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ROLE OF PERIOPERATIVE DEXAMETHASONE IN POST-TONSILLECTOMY-ORIGINAL ARTICLE

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INTRODUCTION

Tonsillectomy is one of the most commonly performed surgical procedures in otolaryngology carried out in children presented with increased risk of certain conditions such as sore throat, referred otalgia, and poor oral feeds. Worst pain after tonsillectomy with any method is the most common cause that lowers the quality of life and prolonged hospital stay. It also affects eating, therefore increasing morbidity and posing a challenge for surgeons and anesthesiologists.

Post-tonsillectomy pain is probably the result of constrictor muscle spasms caused by inflammation. The other probable cause would be the exposed nerve endings in the tonsillar fossae after the removal of the tonsil. There has been a variable practice globally about the use of corticosteroids in the reduction of post-tonsillectomy morbidity and our country to date has no existing standard protocol for perioperative care during tonsillectomy and this created a call for designing this present study. Dexamethasone has been used for postoperative nausea, vomiting and inflammation. Prostaglandins are important mediators of pain. Steroids inhibit phospholipase thus lowering the products of cyclooxygenase & lipoxygenase pathways which elevate pain[3]. They also inhibit cytokine gene expression and release of pro-inflammatory mediators, bradykinin from the damaged nerve endings, all of which also worsen pain. Injection Dexamethasone has an anti-inflammatory effect and has also proven its analgesic activity in other surgical specialities. The analgesic effect of steroids has been observed by Asboe et al for hemorrhoidectomy surgery.

Dexamethasone is preferred because of its long duration of action. Perioperative intravenous dexamethasone has shown important effects in terms of decreasing postoperative oedema at the surgical site and improving an oral feed intake following tonsillectomy through its analgesic, antiemetic and anti-inflammatory action.The objective of this study is to determine the role of perioperative intravenous injection dexamethasone in decreasing the morbidity of post-tonsillectom

MATERIALS AND METHODS

A hospital-based analytical study was conducted in the department of Otorhinolaryngology, Malla Reddy Institute of Medical Sciences, Hyderabad, Telangana for a period of 4 months (Oct2022-Jan2023) where patients aged 4-14 years, informed consent was taken from the parents of each child to be included in the study.

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Patients of either sex, with a history of recurrent episodes of acute tonsillitis or chronic tonsillitis were included. Detailed otorhinolaryngological history and examination were carried out. All candidates were subjected to pre-anaesthetic checkups and fitness obtained from anesthesiologists.

Patients with hypersensitivity to dexamethasone, comorbidities such as severe airway disease, and diabetes mellitus, and patients with bleeding diathesis were excluded from the study.

After obtaining approval from institutional ethics, a total of 50 patients were included in the study.

Patients were divided into two groups. Group A (test), received a single dose of perioperative intravenous dexamethasone and Group B (control), received a similar dose of isotonic normal saline injected intravenously. General anaesthesia and post-anaesthesia care were standardized for all patients. After giving a calculated dose of thiopentone sodium and vecuronium, endotracheal intubation was done. Propofol was not used during induction because it has antiemetic effects that could confound the results of the study. The calculated single dose of dexamethasone (0.5mg/kg IV) was given to Group A individuals and a single dose of isotonic normal saline (0.5mg/kg IV) was given to Group B individuals at the start of the surgical procedure. Anesthesia was maintained with nitrous oxide and isoflurane. The reversal regimen comprised neostigmine (50 µg/kg IV) and glycopyrrolate (10 µg/kg IV) and was mandatory for all patients. Fentanyl citrate (2 µg/kg IV) was given for pain during surgery.

Tonsillectomy was performed by dissection and snare in all the subjects. Hemostasis was secured by a pressure gauge, bipolar cautery or suture ligature (silk 1-0). Postoperatively, patients were prescribed a 5-day course of amoxicillin at 40mg/kg per day. Postoperative pain assessment was done 6,24 hours, 3rd, and 5th day following surgery. The intensity of postoperative pain was assessed on a ten-point Visual Analog Scale (VAS) where 0 represents no pain and 10 represents worst pain. Statistical analysis was done using chi-square and odds ratio. P value <0.5 was considered statistically significant.

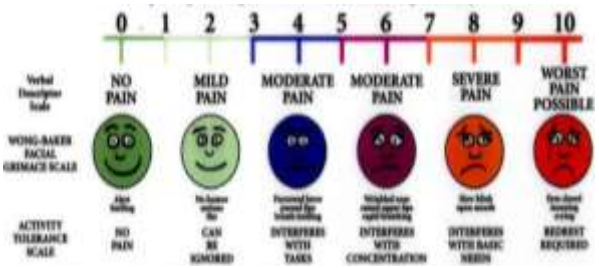

Figure-1: Visual Analog Score.

RESULTS:

A total of 50 patients aged 4-14 years who underwent tonsillectomy between October 2022 January 2023 were considered to participate in the study. Among them, 26 were boys, and 24 were girls (Table-1).

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	Group A	Group B
Number of patients	25	25
Mean ± SD age, years	7.1 ± 2.7	6.1 ± 3.1
Number of n(%) Boys	14 (56)	12(48)
Number of n(%) girls	11(44)	13(52)

Table-1: Distribution of patients in study groups

	Group A n (%)	Group B n (%)	Odds ratio (95% CI)	P value
Postoperative pain	4(16%)	14(56%)	0.14(0.03-0.5)	<0.001
Post-operative nausea and vomiting	1(4%)	16(64%)	0.03(0.002-0.20)	<0.001
Fever	2(8%)	6(24%)	0.27(0.049-0.85)	<0.05
Intolerance to oral fluids post surgery	1(4%)	22(96%)	0.005(0.005-0.05)	<0.001
Delayed formation of slough in tonsillar fossae	1(4%)	20(80%)	0.01(0.001-0.09)	<0.001
Delay in resuming oral feeds	0 (0)%	3(12%)	0.12(0.006-0.95)	<0.05
Prolonged hospital stay	0 (0%)	3(12%)	0.12(0.006-0.95)	<0.05

Table 2: Comparison of Post tonsillectomy morbidities in the study groups

	Pain before tonsillectomy(%)		After 6 hours(%)		After 24 hours(%)		POD -3 (%)		POD-7 (%)	
	A	B	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
No pain	100	100								
Mild			52	25	74	25	80	40	6	42
Moderate			31	45	22	45	3	42	1.2	14
Severe			12	25	3	12	1	5		
Worst			2.4	7.8	14	4				

Table-3: Pain evaluation based on Visual Analog Scale in study groups.

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Tonsillectomy was done in both groups by Dissection and Snare method. Intravenous dexamethasone (0.5mg/kg) was given at the start of the procedure. After tonsillectomy, the pain was evaluated after 6 and 24 hours, thereafter 3rd and 7th days. Results are shown in Table 2,3,4. After 6 hours none of the patients in any group was free of pain.

In Group B 21%,45%,25%, and 8% were in mild, moderate, severe and worst pain as compared to 52%, 31%, 12%, and 2.4% in Group A. After 24 hours none of the patients from both groups was free of pain, 25%,45%, 12% and 4% in group B compared to 74%, 22%, 3% and 1.4% in group A. After 3 days 22% and 14% were free of pain from Group A and B, respectively. After 7 days 94% were free of pain in group A compared to 56% in group B. none of the patients from both group complained of severe pain after 7 days.

Group B patients were more likely to experience postoperative pain, postoperative nausea and vomiting, fever, delay in the formation of slough in the tonsillar fossae and prolonged hospital stay.

Group A patients were able to tolerate up to 300 mls of oral fluids 8 hours after surgery whereas none of the patients from Group B could tolerate oral fluids and prolonged hospital stays.

Group A was able to resume routine oral feeds earlier compared to their counterparts in Group B.

CONCLUSION:

This study has established that routine use of a single dose of injection dexamethasone (0.5mg/kg) administered intravenously in the perioperative period in patients undergoing tonsillectomy by Dissection and the Snare method can significantly decrease the incidence of post-tonsillectomy morbidities such as pain, reduction in postoperative nausea and vomiting, improves oral intake, promotes early healing of tonsillar fossae, reduces prolonged hospital stay.