Comparative Analysis Between Classical Inferior Alveolar Nerve Block Technique (IANB) and Vazirani Akinosis Closed Mouth Approach for Mandibular Nerve Block

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ABSTRACT

This study is designed to evaluate the efficacy of the Vazirani Akinosis (V-A) mandibular block technique in achieving local anesthesia for the procedures in the mandibular arch. Here the subject design is used to compare onset of anesthesia, quality of anesthesia, branches of the mandibular nerve affected, and complications with both the Akinosis technique and classical inferior alveolar nerve block technique (IANB).

Materials and Methods. Female adult patients with healthy medical records were participants for this study. 50 female adult patients between age group 15-65 were randomly selected for each technique. Total number of patients were 100. A 27-gauge needle was used for both the nerve block technique. 2% scaidicane (Mepivacaine) used as the local anesthesia with vasoconstrictor. 1.8 ml of solution was given for both the nerve block technique. Pain during the insertion was measured using visual analog scale. Chi-square, Anova test was used for statistical analysis.

Results: V-A technique had 69% painless injection compared to IANB (43%). Onset of numbness in IANB technique was 1 to 3 min in 95% of cases compared to V-A (66%). Achieving complete anaesthesia, the technique had similar experience. Failure rate was slightly high in case of V-A (27%) compared to IANB (15%).

Conclusion: Except for slower onset of lip anesthesia, less pain during injection and fewer post injection complications in Vazirani-Akinosi technique all other parameters were of same efficacy as classical inferior alveolar nerve block technique. This has strong clinical applications as in cases with limited mouth opening, apprehensive patients. Hence the Vazirani-Akinosi technique is the indicated technique of choice.

Key words: Local anaesthesia, Inferior alveolar nerve block (IANB), Vazirani-akinosi technique (V-A), Pain

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INTRODUCTION

Painless surgical methods should not only the purpose of a surgeon, but it may be the requirement of patients most often. Therefore, attaining maximum anaesthesia within minimal time sufficient reason for the lowest discomfort should be the goal of a surgeon. A similar is the case in the case of the dental surgeon. Local anesthesia is essential for the management of pain while executing any treatment in the mandibular arch. There are numerous procedures of nerve block techniques; the majority of a commonly used one is traditional inferior alveolar nerve block (IANB). This classical method is related with few downsides like high failure rate (around 15%) with most experienced operator also. Operator (choice of local anesthesia) patient (anatomical, physiological, and psychological) factors are the primary known reasons for success or failure of nerve prevent [1]. Hence, we are assessing this technique with another nerve block technique called Vazirani Akinosis closed-mouth mandibular nerve technique since it is a straightforward technique to become mastered by the young operator. This study is made to assess the efficacy of the Akinosis mandibular block technique in attaining nearby anesthesia for the methods in the mandibular arch. Akinosi technique over conventional techniques is the ease by which the method may be perfected, the probability of attaining anesthesia of the three main technique much less threatening end up being cause the injection is carried out with the patient's oral cavity in a closed position [2]. Numerous studies have already been previously done to assess the efficacy of these three techniques. But different authors had different results concerning the effectiveness of every method. Here the subject design is used to compare the onset of anesthesia, quality of anesthesia, branches of the mandibular nerve affected, and complications with both the Akinosis technique and classical inferior alveolar nerve block technique.

MATERIALS AND METHODS

Female adult patients with healthy medical records were participants for this study. 50 female adult patients between age group 15-65 were randomly selected for each technique. Total number of patients is 100. Patients visiting at least twice for any dental procedures (operative, endodontic, or surgical) on same side of the mandibular arch was considered for this study. A 27-gauge needle was used for both the nerve block technique. 2% scaidicane (Mepivacaine) used as the local anesthesia with vasoconstrictor. 1.8 ml of solution was given for both the nerve block technique. All patients were in good health conditions and were not taking any medications that would affect the perception of pain. The degree of mouth opening was normal. Pain during the insertion was measured using visual analog scale, time of onset of lip anesthesia will be noted at the first onset of tingling at the lip preferably after 5 min after the anesthesia, complete anesthesia will be evaluated between 5 to 10 min after local anesthesia by subjective and objective methods (using electric pulp tester) at premolar region. Pain during objective analysis of nerve block was considered as failure after 10 minutes of anesthesia. The need for second block or supplemental injection technique was mentioned. Any complication occurred was noted. Two injection techniques for incidence of lip numbness, soft tissue anesthesia incidence, incidence of pulpal anesthesia, and anesthetic success were analyzed and compared by using SPSS ver.15. Chi-square, Anova test was used for statistical analysis. The mean onset time of pulpal anesthesia, lip numbness and soft tissue anesthesia were analyzed by Log rank. Comparisons were considered significant at $P \leq 0.05$.

RESULTS

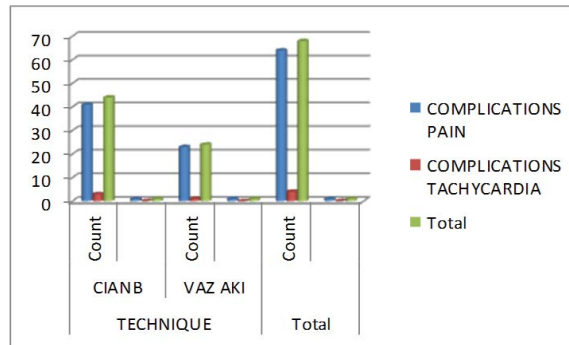**Results are explained in detail in the form of figures (Figures 1 to Figure 8).**

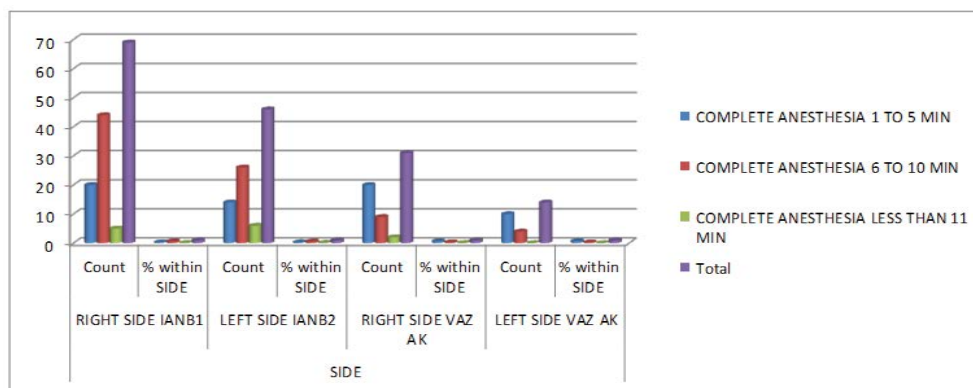**Figure 1: Post injection complications with both the techniques.**

Figure 2: Duration for achieving complete anesthesia with both the technique with respect to sides.
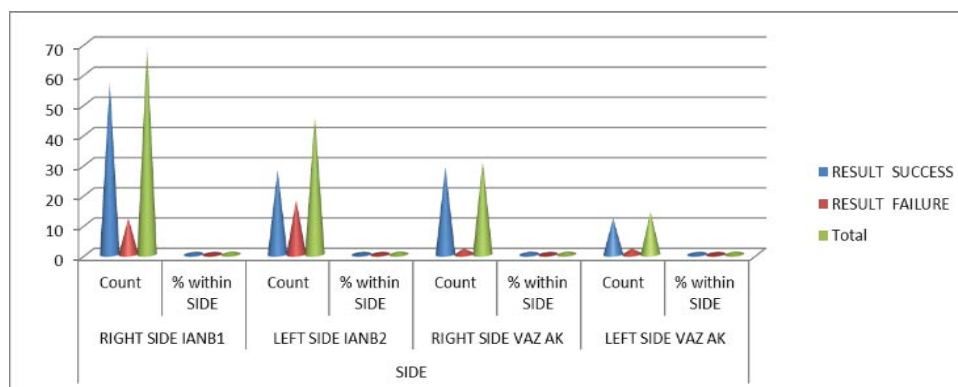

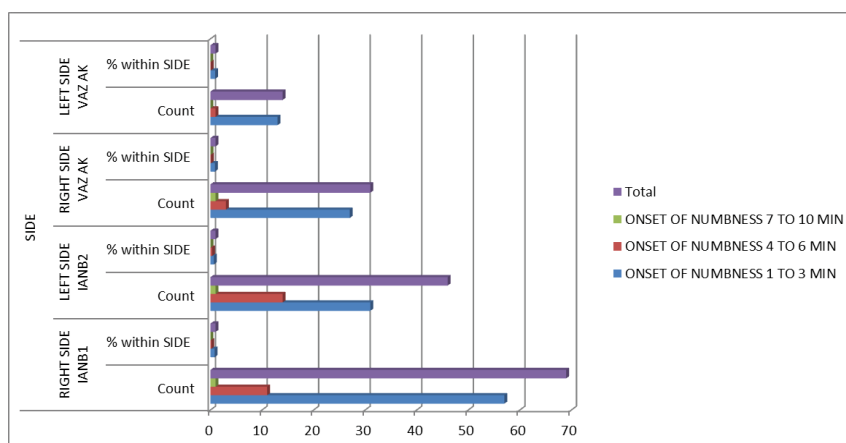**Figure 3: Anesthesia success rate for both the technique with respect to sides.**

Figure 4: Onset of numbness with both the technique with respect to sides.
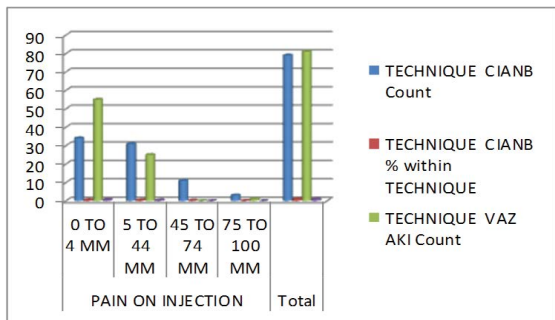
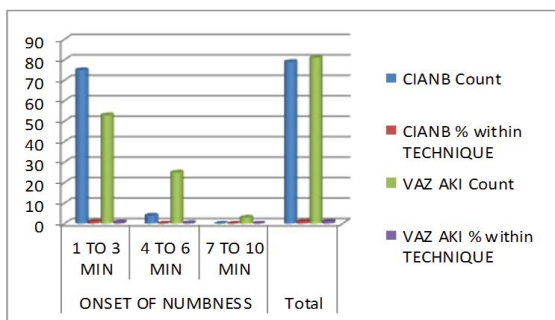**Figure 5: Pain on injection with both the technique.**
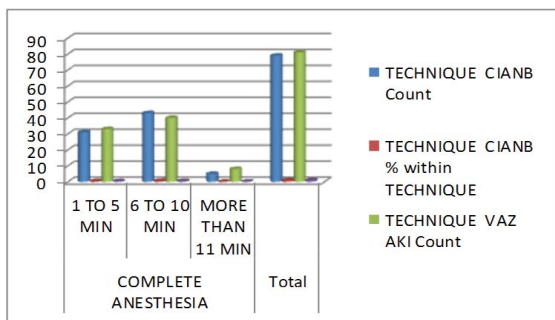

Figure 6: Onset of numbness with both the technique.

Figure 7: Duration for achieving complete anesthesia with both the technique.
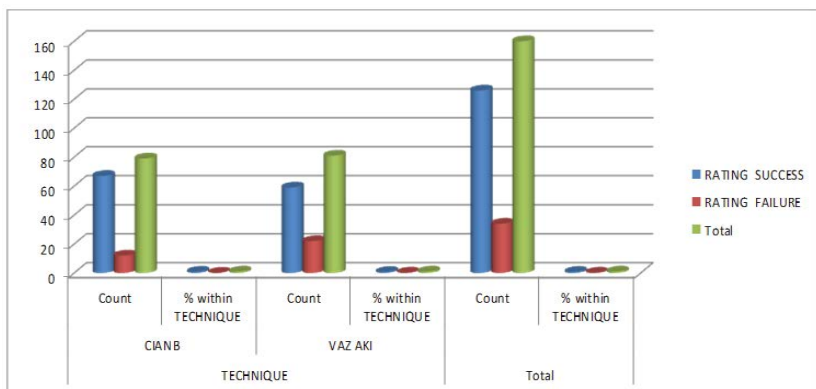
Figure 8: Anesthesia success rate for both the technique.

DISCUSSION

Dentists usually utilize the inferior alveolar nerve block (IANB). Although that is an effective and safe method to anesthesia mandible, it has some drawbacks; for example, the higher incidence of positive aspiration is in IANB compared to the V-A technique Gow-Gates technique due to easy access of injection site to the neurovascular bundle. Also, the opportunity

of disappointment of IANB is because of two variability of mandibular anatomy. However, the Vazirani-Akinosi technique tends to be more effective than the IANB in accordance with some studies [3]. Subjects in the Direct Conventional group encounter significantly more pain during injection than the subjects in the Vazirani-Akthroughoutosi group. This is often attributed to the 26-gauge needle used for the Vazirani-Akinosi technique, which has smaller dimensions used than the 24-gauge needle used for the Direct Conventional approach. Another factor adding to less pain experienced by subjects through the Vazirani-Akinosi technique was the divergence of medial pterygoid muscle from ramus to lateral pterygoid process providing increased width of pterygomandibular space superiorly (Gow-Gates et al. [4], Barker et al. [5]), hence, reducing the chances of the needle to penetrate the medial pterygoid muscle. Various complications like post-injection pain and trismus were reported only in the Direct Conventional technique [6]. This reduced incidence in Vazirani-Akinosi technique [7]. This is because in the latter method, the mouth of the patient is closed, and the feeling of injection into the throat is not present (Akinosi) [8] thus, decreasing the level of anxiety and apprehension. 7th nerve palsy was reported in Vazirani-Akinosi method [7] only. Possibly, the 7th nerve palsy occurred due to over-insertion of the needle and deposition of anesthetic solution deep into the parotid gland (Bennet) [9].

Some studies have shown a higher success rate of Gow gates and Vazirani-Akinosi [4,7], But our research result was comparable to studies done by Todorovic et al. [10] and Hung et al. [11] Also form current study we are able to say that post-operative complication like hematoma and trismus or swelling is less in V-A technique in comparison to IANB. However, thus, it can be done that, the significance of aspiration prior to injecting is well known. Thus, positive aspiration was more frequently noticed in Conventional and in Gow-Gate's techniques that are backed by Todorovic et al (1986) [10], who documented 22% of good aspiration in the conventional technique. The lower occurrence of positive aspiration (1.9%) in Gow-Gates has been described by Stanley Malamed (1981) [3]. This may be due to the lack of a sizeable blood vessel in the lateral aspect of the condylar neck and in the mid-portion of pterygomandibular space, as stated by Todorovic et al. and Paul et al. [10,12]. In our research, we may have inserted the needle in inappropriate angulation/direction, which could be in relation to the pterygoid plexus of veins, leading to increased positive aspiration in Gow-Gates's strategy.

CONCLUSION

Except for slower onset of lip anesthesia, less pain during injection and fewer post injection complications in Vazirani-Akinosi technique all other parameters were of same efficacy as classical inferior alveolar nerve block technique. This has strong clinical applications as in cases with limited mouth opening, apprehensive patients. Hence the Vazirani-Akinosi technique is the indicated technique of choice.

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Nil.

CONFLICTS OF INTEREST

There are no conflicts of interest.

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