

Accepted: November 28, 2020

Corresponding Author: Dr. Sagarika, PG 3rd year student, Department of oral & maxillofacial surgery, V S Dental College and Hospital Bangalore, Karnataka, India

This article may be cited as: Sagarika, Dogra S. Evaluation of pain with greater palatine nerve block with conventional syringe and insulin syringe. *J Adv Med Dent Sci Res* 2020;8(12):138-140.

INTRODUCTION

Local anesthesia causes loss of sensation in a circumscribed area of the body. The palatal injection of local anesthesia is considered as most painful and distressing part of the dental injection and fear associated with dental injection has been reported to be an important factor in avoiding dental treatment.¹ Application and induction of painless local anesthesia have always been a difficult task, and this demands an alternative method that is convenient and effective. Insulin syringes which are used by diabetes mellitus patients are supposed to be very comfortable for the patients and can offer painless injections. A painless

administration of local anesthesia facilitates good behavior and cooperation from the patient during dental procedures.²

Reasons for pain during administration of local anaesthesia include needle prick, acidic medium of the medication and improper technique. Addition of sodium bicarbonate reduced the stinging sensation related to the acidic nature of adrenaline containing LA. Similarly various topical applications prior to prick also helped patients to tolerate the prick pain better. Apprehension is always a big problem in any surgical procedure. Conscious sedation utilizes a combination of sedatives, analgesics and tranquilizers to induce a state of

amnesia, anxiolysis and analgesia. This places the patient in a quiescent state so that LA and nerve blocks may be comfortably administered.³

Reduction in the level of pain and discomfort by repetitive rapid pinching and shaking of the skin proximal to the site of injection during lignocaine infiltration works on the ‘gate control hypothesis’: the ascending transmission of pain by thin slow fibres could be modified or “gated” at the spinal level by afferent signals carried by thick fast fibres emanating from the same dermatome. When the low-threshold fibres are activated by pressure and/or vibration, this stimulus transmission gates or diminishes the pain stimulus, reducing the perception of pain.⁴ The present study was conducted to compare and evaluate pain associated with greater palatine nerve block with conventional syringe and insulin syringe.

MATERIALS & METHODS

The present study was conducted on 68 patients of both genders. All were informed regarding the study and their consent was obtained.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups. Group I patients were administered local anesthesia (greater palatine nerve block) using a conventional syringe and needle and group II using insulin syringe and needle. In all patients, greater palatine nerve block was given using respective syringes, and each patient was evaluated for pain using visual analog scale (VAS) with Wong-baker faces pain rating scale. VAS scores for two groups were analyzed statistically. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I (34)	Group II (34)
Method	Conventional syringe and needle	Insulin syringe and needle.
M:F	20:14	18:16

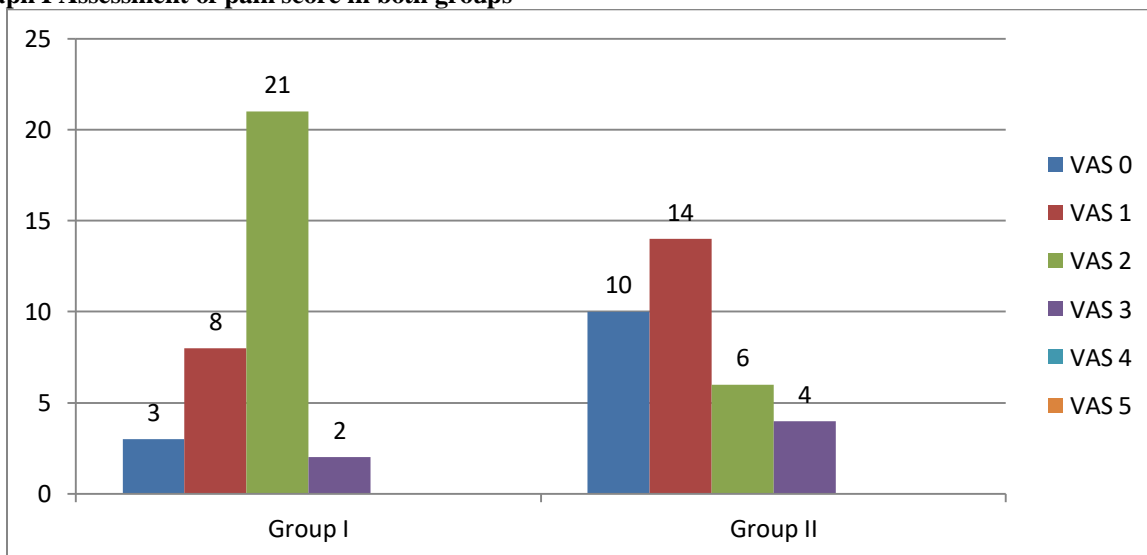
Table I shows that there were 20 males and 14 females in group I and 18 males and 16 females in group II.

Table II Assessment of pain score in both groups

Groups	VAS 0	VAS 1	VAS 2	VAS 3	VAS 4	VAS 5	P value
Group I	3	8	21	2	0	0	0.01
Group II	10	14	6	4	0	0	

Table II, graph I shows that VAS 0, VAS 1, VAS 2, VAS 3, VAS 4 and VAS 5 score was seen in 3, 8, 21 and 2 in group I and 10, 14, 6 and 4 in group II respectively. The difference was significant (P< 0.05).

Graph I Assessment of pain score in both groups



DISCUSSION

Dental fear and anxiety are the most common reasons that people avoid dental appointments. Fear and anxiety in dental clinics usually result from local anesthesia injections. Therefore, control of pain and anxiety during local anesthetic injections has clinical importance in dental practice. Pain due to local anesthesia is caused not only by mechanical trauma to the region of the injection but also by the rapid expansion of the tissues into which the anesthetic solution is injected. In fact, tissue tension can cause more pain and discomfort than the needle puncture.⁵

Dentists and other clinicians have used various methods to prevent pain while administering local anesthesia such as using topical anesthetics suggestion, slow infiltration, transcutaneous electrical nerve stimulation (TENS), computer-assisted local anesthesia and vibration.⁶ Number of injections, size of the needle, amount and type of anaesthetic, level of anxiety of the patient are all important factors which contribute to pain during local anaesthesia. Besides these factors, individual variations in reactions to pain do exist.⁷ The present study was conducted to compare and evaluate pain associated with greater palatine nerve block with conventional syringe and insulin syringe.

In present study, there were 20 males and 14 females in group I and 18 males and 16 females in group II. Janani et al⁸ compared and evaluated pain associated with greater palatine nerve block with conventional syringe and insulin syringe. A total of 42 patients, two groups of 20 and 22 patients participated in this study. Group A patients received the greater palatine nerve block with a standard 2mL syringe, and the Group B patients received the block with an insulin syringe. Pain assessment was done using visual analog scale. Pain associated with the injection in Group B patients (insulin syringe) was found to be significantly lower than the pain perceived by the Group A patients (conventional syringe), and the results were statistically significant.

We found that VAS 0, VAS 1, VAS 2, VAS 3, VAS 4 and VAS 5 score was seen in 3, 8, 21 and 2 in group I and 10, 14, 6 and 4 in group II respectively. Ungor et al⁹ evaluated the effects of vibration on pain and anxiety levels during LA injection in 50 patients using a visual analog scale (VAS) and Spielberger's State-Trait Anxiety Inventory (STAI). The VAS and STAI scores for the vibration group were significantly lower than those for the control group. During LA injection, vibration is a useful technique that reduces pain without causing anxiety.

According to Malamed¹⁰, there is a growing trend toward the use of smaller-diameter (higher-gauge) needles on the supposition that they are less traumatic

to the patient than needles with larger diameters. However, in clinical demonstrations performed in adult patients using 25, 27, and 30-gauge needles, no patient could correctly determine the gauge of each needle. Lehtinen and Lehtinen and Oksala¹¹ observed 30-gauge needle required significantly less force (69 mN) than the 27-gauge needle (139 mN) during local anesthetic administration.

According to Cooley and Robison¹², the 30-gauge was tough, durable, and resistant to breakage even when subjected to varying levels of stress. The disposable insulin syringe has a much smaller caliber, and can accommodate 40 units of insulin or 1 mL of solution.

CONCLUSION

Authors found that the use of insulin syringe was useful for local anesthetic administration in greater palatine nerve blocks.

REFERENCES

- Engel GL. The need for a new medical model: A challenge for biomedicine. *Science* 1977;196:129-36.
- Kosaraju A, Vandewalle K. A comparison of a refrigerant and a topical anaesthetic gel as pre-injection anaesthetic: A clinical evaluation. *J Am Dent Assoc* 2009;140:68-72.
- Houpt MI, Heins P, Lamster I, Stone C, Wolff MS. An evaluation of intra oral lidocaine patches in reducing needleinsertion pain. *Compend Contin Educ Dent* 1997;18:309-16.
- Cho S, Drummond BK, Anderson MH, Williams S. Effectiveness of electronic dental anesthesia for restorative care in children. *Pediatr Dent* 1998;20:105-11.
- Asarch T, Allen K, Asa Petersen B, Beiraghi S. Efficacy of a computerised local anesthesia device in paediatric dentistry. *Pediatr Dent* 1999;21:421-24.
- Ram D, Peretz B. The assessment of pain sensation during local anesthesia using a computerised local anesthesia (Wand) and a conventional syringe. *J Dent Child* 2003;70:130-4.
- Ran D, Peretz B. Assessing the pain reaction of children receiving periodontal ligament anesthesia using a computerized device (Wand). *J Clin Pediatr Dent* 2003;27:247-50.
- Janani K, Kumar MP. Comparison of Pain Perception with Conventional syringe and Insulin Syringe during Greater Palatine Nerve Block. *Drug Invention Today*. 2018 Jul 1;10(7).
- Ungor C, Tosun E, Dayisoğlu EH, Taskesen F, Senel FC. The effects of vibration on pain and anxiety during local anesthesia administration. *JSM Dent*. 2014;2(1):1022.
- Malamed SF. The needle. In: *Handbook of Local Anesthesia*. 4th ed. St Louis, MO: 4. Mosby; 1997. p. 85-90.
- Lehtinen R, Oksala E. Penetration of disposable needles. *Int J Oral Surg* 1979;8:145-8.
- Cooley RL, Robison SF. Comparative evaluation of the 30-gauge dental needle. *Oral Surg Oral Med Oral Pathol* 1979;48:400-4.