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EFFECT OF LIGNOCAINE SOAKED NASAL PACKING ON POSTOPERATIVE PAIN & ANXIETY: MINIMIZING PATIENT DISTRESS

Otorhinolaryngology

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ABSTRACT

Background: Septal surgery is commonly performed by otorhinolaryngologists, with nasal packing used routinely to ensure hemostasis and prevent complications. Post-operative pain and anxiety from nasal packing can significantly impact quality of life. This study assesses the effectiveness of infiltrating nasal packs with 2%lignocaine+adrenaline to alleviate these issues. **Methods:** 60 patients undergoing septal surgery for DNS were divided into two groups of 30 each. The study group received nasal packs soaked in 2%lignocaine+adrenaline, while the control group received packs soaked in 0.9% saline. Pain and anxiety were measured using the Visual Analogue Scale (VAS) and Hamilton Anxiety Scale (HAS) at 24hours pre-operative, 4hours post-operative, 48hours post-operative, and 15minutes post-pack removal. **Results:** The 2%lignocaine+adrenaline group had VAS scores of 0.13±0.34 at 24hours pre-op, 3.43±1.22 at 4hours post-op, 2.33±1.32 at 48hours post-op, and 0.53±0.50 post-pack removal. The saline group had VAS scores of 0.40±0.93, 6.43±1.52, 7.6±0.93, and 2.16±1.08 respectively. HAS scores for the 2%lignocaine+adrenaline group were 1.3±1.14, 5.86±4.01, 8.73±2.69, and 0.73±0.69, compared to 1.20±0.92, 17.76±5.15, 29.73±5.20, and 15.3±2.68 for the saline group. **Conclusions:** Infiltrating nasal packs with 2% lignocaine and adrenaline significantly reduces post-operative pain and anxiety, providing a cost-effective and efficient method to enhance patient comfort after nasal surgery.

KEYWORDS

Nasal packing, lignocaine, pain, anxiety.

INTRODUCTION:

Nasal packing is a one of the commonly used procedure in most Otorhinolaryngology departments with a chief objective of hemostasis achieved by supporting the alignment of septal flaps, close dead space. It also helps prevent synechiae formation. There are many types of nasal packings that are used – enlist a few (ribbon gauze, splints, nasopores etc). The practise in our setup is to use merocel nonabsorbable nasal packs. The packs are however shown to be associated with considerable patient discomfort, including pain during insertion and removal, which can significantly increase anxiety and negatively impact patient's overall quality of life during the recovery period[1]. Recent research has explored various methods to mitigate the pain and anxiety associated with nasal packing, with one promising approach being the use of local anaesthetics. The application of lignocaine, when combined with adrenaline, has been proposed as a potential strategy to enhance patient comfort. Lignocaine, a local anaesthetic, can numb the affected area and reduce pain, while adrenaline acts to constrict blood vessels, thereby potentially minimizing bleeding and enhancing the efficacy of the anaesthetic.

This prospective case-control study aims to evaluate patient's pain relief post operatively with 2%lignocaine+adrenaline-soaked nasal pack compared to 0.9% NS-soaked nasal pack and to study degree of anxiety in patient's before & after nasal packing.

MATERIALS AND METHODS:

Participants were divided by simple random technique into two groups of 30 participants each viz. study group (2%lignocaine+adrenaline 1:200000) and control group (0.9% NS). Patients were screened on the basis of history, examination and relevant investigations. All patients participating, were subjected to lignocaine sensitivity test & detailed informed consent regarding surgery and study was taken.

After surgery, each nasal cavity was packed with standard 8cm long merocel pack for 48hrs & was soaked with 2%lignocaine+adrenaline or 0.9% NS postoperatively and 15 mins before pack removal. Merocel packs are easy to use tampons that provide effective control of bleeding and comfort, mostly at the time of pack removal.[2]

Patients pain & anxiety levels were assessed at various follow up periods.

Visual Analogue Scale (vas) - formulated as a 10cm column with lower end representing no pain & upper end representing worst possible pain. (Fig No.1)

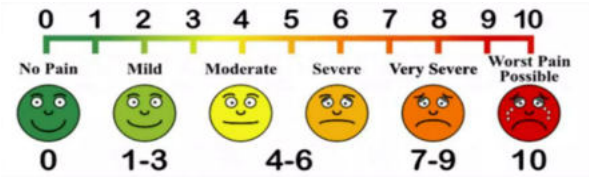

Fig No.1: Visual analogue scale

Hamilton Anxiety Scale (has)[3] - The HAM-A was one of the first rating scales developed to measure the severity of anxiety symptoms, and is still widely used today in both clinical and research settings.

No.	Symptom	Score
1.	Anxious mood	0 - 4
2.	Tension	0 - 4
3.	Fears	0 - 4
4.	Insomnia	0 – 4
5.	Difficulty in concentration & memory	0 – 4
6.	Depressed mood	0 - 4
7.	General Somatic Symptoms (muscular symptoms)	0 - 4
8.	General Somatic Symptoms (sensory symptoms)	0 – 4
9.	Cardiovascular symptoms	0 – 4
10.	Respiratory symptoms	0 – 4
11.	Gastrointestinal symptoms	0 – 4
12.	Genito-urinary symptoms	0 – 4
13.	Other autonomic symptoms	0 – 4
14.	Behavior during interview	0 - 4
		0 - 56

Symptom Score
0 - Absent
1 - Mild
2 - Moderate
3 - Severe
4 - Incapacitating

Sum of scores = Severity
6 to 14 = Mild
15 to 28 = Moderate
29 to 52 = Severe

Statistical Analysis:

Continuous variables (age, VAS score, HAS score) were presented as Mean ± SD.

Categorical variables (gender) were expressed in frequency and percentages.

Demographic variables (age, gender) were compared between 2 groups by performing chi^2 test.

Anxiety score was compared at different time period in each group by performing repeated measure ANOVA test for normally distributed data.

Pain on VAS score was compared at different time period in each group by performing repeated measure Friedman's ANOVA test for non-normally distributed data.

P value <0.05 was considered as statistical significance. Statistical software STATA version 14.0 was used for data analysis.

RESULTS:

Among the 60 patients under this study, age of the patients varied from minimum of 11 years to maximum of 60 years. The majority of patients were found in the 3rd decade with 53.33% of the 2%lignocaine+adrenaline group and 40% of 0.9% NS group. The mean age was found to be 29.73±11.08 with range of 12-56 years in the 2%lignocaine+adrenaline group and 29.83±11.24 with range of 18-54 years in the 0.9% NS group (Table No. 1: Age distribution of study population).

The majority of patients were male with M:F ratio of 1.14 in 2%lignocaine+adrenaline group and 2.75 in 0.9% NS group (Table No. 2: Gender wise distribution of study population).

The assessment of pain using the Visual Analog Scale (VAS) at different follow-up periods between the 2%lignocaine+adrenaline group and the 0.9% NS group shows notable differences (Table No.3: Comparison of Pain on VAS) at different follow up period in 2%lignocaine+adrenaline group and 0.9% NS group. Preoperatively, pain levels were similar between the two groups. However, significant differences emerged postoperatively. At 4hours post-op, the 2%lignocaine+adrenaline group reported a mean pain score of 3.43, while the 0.9% NS group reported a mean score of 6.43 (p-value < 0.0001, highly significant). Similarly, at 48hours post-op, the mean pain score for the 2%lignocaine+adrenaline group was 2.33 compared to 7.6 for the 0.9% NS group (p-value < 0.0001, highly significant). Additionally, 15minutes after pack removal, the 2%lignocaine+adrenaline group had a mean pain score of 0.53, while the 0.9% NS group had a score of 2.16 (p-value = 0.0001, highly significant).

Similarly, evaluation of anxiety scores between the 2%lignocaine+adrenaline group and the 0.9% NS group at various follow-up periods revealed significant differences (Table No.4: Comparison of anxiety scores at different follow up period in 2%lignocaine+adrenaline and 0.9% NS group). Preoperatively, anxiety levels were similar between the two groups. However, postoperative anxiety scores showed substantial variation. At 4hours post-op, the mean anxiety score was 5.86 in the 2%lignocaine+adrenaline group compared to 17.76 in the 0.9% NS group (p-value < 0.0001, highly significant). At 48hours post-op, the 2%lignocaine+adrenaline group had a mean anxiety score of 8.73, while the 0.9% NS group had a much higher score of 29.73 (p-value < 0.0001, highly significant). Additionally, 15minutes after pack removal, the mean anxiety score for the 2%lignocaine+adrenaline group was 0.73, whereas it was 15.3 for the 0.9% NS group (p-value < 0.0001, highly significant).

DISCUSSION:

Nasal septum is a complex osseocartilaginous structure that divides the nasal cavity into two halves. Approximately 70-80% of general population has deviated nasal septum, majority of which are asymptomatic. Symptomatic or gross deviation of septum can be corrected by septal surgeries. Nasal packing is frequently performed after septal surgery to support mucosal flaps, prevent formation of synechiae, septal hematoma, dead space formation, control epistaxis etc[5]. Patients experience pack removal as the most unpleasant of perioperative events[6]. Absorbable packs do not significantly reduce the risk of bleeding or patient discomfort compared with a traditional nonabsorbable nasal packs[7]. Anaesthetic infiltration of nasal packing was considered an effective method in managing pain & anxiety in patients with nasal packing after sinonasal surgeries[8], topical lidocaine application reduces pain scores at all postoperative intervals and lidocaine is assumed to provide analgesia through surface effect and diffusion into the surgical mucosal wound[9].

This study aims to evaluate patient's pain relief post operatively with 2%lignocaine+adrenaline-soaked nasal pack compared to 0.9% NS-soaked nasal pack and to study degree of anxiety in patient's before & after nasal packing. Lignocaine is a local anesthetic of amino amide type. It has a rapid onset of action & intermediate duration of efficacy, therefore suitable for infiltration & surface anesthesia. It is used in combination with adrenaline to prolong its duration of action & reduce associated bleeding. Studies showed that topical lignocaine application to nasal packs provide better analgesia and less discomfort during pack removal[10] and reduce pain during the early postoperative period[9]. Studies have also concluded significant reduction in post-op pain & anxiety with 2%lignocaine+adrenaline-soaked nasal packing as compared to NS-soaked nasal packing[4] and infiltration of lignocaine into the nasal packing after septoplasty significantly reduces patient's pain & anxiety by using VAS & HAS respectively[11].

The use of pre-emptive analgesia to decrease pain during removal of nasal packing and increase patient comfort[12], soluble packings/ sewing techniques, sphenopalatine ganglion blockade[13], use of intramuscular opiate before pack removal to provide analgesia[14] have all been described in previous studies.

Few studies recommended 4% lignocaine with adrenaline (1: 1000) solution to be as effective as 10% cocaine as local anaesthetics in nasal surgery[15], lidocaine plus oxymetazoline to be as effective or better than cocaine at decreasing blood flow and providing anaesthesia in nasal procedures[16], use of topical lignocaine ointment to be safe in the relief of pain due to post-operative nasal packing[17], topical lidocaine application before removal of nasal packs in patients who undergo nasal septal surgery to decrease discomfort, bleeding and improve patient tolerance[18].

Studies have also considered the use of bupivacaine as a local anaesthetic in reducing pain with packing following nasal surgery[19], addition of dexamethasone to bupivacaine via soaked nasal packing in endoscopic nasal surgery to reduce postoperative pain scores, additional analgesia requirements and post operative nausea & vomiting[20] , efficiency of butorphanol-soaked nasal packing in reducing pain and improving sleep quality after bilateral endoscopic nasal surgery without increasing any adverse effects.[21]

In this study while evaluating pain severity using the visual analog scale (VAS) at various follow-up periods, the 24-hour pre-operative assessment revealed similar baseline values. However, as follow-up progressed, notable differences emerged at 4hours post-op, 48hours post-op and 15minutes after pack removal with significant fall in total score in the 2%lignocaine+adrenaline group compared to 0.9% NS group with a highly significant p value of <0.0001.

Similarly, while assessing the degree of anxiety using Hamilton anxiety scale (HAS), during the 24-hour pre-operative period, both the groups had comparable baseline mild anxiety with no significant difference (p value = 0.7118). However, as the follow-up progressed significant differences in anxiety levels were observed at 4hours post-op, 48hours post-op and 15minutes after pack removal with higher anxiety scores in the 0.9% NS group compared to the 2%lignocaine+adrenaline group with p-values of <0.0001 suggesting a statistically significant difference.

CONCLUSION:

2%lignocaine+adrenaline infiltration into nasal packs provide better post-op relief of pain & anxiety and less discomfort during pack removal.

Therefore, 2%lignocaine+adrenaline infiltration into nasal packs would be a safe, inexpensive, and effective method to reduce pain & anxiety after nasal surgery and before pack removal.

Declaration:
Funding: None.
Conflict of interest: None declared.
Ethical approval: All procedures involving human participants were in accordance with the ethical standards of the institution.
Informed Consent: Informed consent was obtained from all individual participants included in this study.

TABLES:

Table No. 1: Age distribution of study population.

Age in years	2%lignocaine+adrenaline		0.9% NS	
	No.	%	No.	%
11 – 20	3	10.00	7	23.33
21 – 30	16	53.33	12	40.00
31 – 40	4	13.33	6	20.00
41 – 50	5	16.67	4	13.33
51 – 60	2	6.67	1	3.33
Total	30	100	30	100
Mean Age ± SD (Range)	29.73 ± 11.08 (12 - 56)		29.83 ± 11.24 (18 – 54)	

Table No. 2: Gender wise distribution of study population.

Gender	2%lignocaine+adrenaline		0.9% NS	
	No.	%	No.	%
Male	16	53.33	22	73.33
Female	14	46.67	8	26.67

Table No. 3: Comparison of pain on VAS at different follow up period in 2%lignocaine+adrenaline group and 0.9% NS group.

	2% Lignocaine + Adr		0.9% NS		p-value
	Mean	SD	Mean	SD	
24 hrs pre op	0.13	0.34	0.40	0.93	0.1472, Not Significant
4 hrs Post op	3.43	1.22	6.43	1.52	<0.0001, Highly Significant
48 hrs Post op	2.33	1.32	7.6	0.93	<0.0001, Highly Significant
15 mins after Pack removal	0.53	0.50	2.16	1.08	0.0001, Highly Significant
F-value	110.82		484.53		
p-value	<0.0001, Highly Significant		<0.0001, Highly Significant		

Table No. 4: Comparison of anxiety scores at different follow up period in 2%lignocaine+adrenaline and 0.9% NS group.

	2%lignocaine+adrenaline		0.9% NS		p-value
	Mean	SD	Mean	SD	
24 hrs pre op	1.3	1.14	1.20	0.92	0.7118, Not Significant
4 hrs Post op	5.86	4.01	17.76	5.15	<0.0001, Highly Significant
48 hrs Post op	8.73	2.69	29.73	5.20	<0.0001, Highly Significant
15 mins after Pack removal	0.73	0.69	15.3	2.68	<0.0001, Highly Significant
F-value	93.81		462.45		
p-value	<0.0001, Highly Significant		<0.0001, Highly Significant		

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