ORIGINAL ARTICLE

AWARENESS OF PERIODONTAL LIGAMENT INJECTION AMONG HOUSE OFFICERS AND POST GRADUATE TRAINEES- A CROSS SECTIONAL STUDY

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ABSTRACT

The objective of this research was to assess how aware house officers and post graduate trainees are about periodontal ligament injections. 150 questionnaires were distributed but only 105 responses were received. The questionnaire consisted of 10 questions in which participants were asked basic questions about injection technique for extractions and knowledge about periodontal ligament injection. All 105 responses were sent for statistical analysis. Out of 105 participants; 49.5% used nerve infiltration, 35.2% used nerve block, 13.3% used both and 1% used periodontal ligament injection for extraction. The technique used for effective anaesthesia for extraction of tooth was nerve block 82.8%, periodontal ligament injection 7.6%, 6.7% Nerve infiltration, 2.9% pulpal injection. It is concluded that many house officers and post graduate trainees know about the PDL injection but they apply this method of anesthesia in circumstances when the routine infiltration and block (IANB) fail to be effective.

Key words: *Periodontal ligament injection, extraction, nerve infiltration*

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INTRODUCTION

Periodontal ligament is a delicate connective tissue which adheres to the root of the tooth specifically covering the cementum and joins the tooth to the jawbone restoring it in place. It consists of neural and vascular components. Periodontal ligament injection comes in use when patient is reluctant to have mandibular block injections due to prolong numbness of tongue and lips. Also, when the procedure is of a short duration or when anesthesia is not effective and the patient is still in pain.[1] One of the benefits of periodontal ligament (PDL) injection is that it provides anesthesia which is effective but is extended only for a brief period of time so it is recommended when bilateral treatment is scheduled.[2] Other uses of periodontal ligament injections include uses in pediatrics or in certain patients with disabilities since these patients are liable to cause self-injury post operatively. However; it is seen that PDL injection is not the anesthesia of choice as it increases the probability of septicemia and infections in blood stream.[3] The proper technique to administer a PDL injection is that a short needle of 27 gauge should be inserted in the periodontal space in the middle of the alveolar bone and the root exterior proximally. The root area should be carefully injected with 0.2 ml of the sedative solution. To ensure that the needle has reached the periodontal crevice the operator should experience resistance.[4] The aspired aim of the study was to evaluate knowledge that is already widely known to establish a framework about the awareness of anesthesia technique among dental house officers, demonstrator and trainees.

MATERIALS AND METHODS

A questionnaire was self-written and distributed among the survey participants for a representative, cross-sectional research. The study was conducted amid the house officers, demonstrators and trainees from different colleges including Jinnah medical and dental college and Altamash institute of dentistry. The survey was closed after 3 weeks.

METHODOLOGY

This study was conducted to assess the breadth of understanding of the Periodontal ligament (PDL) injection that is used by interns, dental house officers and trainees as a replacement for inferior alveolar nerve block (IANB) while extracting a tooth.

This was examined using a questionnaire based

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cross-sectional survey where 150 questionnaire forms were distributed among interns, dental house officers and trainees but only 105 responses were received.

This investigated questionnaire was framed as 10 multiple-choice questions encompassing major facets of knowledge about Periodontal Ligament Injection. The responders were questioned about techniques for administering the injection for extraction, basic knowledge and understanding about the injection, injecting procedure and its entrance point, responses of patients, its usefulness and the most frequent indication.

The software STSS Version 21 was employed to statistically analyze the data that had been assembled by a single assessor. Percentages and the rates of occurrence were used to conduct descriptive statistics.

RESULTS

The questionnaires were distributed to two teaching hospitals namely "Altamash Institute of Dental Medicine Karachi" and "Jinnah Medical and Dental College Karachi. 87.6% of these participants were of age group 15-30 years and 13.4% were of 30-45 years. Level of education (experience) of participants was: 61% house officers, 28% demonstrators/ lecturers and 11% post-graduate trainees. The female to male ratio was 2.22:1, 2 participants chose to not reveal their gender.

Out of 105 participants; 49.5% used nerve infiltration, 35.2% used nerve block, 13.3% used both techniques and 2% used periodontal ligament injection for extraction. When asked about effective anaesthetic technique for extraction of tooth, 82.3% responded with nerve block, 7.6% marked periodontal ligament injection, 6.7% Nerve infiltration, 2.9% marked pulpal injection and 1% remained neutral.

67.6% had previously used periodontal ligament injection while 32.4% had never performed it on patient. 66.7% participants considered the respective injection to be an auxiliary numbing injection, 13.3% thought it to be rarely useful, 11.4% said it is a conventional injection technique and remaining 8.6% had no information regarding the technique. When asked about site of administration of periodontal ligament injection, 77.1% marked gingival sulcus, 15.2% marked attached gingiva, and remaining 7.6% marked alveolar mucosa. 66.7% answered periodontal ligament injection is administered on two surfaces of tooth, 22.9% marked 3 surfaces, 9.5% said it was administered on one surface of tooth, around 1% (1 participant) didn't respond.

Patients response to periodontal ligament injection (with respect to achievement of anaesthesia), 41.9% rated it good, 36.2% said it was satisfactory, 11.4% said it is not a reliable technique, 6.7% participants rated it poor, while 4 participants (3.8%) remained neutral on the question

From the data set 52.4% participants said the respective injection is indicated when the usual nerve block is unsuccessful, 35.2% said this technique is used when an infected tooth is to be removed with draining sinuses to be performed, 12.4% responded that this injection technique is indicated for patients with haemophilia.

Out of all participants 45.7% thought periodontal ligament injection is given with a needle syringe, 15.2% believed it's given with a special injection apparatus while 39% participants said both needle syringe with special injection apparatus was used.

DISCUSSION

Certain patients have a fear towards dental treatment due to their low tolerance of pain, therefore; it is highly advisable to have proper pain management during surgical dental procedures.[5] This will in turn decrease the level of anxiousness in the patient and also promote facilitation for the dentist. Most commonly used anesthetic techniques are mandibular nerve block for posterior mandibular teeth and infiltration for all maxillary and anterior mandibular teeth.[6] These techniques are seen to provide satisfactory results regarding pain control in most cases. If both these techniques fail, an alternative is required and in such instances a PDL injection is advised.[7] The anesthesia from the PDL injection penetrates through the spaces into the intraseptal bone thus producing absolute numbness and effective pain control.[8]

A vast majority of the participants were using infiltration and nerve block but only about 2% of the participants were using PDL injections which shows that PDL injection is not a very popular technique. Regarding the PDL technique effectiveness during extraction only 7.6% of participants agreed that this was an effective technique. The results revealed that most participants thought that the most efficacious anesthetic procedure for surgical extractions is the nerve block and this agreed with Bataineh et al.[9] who reported that blocking the inferior alveolar nerve was considerably more effective as compared to other anesthetic techniques during mandibular molar extractions. However; PDL injection is not a routinely used technique but 92.7% of the participants were aware of this technique. This result is in agreement with Salem et al[10] who claimed that 76.1% of undergraduate students had know-how of the PDL injection technique.

Around 66.7% of the participants think that periodontal injection is a supplemental technique where nerve block fails which is more commonly seen in pulpitis. This was reported by Kanaa MD et al in an arbitrary experiment of various anesthetic methods, that PDL injection is used as an additional technique

TABLE 1: AGE OF PARTICIPANTS

	Frequency	Percent %
15-30 Years	92	87.6
30-45 Years	13	13.4
Total	105	100.0

TABLE 2: COMMONLY USED ANAESTHETIC TECHNIQUE FOR EXTRACTION

		Frequency	Percent %
Valid	Nerve Infiltration	52	49.5
	Nerve Block	37	35.2
	Periodontal Ligament Technique	1	1.0
	Both Nerve Infiltration and Nerve Block	14	13.3
	Total	104	99.0
Missing	(No Response)	1	1.0
Total		105	100.0

TABLE 3: AWARENESS OF PERIODONTAL LIGAMENT INJECTION TECHNIQUE

	Frequency	Percent %
Yes	97	92.4
No	8	7.6
Total	105	100.0

when inferior alveolar nerve block fails in irremediable pulpitis.[11] The effectiveness of PDL anesthesia is studied in patients of varying age groups and was deliberated in many papers[12,13]. It was found in our study 41.9% rated this technique as good and 36.2% found it satisfactory which shows that approximately 78% of the study population was satisfied with the analgesic effect of this technique. PDL injection has an edge over block anesthesia and is found to be more acceptable in hemophiliacs and patients with congenital bleeding abnormalities[14]. However; this technique is not readily used as it can cause septicemia and other blood borne infections.[15]

CONCLUSION

From our study we can conclude that most house officers and postgraduate trainees are well informed about the periodontal ligament injection method, its uses and indications but this technique is used only when the usual inferior alveolar nerve block succumbs to work.

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1 Saima Hanif: Wrote article, Final proof reading.
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