

## A CLINICAL STUDY OF TOPICAL ANALGESIA WITH 4% LIGNOCAINE FOLLOWING TONSILLECTOMY

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**Abstract :** The present study was undertaken in 60 patients, aged between 10-35 years and of either sex to study the efficacy of topical application of 4% Lignocaine in reducing postoperative pain after tonsillectomy. Postoperative analgesia was assessed by using the Visual Analogue Scales (VAS) up to postoperative 8 hrs. pain relief was significant as compared to the control group. Mean VAS scores for pain, dysphagia and difficulty in speaking were significantly lower in study group as compared to controls ( $p < 0.01$ )

### INTRODUCTION

Designing the study and evaluation of postoperative analgesia produced by local application of Lignocaine was promoted by paucity of literature on the effect of topical application of 4% Lignocaine on post tonsillectomy pain relief.

### MATERIAL & METHOD

After institutional ethical committee clearance and written informed consent, 60 patients of either sex and above 10 years of age posted for tonsillectomy due to chronic tonsillitis, recurrent episodes of acute tonsillitis and/or hyperplastic obstructive tonsils causing sleep apnoea syndrome were enrolled for the study. Cases of adeno tonsillitis, peritonsillitis, peritonsillar abscess or neoplastic lesions were excluded from the study.

Random allocation of the patients in to 2 groups (Study and control) of 30 each was done by simple random sampling In group I (control) group normal saline was used, and in group II(study) in the dose of 1 mg/kg with a maximum of 60 mg orally on the night prior to surgery. Patients were premedicated with inj. Atropine 0.01 mg/kg IM, 30 minutes. Prior to surgery, patients were preoxygenated with 100% O<sub>2</sub> for 3 minutes. Anesthesia was induced with Inj. Thiopentone sodium 5 mg/kg, intubation was facilitated with inj. Succinylcholine 2 mg/kg I.V Endotracheal tube of appropriate size was placed and secured.

Maintenance of surgical anesthesia was done with O<sub>2</sub>:N<sub>2</sub>O:50:50 halothane and inj. Pancuroplum bromide, 0.08 mg/kg for skeletal muscle relaxation was undertaken. Intravenous fluids were given as per individual requirements. Tonsillectomy was by dissection method. After removal of both the tonsils, a gauze measuring 3 cm<sup>2</sup> soaked in 2.0 ml of either normal saline or 4% Lignocaine was kept in both the tonsillar fossas for a period of 3 min, reversal of muscle relaxation undertaken with inj. Atropine 0.02 mg/kg an inj. Neostigmine 0.05 mg/kg and then extubated after return reflexes. Spontaneous respiration with adequate tidal volume was ensured before the shifting the patient to the recovery room After recovering from anaesthesia pulse rate, blood pressure,

respiratory rate were recorded at intervals of 1H2, 2 Hr, 4Hr and 8 Hr postoperatively. Pain, dysphagia and difficulty in speaking were assessed by the Visual Analogue Scale (VAS)<sup>1</sup>.

No systemic analgesics were given in first postoperative 24 hrs. the patients were then discharged, statistical analysis of results was done by Z-test.

### RESULTS

The study comprised of 60 cases with equal number of cases i.e. 30 cases of the 2 groups, mean age was 18.5 years and male to female ratio was 1:1.1 the two groups are comparable in age and sex including duration of surgery.

Mean **Visual Analysis Scale (VAS)** scores for pain, dysphagia, and difficulty in speaking of patients belonging to group II were significantly lower ( $P < 0.01$ ) as compared to those of group I of hr, 2 hr, 4 hr, and 8 hr, postoperatively. The accumulated scores of pain, dysphagia and difficulty in speaking were significantly lower ( $P < 0.01$ ) in group II was compared to Group I (see tables 1,2,3 & 4).

**Table -1** Pain evaluation after topical analgesia in study and control group  
N=60

Group	1 <sup>st</sup> hour	2 <sup>nd</sup> hour	4 <sup>th</sup> hour	8 <sup>th</sup> hour
I	8+0.53(5-7)	7+0.47(5-8)	7+0.38(6-7)	6+0.48(5-8)
II	5+0.6(3-5)	4+0.6(3-7)	4+0.56(2-7)	5.8(1-7)

(Mean scores  $\pm$ SD)

**Table -2** Dysphagia evaluation after topical analgesia in study and control group  
N=60

Group	1 <sup>st</sup> hour	2 <sup>nd</sup> hour	3 <sup>rd</sup> hour	4 <sup>th</sup> hour
I	8+0.32(5-8)	7+0.3(6-8)	8+5.9(5-9)	7+0.56(4-8)
II	5+0.81(2-9)	5+0.58(2-7)	4+0.6(2-7)	5+0.8(2-8)

(Mean scores  $\pm$ SD)

**Table -3** Evaluation of differently in speaking after topical analgesia in study and control group  
N=60

Group	1 <sup>st</sup> hour	2 <sup>nd</sup> hour	3 <sup>rd</sup> hour	4 <sup>th</sup> hour
I	7.35(6-9)	7+0.42(6-9)	6+0.24(5-7)	6+0.32(3-7)
II	5+0.81(3-9)	4+0.69(3-8)	4+0.59(2-7)	4+0.8(2-8)

(Mean scores  $\pm$ SD)

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**Table 4** Accumulated mean scores + SD for 1<sup>st</sup> 8 hours after surgery

	Group I	Group II
Pain	7.2+0.58(3-9)	4.3+0.95(2-9)
Dysphagia	7.5+0.71(4-10)	4.68+0.95(2-8)
Difficulty in speaking	6.55+0.58(5-8)	4.48+0.84(3-8)

## DISCUSSION

Lignocaine is absorbed rapidly from the mucosal surfaces, which is useful as both postoperative spray<sup>2</sup> and post operative infiltration for control of pain. But not as per operative infiltration<sup>3</sup>. Local infiltration of Local Anaesthetic in the tonsillar fossa is known to produce complications due to inadvertent intravascular injections<sup>4</sup> whereas topical application is simple and safe to perform. In our study the mean in pain score control group I was significantly higher ( $P < 0.01$ ) at 1 hr, 2 hr, 4 hr and 8 hr postoperative as compared to scores in group II, thereby proving topical application of 4% Lignocaine is effective in relieving immediate postoperative pain following tonsillectomy. Duration of Lignocaine as a topical analgesic was seen to exceed its normal pharmacological duration as a local anaesthetic. One may speculate that the prolonged anaesthesia seen with 4% xylocaine is because of successful blockade of nociceptive impulses by the use of local anaesthetic preoperatively<sup>5,6</sup>.

## CONCLUSION

From the results of present study it can be concluded that topical application of 4% Lignocaine in tonsillar bed is an effective method of reducing the postoperative pain following tonsillectomy. Application of 4% Lignocaine topically is easy and can therefore be used by all grades of surgeons performing tonsillectomy, and this method can be safely recommended as reliable modality for postoperative pain relief after tonsillectomy.

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