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RESEARCH ARTICLE

A PROSPECTIVE STUDY OF CHOICE OF ANAESTHESIA IN TYMPANOPLASTY SURGERY

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Abstract

Tympanoplasty can be performed under either general anaesthesia or local anaesthesia and sedation and can be well tolerated by the patient with minimal discomfort. A total of 100 patients were selected divided into groups of 50 each. Patients in group one who underwent tympanoplasty with local anaesthesia and while in second group underwent tympanoplasty with general anaesthesia. Data was analysed using SPSS (Statistical Package for Social Sciences) 21.0 version, IBM, Chicago. Comparison of categorical variables was done using Chi-square test. P value <0.5 was considered statistically significant. The choice of anaesthesia completely depends on surgeon in terms of his/her comfort and ease of performing surgery. For an anaesthetist it depends on patient compliance for which a good patient selection, pre-operative explanation and the use of appropriate sedation are the important factors for local anaesthesia ear procedures to be acceptable to patients.

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Introduction:-

Tympanoplasty can be performed under either general anaesthesia or local anaesthesia and sedation and can be well tolerated by the patient with minimal discomfort. In providing general anaesthesia for ENT surgery an anaesthetist will aim to render a patient unresponsive to the stress of the surgical stimulus; amnesic for the event and free from pain post-operatively [1]. Local anaesthetic agents produce a reversible block in the transmission of impulses along nerve fibres. Advantages with the local anaesthesia techniques are less bleeding, early recovery, post-operative analgesia, inexpensive and the ability to test the hearing of the patient intra operatively [1]. Commonly used medications for sedation during surgery under local anaesthesia with Minimal alveolar concentration including opioids, benzodiazepines, propofol and $\alpha 2$ agonists [2]. Practicing combination of two drugs can provide better patient control and allows the use of smaller doses of each single agent avoiding its undesirable effects. Despite these advantages, most of tympanoplasty are still done under general anaesthesia due to special concerns; some are related to patients' anxiety that limit their ability to cooperate. Other concerns are related to surgeon comfortability with the hypotensive general anesthetic techniques, and the fear of sudden patient movement during Operation [3].

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Materials & Methods:-

Study Area:

The Present study was conducted in Department of Otorhinolaryngology at Index Medical College Hospital & Research Centre, Indore (M.P.)

Study Duration:

18 months i.e., from Jan. 2021 to July 2022

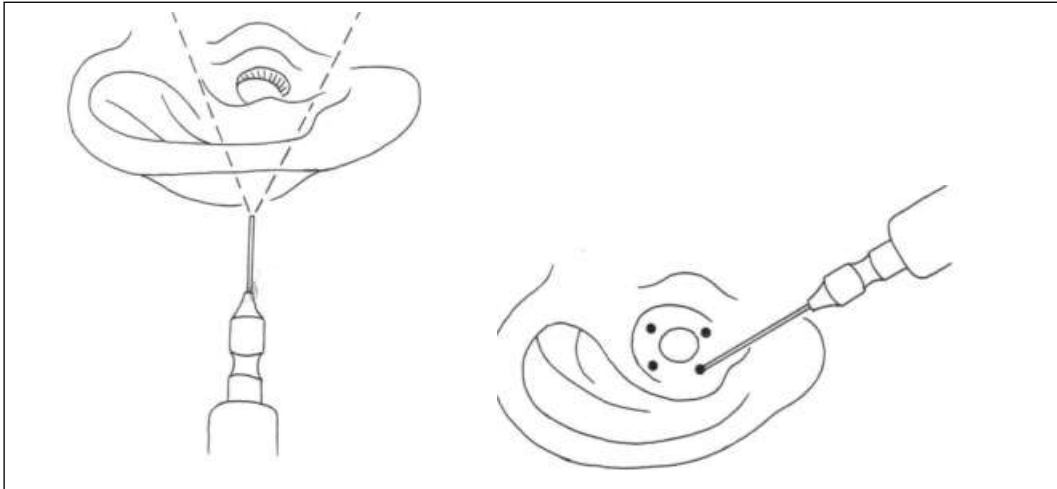
Study Population:

100 patients were selected and randomly allotted into 2 groups:

GROUP A: TYMPANOPLASTY UNDER LOCAL ANESTHESIA WITH SEDATION

GROUP B: TYMPANOPLASTY UNDER GENERAL ANESTHESIA

Patients in Group A received a bolus dose of injection dexmedetomidine 1 µg/kg IV over 10 min followed by an infusion started at 0.4 µg/kg/h IV. The level of sedation was assessed using Ramsay Sedation Score (RSS) [4] where the desired sedation level was defined as RSS \geq 4 achieved. Local anesthetic infiltration was performed by the operating surgeon by Plester technique [5] using lignocaine 2% with adrenaline 1:200,000 in postauricular area, all four quadrants of external auditory canal and at incisura terminalis.



In patients of Group B injection propofol 2 mg/ kg was given followed by 2mg/ kg of succinylcholine. After 2 minutes patient was on bag and mask ventilation and maintained with oxygen and nitrous oxide in ratio of 1:2 and 0.5 mac of isoflurane throughout the procedure and were switched off on the commencement of skin stitch. Simultaneously, the operating area was prepared and draped.

Haemodynamic parameters were recorded every 10 minutes and any untoward events were noted.

RAMSAY Sedation Score [6] (1 = anxious, agitated, restless; 2 = cooperative, oriented, tranquil; 3 = responds to commands only; 4 = brisk response to light glabellar tap or loud noise; 5 = sluggish response to light glabellar tap or loud noise; 6 = no response) was used for the sedation score.

Statistical Analysis:

Data was entered into the excel sheet. Data was analysed using SPSS (Statistical Package for Social Sciences) 21.0 version, IBM, Chicago. Comparison of categorical variables was done using Chi-square test. P value $<$ 0.5 was considered statistically significant.

Observations & Results:-**Table 1:-** Comparison of distribution of participants based on age.

Age groups	GROUP A		GROUP B		CHI SQUARE VALUE	df	P value ^a
	COUNT	%	COUNT	%			
11-20 years	6	12.0%	14	28.0%	7.990	5	.157
21-30 years	22	44.0%	13	26.0%			
31-40 years	13	26.0%	15	30.0%			
41-50 years	7	14.0%	5	10.0%			
51-60 years	1	2.0%	3	6.0%			
61-70 years	1	2.0%	0	0.0%			
TOTAL	50	100.0%	50	100.0%			

Table 2:- Comparison of distribution of participants based on gender.

GENDER	GROUP A		GROUP B		Chi-square value	df	P value ^a
	Count	%	Count	%			
MALE	22	44.0%	26	52.0%	.641	1	.274
FEMALE	28	56.0%	24	48.0%			
TOTAL	50	100.0%	50	100.0%			

^aChi-square test.**Table 3:-** Comparison of distribution of participants with ASA grading.

	GROUP A	GROUP B
ASA (gr I/II)	46/4	47/3

Table 4:- Comparison of distribution of participants on basis of Patient Satisfaction Score.

Grade	GROUP A	GROUP B	Chi-square value	df	P value ^a
Excellent	19	23	17.825	1	.001*
Very Good	17	14			
Good	7	10			
Average	4	3			
Bad	3	-			
Total	50	50			

^a Chi-square test. *p value<.05 was considered statistically significant.

- Amongst group B subjects, a significantly greater number of patients (86.0%) were satisfied under general anaesthesia (p value <.05).

Table 5:- Comparison of distribution of participants on basis of postoperative complications.

Grade	GROUP A	GROUP B	Chi-square value	df	P value ^a
Nausea	4	12	.065	1	.799
Vomiting	1	8			
Xerostomia	2	10			
Hypotension	2	6			
Hypertension	2	6			
Bradycardia	2	4			
Tachycardia	2	4			
No Complains	35	-			
Total	50	50			

^a Chi-square test. *p value<.05 was considered statistically significant**Discussion:-**

The patient, surgeon and anaesthesiologist may face different set of challenges during ear surgeries. Sympathetic stimulation and movements of an anxious patient cause increased bleeding and disturb the fine microscopic nature of the surgery which may even lead to graft failure. The advantages of local anesthesia include possibility of testing of hearing

intra operatively, having less bleeding, detecting the complications early and a quicker postsurgical emergence [7]. The patient needs to be informed prior to infiltration of LA that he will be able to feel manipulation of tissues and the noise of instruments, but there will be no pain [8].

Conclusion:-

The choice of anesthesia completely depends on surgeon in terms of his/her comfort and ease of performing surgery. For an anaesthetist it depends on patient compliance for which a good patient selection, pre-operative explanation and the use of appropriate sedation are the important factors for local anaesthesia ear procedures to be acceptable to patients. The local anesthetic technique with sedation had a preference over general anesthesia technique as it was more preferred by the surgeon and the complication was also fewer though was not statistically significant. If patient's satisfaction is taken for consideration, then general anesthesia technique is preferred over local anesthesia.

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