

Knowledge, attitude, and awareness about Gow-Gates technique among dental students

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ABSTRACT

Aim: This study aims to assess the knowledge, attitude, and awareness about Gow-Gates technique among dental students. **Introduction:** The most commonly used technique for mandibular anesthesia is inferior alveolar nerve block (IANB). However, the failure reported for IANB remains high. Gow-Gates technique is used as a primary local anesthetic technique or as an adjuvant after failure of IANB. It provides sensory anesthesia to virtually the entire distribution of V3. **Materials and Methods:** Gow-Gates technique also called as true mandibular nerve block technique as it provides sensory anesthesia to virtually the entire distribution of V3. A questionnaire consisting of questions about Gow-Gates technique, its prevalence and success rate were given to dental students who practice in clinics. Their answer was obtained, evaluated, and compared. **Results:** Thus, this study was conducted to assess the knowledge, attitude, and awareness about Gow-Gates technique among dental students. Only about 60% of the respondents had adequate knowledge about the technique. Furthermore, they were not aware of the advantages, the technique offers over other techniques and the complications and their management. **Conclusion:** Their knowledge about Gow-Gates technique is less than adequate. Proper training, extra classes, conferences, and workshops should be conducted to provide them adequate knowledge which would eventually change their negative attitude toward the technique.

KEY WORDS: Inferior alveolar nerve block, Local anesthesia, Patient anxiety, Supplementary local anesthesia technique

INTRODUCTION

In dentistry, most of the patient's opinion about their previous treatment rely on the local anesthetic experience they had. Proper use of local anesthetic technique and pain management are important for a successful dental treatment.^[1]

Before choosing a mandibular block, there are few factors that have to be evaluated: The tooth involved, proper anesthetic technique for specific tooth, the type of procedure, possible inflammation/complications that are present in the target tissue, and operators experience.

Techniques used for mandibular anesthesia are inferior alveolar nerve block (IANB), Gow-Gates technique, and Vazirani-Akinosi technique.^[2] The most commonly used technique for mandibular anesthesia is IANB.

However, the failure reported for IANB remains high, ranging about 30–41% in mandibular first and second molars, 42% in the second premolars, 38% in the first premolars, 46% in canines, and around 70% in lateral incisors, whereas Gow-Gates has a higher success rate of 91–95% and very low failure rate which may be due to improper technique.^[3] Gow-Gates technique is used as a primary local anesthetic technique or as an adjuvant after failure of IANB.^[4-6] It provides sensory anesthesia to virtually the entire distribution of V3 which involves inferior alveolar, lingual, mylohyoid, mental, incisive, auriculotemporal, and buccal nerves.^[7]

Besides all these advantages, most dentists have not adopted this technique, possibly due to inadequate training and practice or due to a perception of increased pain associated with the injection and increase patient anxiety. Yet, there are several studies conducted on these high states that there is no significant difference in pain on injection among all the three techniques.^[8-11] Hence, the aim of this study is to assess the knowledge,

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attitude, and awareness about Gow-Gates among dental students.

MATERIALS AND METHODS

The study was designed as a prospective, questionnaire-based survey. A questionnaire enquiring about the knowledge and awareness regarding Gow-Gates mandibular anesthetic technique was administered to students of the 3rd year, final years, and interns (those who undergo clinical practices) in Saveetha Dental College. A total of 100 students were selected and an online link was given and their responses were obtained online. The questions had a set of options and the participants have to choose one among the options. The questions were simple and easy to answer. The results obtained were collected and tabulated.

Questionnaire

- Age
 - <20
 - 20–23
 - >23
- Gender
 - Male
 - Female
- For procedures to be done in mandibular tooth, you would prefer administering
 - IANB
 - Gow-Gates mandibular nerve block
 - Vazirani-Akinosi mandibular nerve block
- Are you trained/have practiced Gow-Gates mandibular anesthesia technique.
 - Yes
 - No
- Would you administer Gow-Gates mandibular anesthesia without supervision?
 - Yes
 - No
- Gow-Gates mandibular nerve block provides sensory anesthesia to the entire distribution of the V3.
 - Yes
 - No
 - Do not know
- Extraoral landmarks used in Gow-Gates technique.
 - Yes
 - No
 - Do not know
- On comparison of Gow-Gates technique with IANB.
 - Gow-Gates has higher success rate
 - Lower incidence of positive aspiration
 - Absence of accessory sensory innervation
 - All of the above
 - None of the above
 - Do not know
- Gow-Gates can be used as a primary local anesthetic technique or as a supplementary technique after failure of IANB.
 - Yes
 - No
 - Do not know
- Are you aware of the complications associated with Gow-Gates technique?
 - Yes
 - No
- Have you attended any classes or conferences on Gow-Gates technique?
 - Yes
 - No
- Would you like to learn about Gow-Gates and other mandibular nerve block technique?
 - Yes
 - No

RESULTS

In this study, the questionnaire had some basic questions about Gow-Gates anesthesia technique, its advantages over other techniques, and success rate. Their respondents were almost equal with 45.7% of male and 44.3% are female [Figure 1] and included the age group of <20–>23 [Figure 2]. When the respondents were asked which technique they would prefer for mandibular anesthesia, almost 50% of them answered IANB [Figure 3]. Among all of them, only 62.9% of them are trained/practiced Gow-Gates technique and would administer Gow-Gates

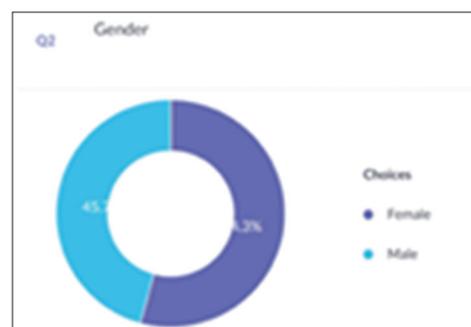


Figure 1: The gender of the respondents in the study

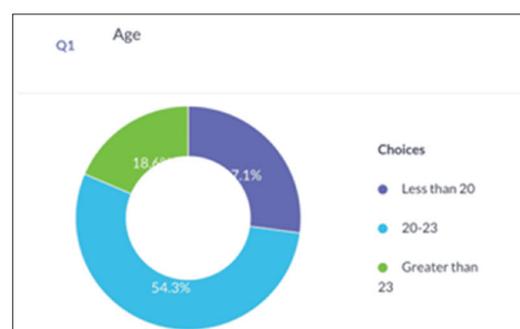


Figure 2: The age of the respondents in the study

mandibular anesthesia without supervision [Figure 4]. Not everyone were aware that Gow-Gates technique provides sensory anesthesia to the entire distribution of V3 [Figure 5]. More than 50% of the respondents did not know that there are extraoral landmarks used in Gow-Gates technique [Figure 6]. Only 28.6% of the respondents accepted that Gow-Gates technique can be used as a primary local anesthetic technique or a supplementary technique after failure of IANB [Figure 7]. Around 70% of them were not aware of the complications that are associated with Gow-Gates technique [Figure 8].

DISCUSSION

Gow-Gates technique was introduced by an Australian dentist George A. E. Gow-Gates which has several

advantages when compared to other techniques which include higher success rate, decreased incidence of positive aspiration, and increased area of anesthesia. However, it is not widely practiced due to inadequate training and practice and patient anxiety.

A study estimated that only 3.7–16.1% of clinicians are trained and use this technique in the practice and only 35.4–56.3% of the clinicians are trained this technique.^[6,12,14] Despite all the advantages the technique provides, dentists do not prefer the technique due to lack of confidence and a perception that the technique could cause more pain, yet there is no article that states

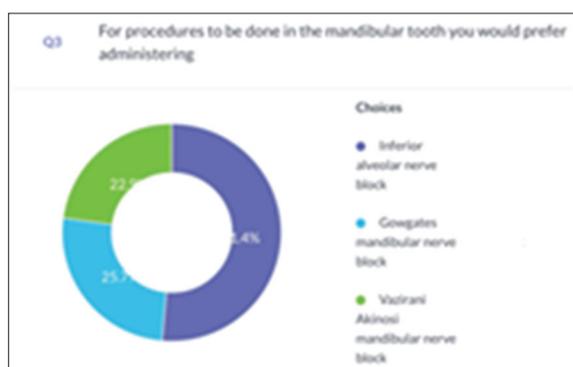


Figure 3: The local anesthetic technique they would prefer for a procedure to be done in mandibular tooth

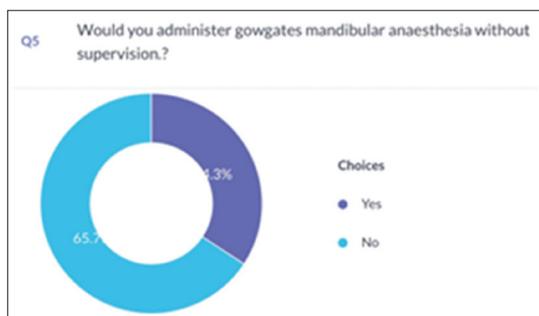


Figure 4: If the respondents were trained to give Gow-Gates technique

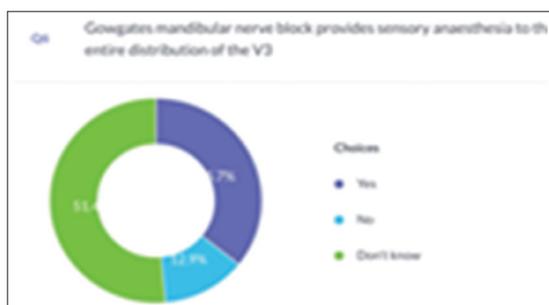


Figure 5: The number of respondents who had proper knowledge about Gow-Gates technique



Figure 6: The respondents who answered that there were extraoral landmarks for Gow-Gates technique



Figure 7: The respondents who answered if Gow-Gates technique can be used as a primary anesthetic technique and also as a supplementary technique after failure of inferior alveolar nerve block

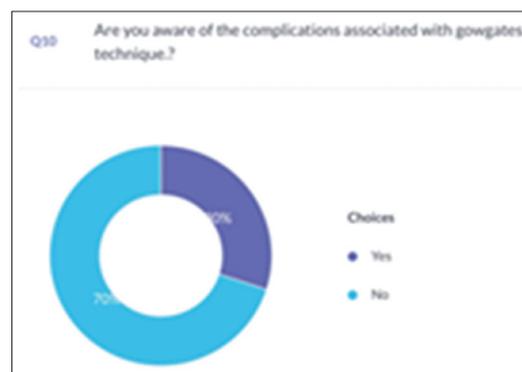


Figure 8: The respondents who answered if they had adequate knowledge about the complications of Gow-Gates technique

any significant difference between the pain between all the three techniques.^[15,16] They use IANB as a standard technique, more than 50% of the respondents chose IANB over Gow-Gates technique and Vazirani-Akinosi mandibular nerve block. In our study, more than 60% of the respondents were not confident about the technique and cannot administer local anesthesia by Gow-Gates without supervision [Figure 9]. This technique serves several advantages such as higher success rate, lower incidence of positive aspiration, and higher region or area of being anesthetized. About 44.3% did not know the advantages offered by Gow-Gates technique over IANB [Figure 10]. Since inferior alveolar nerve has a higher failure rate, Gow-Gates is often the most chosen supplement technique after failure, yet 45.7% of the respondents did not know that it is used as a primary anesthetic technique and also a supplement technique after the failure of standard IANB [Figure 7].

Gow-Gates technique involves extraoral landmarks: Lower border of the tragus and the corner of the mouth and intraoral landmarks – height of the injection established by placement of the needle tip just below the mesiopalatal cusp of the maxillary second molars. The tip of the needle is moved to a point just



Figure 9: If the trained respondents were able to administer Gow-Gates anesthesia technique without supervision

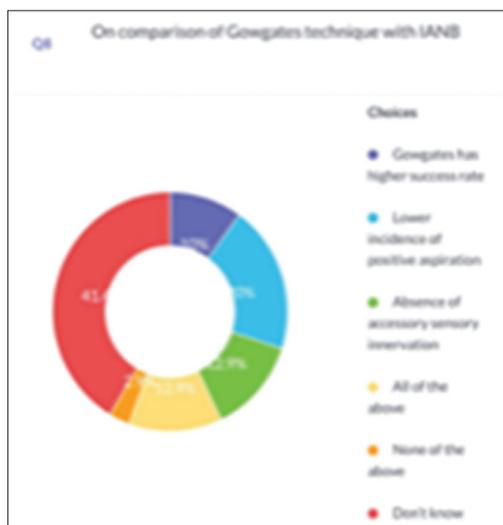


Figure 10: The respondents who answered for the advantages of Gow-Gates over inferior alveolar nerve block

distal to the molar. As the landmarks are located, the syringe is directed and the needle is gently inserted and slowly advanced until the injection contacts the anterior condyle. The needle is withdrawn 1 mm when this bone contact is confirmed. If bone contact is not obtained, the needle is slightly withdrawn and redirected. No local anesthesia must be deposited if the bone is not contacted. Aspiration is then performed to avoid intravenous injection.^[12,17,18] As this is very technique sensitive, about 65% of the respondents are not confident in administering it without supervision. Around 58% of them are not aware that there are extraoral landmarks for this technique. The common complications of Gow-Gates technique involve hematoma, trismus, and temporary paralysis of cranial nerves; accidental rapid intravenous administration may result in even diplopia. More than 64% of the respondents did not know about the complications of Gow-Gates technique.

Around 54.3% of the respondents are not actually interested in leaving about other anesthetic techniques [Figure 11]. This is due to inadequate knowledge about the disadvantage in IANB as well as the advantages in Gow-Gates technique. They are fixed to a standard technique and lack interest to learn about other techniques. Furthermore, 70% of the respondents have not attended any classes or conferences or workshops regarding Gow-Gates technique [Figure 12].

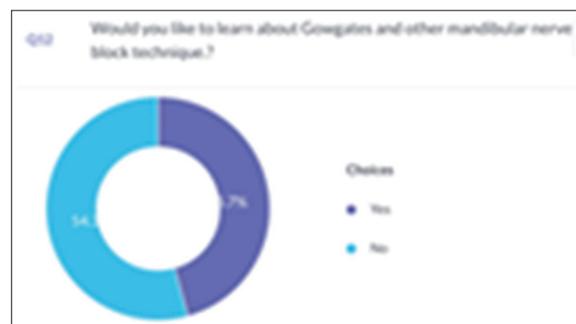


Figure 11: The attitude of the respondents to learn Gow-Gates technique

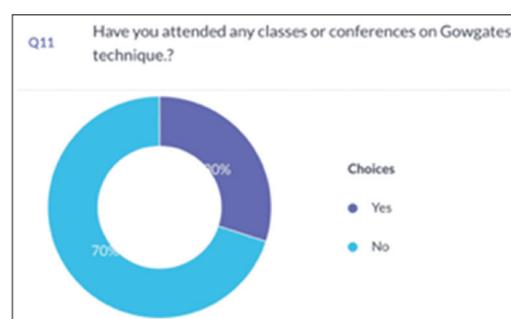


Figure 12: If the respondents have attended any classes or conferences on Gow-Gates technique

CONCLUSION

Achieving a proper mandibular anesthesia for dental procedures has always been a challenge to all the dentists; this is due to the commonly used and its failure rate. Thus, this study was conducted to assess the knowledge, attitude, and awareness about Gow-Gates technique among dental students. Their knowledge about Gow-Gates technique is less than adequate. Proper training, extra classes, conferences, and workshops should be conducted to provide them adequate knowledge which would eventually change their negative attitude toward the technique.

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