

A Survey on Knowledge of Dental Students about Periodontal Ligament Injection

G.Vinitha,

*BDS Student (Fourth Year)
Saveetha Dental College and Hospitals, Chennai.*

Dr.Santosh,

*Senior Lecturer, Dept. of Oral Surgery,
Saveetha Dental College and Hospitals, Chennai.*

Abstract:

Aim:

The purpose of this study was to determine the knowledge of periodontal ligament injection among the dental students.

Methodology:

A self-prepared questionnaire comprising of 10 questions was distributed among the 100 dental students. Survey participants were asked about commonly given injection technique for extraction, awareness of periodontal ligament injection, periodontal injection technique, its point of entry, patient response, its effectiveness and the most common indication. The 60 duly filled questionnaires were collected and sent for statistical evaluation.

Conclusion:

From the survey we come to know that most students know about periodontal ligament injection but it is used when routine nerve block fails. It is given on gingival sulcus on 2 surfaces. Periodontal ligament injection is given with special injection apparatus.

Keywords: Dental students, periodontal ligament injection, patients response.

INTRODUCTION:

The periodontal ligament is that soft, specialized connective tissue situated between the cementum covering the root of the tooth and the bone forming the socket wall. The width of the periodontal ligament is 0.15 to 0.38mm. The periodontal ligament extends coronally up to the most apical of the connective tissue of the gingiva. It consists of the blood vessels, various cells and extra cellular matrix. The periodontal ligament injection is used primarily when conventional anaesthesia is not fully effective, when dentists require only a short duration of anaesthesia and when the patients want to avoid the lip and tongue numbness associated with mandibular block injections. The periodontal ligament injection has been used for a number of years as either a method of obtaining primary anaesthesia for one or two teeth or as a supplement to infiltration or block techniques. The technique primary advantage is that it provides pulpal anaesthesia for 30-40 minutes without an extended period of soft tissue anaesthesia thus being extremely useful when bilateral treatment is planned. It is used in pediatric or disabled patients when there is concern of post operative trauma to the lip or tongue. It can be used in patients with bleeding disorder because of limited blood circulation in that site.

METHODOLOGY:

A self prepared questionnaire was distributed to dental students. A total of 100 questionnaire forms were distributed. The questionnaire was made up of 10 questions with multiple-choice answers covering all the aspects of periodontal ligament injection in surgery. The questions were so framed to cover all the information regarding commonly given injection technique for extraction, awareness of periodontal ligament injection, periodontal injection technique, its point of entry, patient response, its effectiveness and the most common

indication. Questions consisted of multiple choices and multiple sections with options for write in answers where appropriate. The survey was closed after 3 weeks. The data were compiled by a single assessor and analyzed using the statistical software SPSS. Only single unequivocal replies were included in calculating frequencies and percentages.

QUESTIONNAIRE :

BDS Third year / BDS Final years

- 1). What injection technique do you commonly give for extraction?
 - a). Infiltration
 - b). Nerve block
 - c). Periodontal ligament injection
- 2). Are you aware of periodontal ligament injection technique ?
 - a). Yes
 - b). No
- 3). Periodontal ligament injection technique is
 - a). Conventional injection technique
 - b). Supplemental injection technique
 - c). Rarely useful technique
 - d). None of the above
- 4). Point of entry of periodontal injection
 - a). Gingival sulcus
 - b). Alveolar mucosa
 - c). Attached gingiva
- 5). How many surfaces do you give periodontal ligament injection?
 - a). 1
 - b). 2
 - c). 3
- 6). Have you given periodontal injection for extraction or endodontic treatment?
 - a). Yes
 - b). No

- 7). Patient response for periodontal injection
 - a). Good
 - b). Fair
 - c). Poor
 - d). Not reliable
- 8). What do you think is more effective for extracting a tooth?
 - a). Periodontal ligament injection
 - b). Pulpal injection
 - c). Nerve block
 - d). Infiltration
- 9). Periodontal ligament injection technique is indicated for extraction in
 - a). Haemophilic patients
 - b). Extraction of infected tooth with sinus opening
 - c). When routine nerve block fails
- 10). Periodontal ligament injection is given
 - a). With syringe needle
 - b). With special injection apparatus
 - c). Both of the above

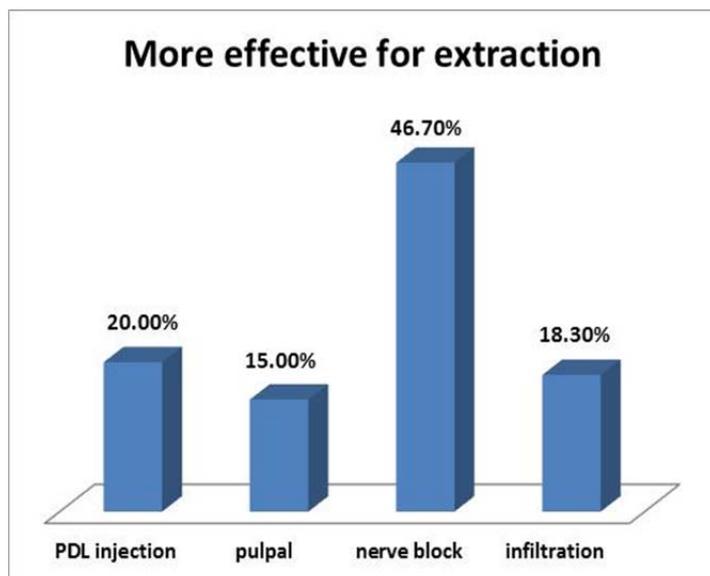


Table 1:

RESULT:

Out of 100 questionnaire were sent, 60 duly filled forms were received.53% of dental students give infiltration for extraction where 45%give nerve block and 2% only give periodontal ligament injection for extraction.The dental students who were aware of periodontal ligament injection technique are 68% where 32% of people do not aware of periodontal ligament injection.50% of dental students says that periodontal ligament injection is a supplemental injection technique and 23% of students says that it is a conventional injection technique and some of them says (11%) that it is a rarely useful technique and some students does not aware of this.

55% of dental students says that point of entry for periodontal ligament injection is gingival sulcus,38% says alveolar mucosa and remaining 8%uses attached gingiva.58% of people use 2 surfaces for giving periodontal ligament injection while 23% use 3 surface for giving periodontal ligament injection where 18% only use 1surface for giving injection.52% of dental students where given periodontal ligament injection for extraction or endodontic treatment where 48% do not use periodontal ligament injection for extraction or endodontic treatment.48% of patient response for periodontal ligament injection is fair while 23% patient response for periodontal ligament injection is good and poor.47% of dental students think nerve block is more effective for extracting a tooth,20% of dental students says periodontal ligament injection where 18% says infiltration is more effective for extracting a tooth while 15% dental students says pulpal injection is effective.43% dental students use periodontal ligament technique for extraction when routine nerve block fails where 32% use this technique for extraction of infected tooth with sinus opening remaining 25% use this technique for haemophilic patients.37% of dental students says that periodontal ligament injection is given with syringe needle while 30% says the PDL injection is given with special injection apparatus and remaining 33% says that both syringe needle and special injection apparatus can be used.

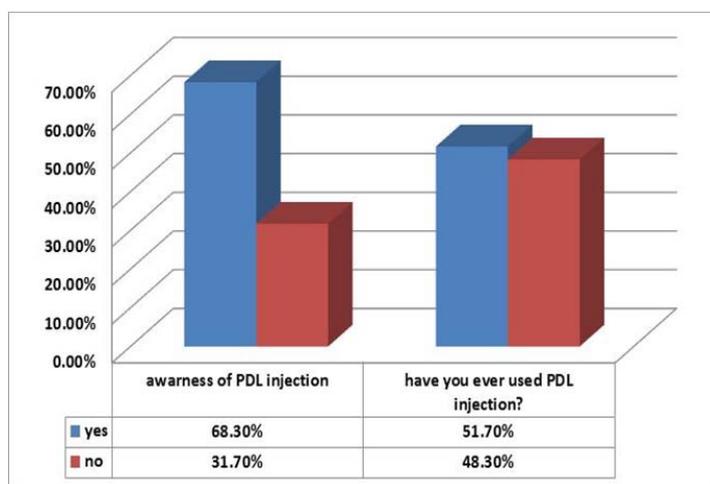


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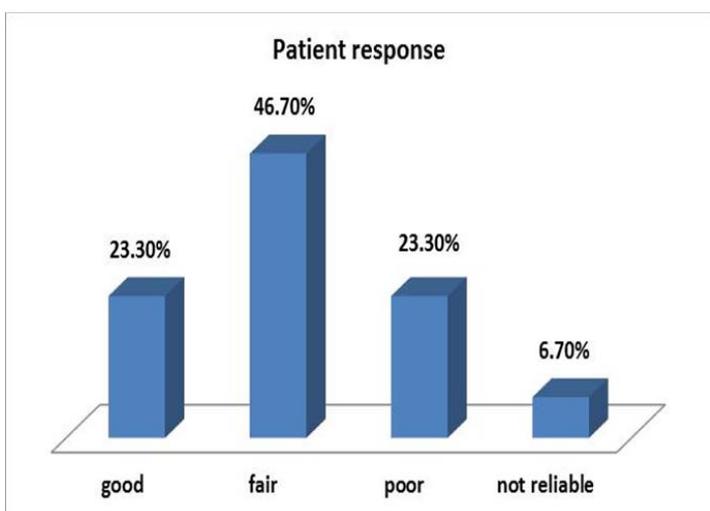


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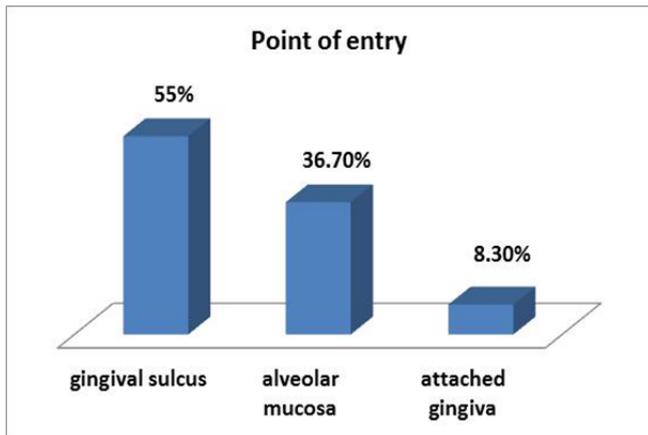


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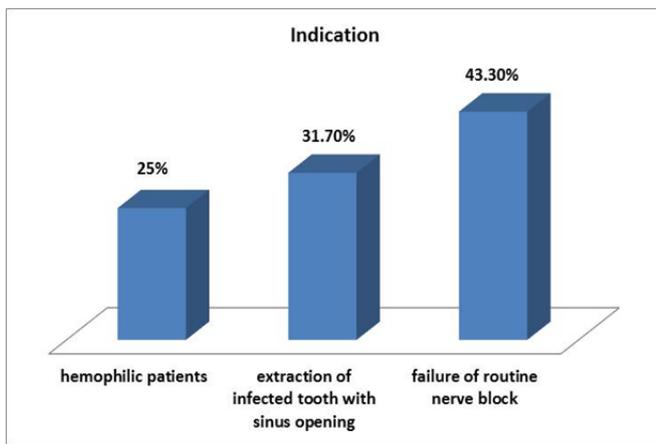


Table 5:

DISCUSSION:

The background of this survey is to analyze the dental students whether they are aware of periodontal ligament injection, periodontal injection technique, its point of entry, patient response, its effectiveness and the most common indication. In our survey 53% of dental students commonly use infiltration for extraction. 68% are aware of periodontal ligament injection and 50% says that it is a supplemental injection technique and 55% says that point of entry for periodontal ligament injection is gingival sulcus. 58% dental students gives periodontal ligament injection at 2 surfaces and 57% uses this technique for both extraction and endodontic treatment. The patient response for periodontal ligament injection is fair. 47% students says nerve block is more effective for extracting a tooth and 43% says that this technique is indicated when routine nerve block fails.

Routine local anaesthetic techniques such as infiltration and the mandibular block provide, in most cases, satisfactory results. However, occasionally, when presented with a "hot" tooth with pulpal inflammation, these techniques may fail to provide good anaesthesia(1). The PDL injections were originally described in 1924 by Cassamani, but they were not popular because the risk of blood borne infection and septicaemia was too great for the patients(2). During the 1980s, the majority of articles pertaining to PDL injections began to appear, due to a resurgence of interest in the technique(3). With this technique the needle is inserted

through the gingival sulcus into the PDL space between the tooth and the alveolar crest.(4,5). Although special syringes and needles are available, the technique is equally effective when a standard gauge-27 needle is used(6). The route by which the anaesthetic solution reaches the periapical tissue with a PDL injection is into and through the marrow spaces surrounding the tooth and not apically through the PDL membrane, thus making this injection comparable to the intraosseous injection(7,8). The PDL injection is also beneficial for children, hemophiliacs, immunocompromised, and pregnant women. This technique is contraindicated when infection exists at the injection site, as well as with primary teeth(9). The success rate of pulp anaesthesia by PDL injection is linked most closely with the use of a vasoconstrictor. Childers et al.(10) reported that when PDL injection was used as a supplemental to conventional inferior alveolar nerve block, the success rate was 78%. The PDL injections were administered by using a standard dental cartridge syringe and gauge-30 ultrashort dental needles. Many authors have described a higher success rate for PDL injections ranging from 74%(11) to 91.6%.(12).

CONCLUSION:

From the survey we come to know that most students know about periodontal ligament injection but it is used when routine nerve block fails. It is given on gingival sulcus on 2 surfaces. Periodontal ligament injection is given with special injection apparatus.

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