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Research Article

**ANALYSIS OF CHOICE OF LOCAL ANESTHESIA  
TECHNIQUE USED BY DENTAL PRACTITIONER'S IN  
PAKISTAN****<sup>1</sup>Dr Mehreen Rashid, <sup>1</sup>Dr Amna Naveed, <sup>1</sup>Dr Sara Qureshi**  
<sup>1</sup>Punjab Dental Hospital, Lahore**Abstract:**

**Introduction:** Local anesthetics are the most widely used drugs in dentistry today. Knowledge of the pharmacology and toxicology of these agents will result in their intelligent and judicious use. The choice of local anesthetic should be individualized for each patient.

**Aims and objectives:** The basic aim of the study is to analyze the choice of local anesthesia technique used by dental practitioners in Pakistan.

**Methodology of the study:** This study was conducted at Punjab dental hospital, Lahore during 2018 with the permission of ethical committee of hospital. The data was collected from the house officers of the different dental institutes of Lahore. The data was collected through a questionnaire. The questionnaire was modified and administered to general dental practitioners. This questionnaire was related to local anaesthesia used by the dentists during different dental techniques.

**Results:** The data was collected from 100 dental house officers of different institutes of Lahore. Response rate was 59%. There were 85 (53.1%) male respondents and 75 (46.9%) female respondents and the male to female ratio is 1.1:1, with 126 (78.8%). Comparing training received by general dentists and specialists in local anesthesia techniques, Training had been received for IANB by 81.8% (n=131), for Gow-Gates by 16.3% (n=26), for Vazirani Akinosi by 8.1% (n=13), for intraligamental by 51.3% (n=82) and for infiltration by 65%.

**Conclusion:** It is concluded that local anaesthesia is an inevitable aspect of dental practice. Most practitioners will experience it less often than they achieve success.

**Corresponding author:****Dr Mehreen Rashid,**  
Punjab Dental Hospital, Lahore.

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**INTRODUCTION:**

Local anesthetics are the most widely used drugs in dentistry today. Knowledge of the pharmacology and toxicology of these agents will result in their intelligent and judicious use. The choice of local anesthetic should be individualized for each patient. The duration of the dental procedure should be weighed against the duration of action of the local anesthetic; a decision should be made as to whether a vasoconstrictor is needed to prolong its action [1]. However, if the duration of numbness is too long, the possibility of self-mutilation must be considered in certain patients (for example, children and the mentally retarded). In other patients with whom postoperative pain is expected, it may be beneficial to administer a long-acting local anesthetic such as bupivacaine for control of postoperative pain [2]. The total dose of local anesthetic and vasoconstrictor must be determined for each patient based upon body weight; the maximal dosages for each agent should be known. Small children or frail individuals will require below average dosages [3]. The use of a vasoconstrictor may constitute the limiting factor to the total number of local anesthetic cartridges that can be administered safely over a given period of time. Certain medical problems, such as cardiovascular system impairments or hyperthyroidism, may influence the choice of anesthetic and the quantity of vasoconstrictor [4]. An understanding of the physicochemical properties of local anesthetics is also important to a rational process of selection. There are several causes for failure to achieve profound regional anesthesia [5].

Local anesthetics are the most commonly used drugs in dentistry. Pain and dentistry are often synonymous in the minds of patients, especially those with poor dentition due to multiple extractions, periodontal disease requiring surgery or symptomatic teeth requiring endodontic therapy. Dental practitioners, before the procedure, identify a good anesthetic as one that allows them to focus solely on operative procedures without distractions from pain-induced patient movements. Research has shown that the fear of pain associated with dentistry is closely associated with intraoral administration of local anesthetics, which is the most common method for blocking pain during dental procedures [6]. This is considered aversive due to the pain associated with the injection and the perceived threat of needle puncture prior to

the injection. Another survey finding was that those individuals who reported themselves as highly fearful of dentistry were worried about receiving oral injections and demonstrated an association between high dental anxieties and missed or delayed appointments [7].

**AIMS AND OBJECTIVES:**

The basic aim of the study is to analyze the choice of local anesthesia technique used by dental practitioners in Pakistan.

**Methodology of the study**

This study was conducted at Punjab dental hospital, Lahore during 2018 with the permission of ethical committee of hospital. The data was collected from the house officers of the different dental institutes of Lahore. The data was collected through a questionnaire. The questionnaire was modified and administered to general dental practitioners. This questionnaire was related to local anaesthesia used by the dentists during different dental techniques.

**Statistical analysis**

Data were analyzed using SPSS version 23 (IBM SPSS Statistics, version 23, USA). Chi square test was used to compare frequencies amongst groups. A p value of <0.05 was set as the level for statistical significance.

**RESULTS:**

The data was collected from 100 dental house officers of different institutes of Lahore. Response rate was 59%. There were 85 (53.1%) male respondents and 75 (46.9%) female respondents and the male to female ratio is 1.1:1, with 126 (78.8%). Comparing training received by general dentists and specialists in local anesthesia techniques, Training had been received for IANB by 81.8% (n=131), for Gow-Gates by 16.3% (n=26), for Vazirani Akinosi by 8.1% (n=13), for intraligamental by 51.3% (n=82) and for infiltration by 65%. An apparent difference in Gow- Gates training between general dentists and specialists was found to be non-significant. In both, the maxilla and the mandible, anterior teeth can present with anesthetic failure because of the existing contralateral innervations.

**Table 01:** Techniques used by dental officers in Pakistan

LA technique	Primary LA technique (%)			Secondary LA technique		
	General dentists	Specialists	Total	General dentists	Specialists	Total
IANB	n=89	n=18	n=107	n=96	n=23	n=119
	98.9	83.8	96.3	21.9	39.1	25.2
	n=88	n=15	n=103	n=21	n=9	n=30
Gow-				14.6	8.7	13.4
Gates				n=14	n=2	n=16
Vazirani	1.1	0	0.9	2.1	0	1.7
Akinosi	n=1	n=0	n=1	n=2	n=0	n=2
Intralig-	0	5.6	0.9	36.5	43.5	37.8
amental	n=0	n=1	n=1	n=35	n=10	n=45
Infiltra-	0	5.6	0.9	25	4.3	21.0
tion	n=0	n=1	n=1	n=24	n=1	n=25
Other	0	5.6	0.9	0	4.3	0.8
		n=1	n=1	n=0	n=1	n=1

**DISCUSSION:**

Local anesthesia has been used in dentistry for more than 100 years, but still remains to be an annoying technique in case of incomplete results or ineffectual anesthesia. The achievement of successful local anesthesia is a continual challenge in dentistry. Local anesthesia failure is evident in 10% of inferior alveolar nerve block cases and 7 % of local anesthesia cases in total. Possible causes include erroneous selection of local anesthesia, individual structural variations, accessory innervations, practical errors and apprehensive patients [7]. To minimize anesthetic failure, a sound knowledge of the anatomy of the head, particularly the neuroanatomy of the maxillary and the mandibular regions of the face, different anesthesia techniques, common causes of failure and their rectification is must [8].

Vazirani Akinosi technique, which is a closed mouth technique, may be used as a primary technique because of its ease of administration in patients with reduced ability to open their mouth due to muscle trismus, infection, or the presence of tumor. It may also be used as a secondary local anesthesia technique if the conventional block anesthesia fails. Lack of training in Gow-Gates and Vazirani Akinosi techniques high-lights the need to practice these techniques more at undergraduate level [9].

Infiltration may be useful as a primary technique for mandibular anterior region where bone is more porous and allows local anesthesia to diffuse in. The central core theory<sup>6</sup> tries to explain the higher failure rates of IANB in the anterior region, and supports the use of infiltration as a primary technique for teeth in this area [10]. Success rates of infiltration in this area are high, though 4% articaine may be more effective than 2% lidocaine as a primary or supplementary infiltration technique. Intraligamental is an invaluable supplemental local anesthesia technique, and was being used frequently for this purpose by respondents. It may also be used as a primary technique for mandibular local anesthesia, though there are concerns about periodontal ligament injury with injecting large amounts for restorative reasons [11].

**CONCLUSION:**

It is concluded that local anaesthesia is an inevitable aspect of dental practice. Most practitioners will experience it less often than they achieve success. Most of the dental practitioners of Lahore used IANB as a primary local anesthesia technique and intraligamental injections as a supplemental local anesthesia technique.

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