

Application of Mandibular Nerve Blocks by Dental Practitioners in Bulgaria with Working Experience of Less Than 5 Years - Anonymous Survey

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ABSTRACT

The employment of mandibular nerve block anesthesia is the basis of successful dental treatment. However mandibular nerve blocks are not easy to master, especially by young practitioners. The goal of this article is to acquire information about the usage of mandibular nerve block anesthesia by young dental practitioners with less than 5 years of experience, in Bulgaria. The survey was filled by 261 dentists. The results show that 55.55% of the dentists that participated didn't use mandibular nerve blocks, 31.42% used this type of anesthesia in some cases and only 13.02% used them in their daily practice. The most used technique was Weisbrem's - 42.53% and only 1.92%, (n=5) stated that they preferred the Halsted method. Not a single one of the participants used the Gow-Gates or the Akinosi technique. The mandibular nerve blocks present the younger practitioners with difficulty when using them and that's why many of the dentists prefer not to use them.

Keywords: Mandibular Anesthesia; Nerve Block; Dental Anesthesia.

INTRODUCTION

Being proficient in the application of local anesthesia is considered a very important skill for every doctor of dental medicine. Profoundly anesthetizing your patients may not only increase the standard of treatment but may also make it much easier and more pleasant not only for the patients but also for the physician himself. Moreover, it's been researched and found out that patients commonly choose their dentists by his ability to provide painless treatment. During dental treatment concerning the posterior segment of the mandible, dentists usually choose mandibular nerve blocks as their method of local anesthesia because of the inability of the local anesthetic to diffuse through the thick cortical plates, when buccally infiltrated. However, in a considerable number of cases practitioners experience failure in the employment of mandibular nerve blocks as well as some complications caused by them – anxiety induced syncope, nausea, hyperventilation, vomiting and others. Dentists should be competent and

confident in providing local anesthesia by nerve blocks, so that they may project that confidence to their patients and assure them of the good outcome from the treatment.

The aim of the article is to find out what is the usage of mandibular nerve blocks by the dental practitioners in Bulgaria, with a working experience of less than 5 years and more precisely the different techniques that they apply as well as the clinical situations that they use them in.

METHODS

An anonymous questionnaire was distributed among dental practitioners in Bulgaria. The purpose of the survey was to establish the most common types of mandibular nerve blocks that were used as well as the clinical situations in which they were applied. The questionnaire had 15 questions and was distributed by sending links to an electronic survey made by Google Forms, as well as in paper variants of the survey. Till the

end of the defined period of time, 261 surveys were returned. The results were processed with IBM SPSS 23 and Microsoft Excel.

RESULTS

From all the participants in the survey, there was only one dentist with a specialty (0.38%) (Periodontology), and 5 others (1.92%) have already started specializing in different fields. These results are showing some of the problems in Bulgaria, connected with the postgraduation training and the difficulty in acquiring a dental specialty. The results of the survey for the workplace of the dentists in Bulgaria with a working experience of less than 5 years are showing that most of the participants are working in a group practice with more than 2 dentists - 50.96% (n=133), after that is the group of young dental practitioners, working in a dental practice with 2 dentists but with independent practice from each other - 31.03% (n=81). The ones that have their own practice are 14.18% (n=37), and only 2.23% (n=6) work in a Faculty of Dentistry in a Medical University. There are 2 participants (0.8%) that have reported that they work in a dental practice under the control of a senior dentist and another 2 answered that they practice in another form (Figure 1). A large part of the participants - 55.55% (n=145) don't use mandibular nerve blocks, 31.42% (n=82) apply them sometimes and only 13.02% (n=34) employ mandibular nerve blocks in their daily practice (Figure 2).

The surveys showed that mandibular nerve blocks were preferred for interventions on a single tooth only by 1.92% (n=5) of the participants, while 10.34% (n=27) would rather use nerve blocks in the mandible for intervention on several adjacent teeth. The majority of the participants answered that they use block anesthesia in the mandible in both cases - 32.18% (n=84) (Figure 3). The young dental practitioners, which employ mandibular nerve blocks prefer the Weisbrem technique (Torusal nerve block in the mandible) - 42.53%, n=111. Only 5 of the remaining answered that they would rather use the classical IANB (Halsted technique) - 1.92%, n=5 (Figure 4). The effect of the applied mandibular nerve blocks was considered profound enough for a painless procedure and with a fast onset by 32.57% (n=85) of the participants. Dental practitioners, who assessed their blocks as not effective enough and needed to use a supplementary technique were 11.49% (n=30). Only one of the participants in the study considered his nerve blocks to be ineffective and completely needed to substitute them with another method - (0.38%) (Figure 5).

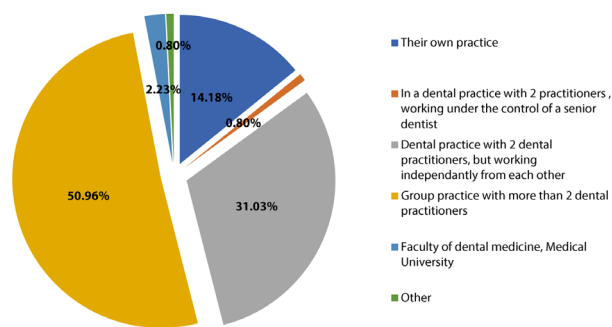


Figure 1: Workplace of the dental practitioners in Bulgaria with working experience of less than 5 years.

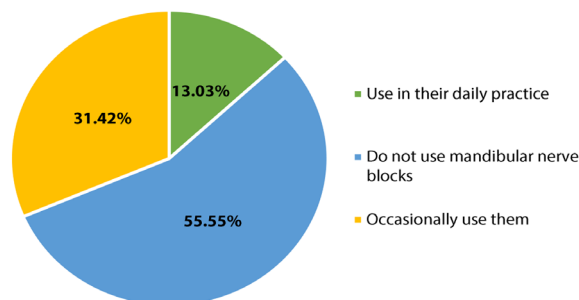


Figure 2: Distribution of the dental practitioners in Bulgaria, depending on their usage of mandibular nerve blocks.

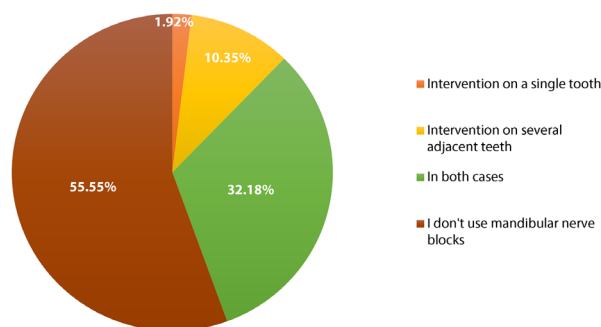


Figure 3: Intervention in which clinicians prefer to use block anesthesia in the mandible.



Figure 4: Preferred method of IANB by the dental practitioners with less than 5 years of working experience.

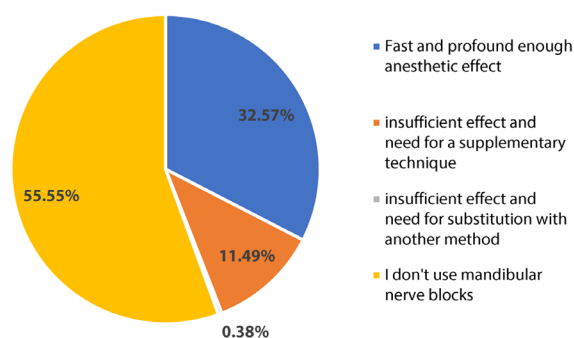


Figure 5: How dental practitioners assess their mandibular nerve blocks.

DISCUSSION

From all the 261 participants in the study, 145 have indicated that they don't use mandibular nerve blocks in their daily practice and 82 indicated that they use blocks occasionally. One of the reasons for the young practitioners to avoid the usage of mandibular nerve blocks is the unsuccessful results that the dentists get in some of the cases. A study from 2011, from AlHindi M et al. [1] on the effect of classical IANB (Halsted approach), applied by dental students and interns from the College of Dental Medicine, King Saud University shows that 85.7% from the participants indicated that they had previously experienced failure with the technique. From the 238 students that participated in the survey, 34.9% have sometimes experienced failure, 36.6% - in rare cases, 9.2% - frequently, 4.6% - almost every time & 14.7% - never. The most popular technique that was used after a failure of IANB was the intraligamentary technique (periodontal injection) – 57.1% and the next in line was the intrapulpal anesthesia – 29.1%. In our survey 32.75% of the dental practitioners in Bulgaria with less than 5 years of working experience assessed their mandibular nerve blocks as effective and the ones that claimed their techniques as unsuccessful were significantly less - (11.49%). Another study by Vandana Singh et al. [2], showed that from the 200 graduated dentists, 71% of them have experienced mandibular nerve block failure, when they've used the direct Halsted technique. That data suggests that a big part of the freshly graduated dental practitioners have problems with the correct administration of nerve blocks of the mandible.

Another reason for the young doctors of dental medicine to avoid the usage of nerve blocks may be the fear of needles and pain that some patients have. However, a study by Arjen van Wijk et al. [3], who researched the pain, caused by needle pricks during the application of local anesthesia, showed that from the 230 patients, who participated only 19 have reported high levels of pain (7-10 from 10-degree scale). The same study also shows that only 61 patients reported pain that lasted more than 1 second.

There were no clinicians in our study that preferred the Gow-Gates and the Akinosi -Vazirani technique, while in the study by Maryam AlHindi [1], 10.3% of the participants, said that they have knowledge of the Gow-Gates technique. Only 2.9% of the surveyed however claim that they know the Akinosi-Vazirani nerve block. In the same study, 22 of all the 238 participants claim that they have enough knowledge and practical skill to perform alternative methods to the Halsted

approach of the IANB. In another study by Komagan Prabhu Nakkeeran [4], the authors report that the Akinosi technique is more appropriate and easier for dental students and interns compared to the classical method by Halsted. The results from the study showed less unsuccessful blocks, less positive aspirations, less discomfort for the patients and easier to locate intraoral landmarks in the Akinosi technique, compared to the Halted approach.

Mandibular nerve blocks are hard to learn and master by dental students, because of the many anatomical variations of the intraoral landmarks and that is also another reason why newly graduated clinicians avoid their employment. A study by Christian Knipfer et al. [5] in Germany confirms that assumption. A new theoretical module with practical exercises on dolls was developed especially for the study with the purpose to improve the learning experience of mandibular nerve blocks for dental students. In the end of the module, the students showed 69.4% of success, when administering mandibular nerve blocks on mannequins. The results from the administrations of mandibular nerve blocks on patients (*in vivo*) however proved to be with a much lower success rate – only 36.9% of the students who participated in the module succeeded on real patients. These studies show how difficult it is to acquire the skill to successfully administer block anesthesia on the mandible.

CONCLUSION

Dentists in Bulgaria with a working experience of less than 5 years do not have the knowledge or the practical skills to properly administer mandibular nerve blocks. That is due to different factors, such as the steep learning curve, high chance of failure, the probability of complications occurring and others. The solution to this problem may be the addition of elective modules, providing more theoretical and practical advices for successful administration of IANB - the Halsted approach as well as other alternative techniques (Gow-Gates and the Akinosi-Vazirani).

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