

## EFFECT OF POSTOPERATIVE DEXAMETHASONE ON PAIN, EMESIS AND HAEMORRHAGE IN TONSILLECTOMY BY DISSECTION METHOD

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### ABSTRACT

**Objectives:** To compare the effect of postoperative intravenous dose of dexamethasone on morbidity in patients undergoing tonsillectomy.

**Design:** Randomized control trial.

**Place and Duration of Study:** This study was conducted in ENT Department Shaikh Khalifa Bin Zayed Al Nahyan Hospital (CMH) Muzaffarabad from 10<sup>th</sup> Jan 2010 to 15<sup>th</sup> Feb 2011.

**Patients and Methods:** After getting informed consent, a total of 60 patients who fulfilled the inclusion criteria were selected and tonsillectomy by dissection method was carried out. They were divided into two groups of 30 each using a random numbers table. Group A received 0.25 mg/kg body weight (maximum 20 mg) of Dexamethasone postoperatively intravenously for 03 days while group B (control group) did not receive any steroid.

**Results:** In group A, 80% patients had mild pain, 16.7% had moderate pain and 3.3% had a severe pain while in group B, 30% patients had mild pain, 6.7% had moderate pain and 63.3% had severe pain ( $p < 0.05$ ). In group A, 76.7% patients had mild emesis while in group B, 86.7% had moderate emesis ( $p < 0.05$ ). There was an insignificant difference in secondary hemorrhage.

**Conclusion:** Dexamethasone given postoperatively significantly reduces the morbidity that is pain, episodes of emesis thus early recovery to a normal lifestyle with no effect on secondary hemorrhage in patients undergoing Tonsillectomy by dissection method.

**Keywords:** Dexamethasone, Dissection method, Tonsillectomy.

### INTRODUCTION

Tonsillectomy is one of the most commonly performed procedures in ENT. Dissection method is still a popular way of performing a tonsillectomy as it allows a more careful and thorough removal of lymphoid tissue. Tonsillectomy is not without the risk of complications. Postoperative morbidity like pain, hemorrhage, emesis, dehydration and decreased oral intake are all associated with it. Various studies have been conducted in Pakistan using various techniques to reduce the risk of these potential morbidities<sup>1-4</sup>.

Corticosteroid like dexamethasone intravenously has been used postoperatively in an attempt to reduce postoperative morbidity. Steroids are believed to act by reducing tissue damage and leukocyte migration. A prolonged antiemetic effect of intravenous dexamethasone

is well known<sup>5-7</sup>.

This study was conducted with the aim of comparing the effects of steroids on postoperative morbidity like pain, hemorrhage, and episodes of emesis between two groups, one getting steroid (Dexamethasone) postoperatively for 03 days with a control group who did not receive steroids.

Also to date most of the data available on this particular problem is taken from western studies. Very limited studies have been conducted in our setup. This study will be a step forward in developing new and beneficial treatment modalities and protocols best suited for our patients.

### PATIENTS AND METHOD

Approval was taken from hospital ethical committee. These randomized controlled trials were conducted at ENT Department, Shaikh Khalifa Bin Zayed Al Nahyan Hospital (CMH) Muzaffarabad, 10<sup>th</sup> Jan 2010 to 15<sup>th</sup> Feb 2011.

Total of 60 cases were included in this study, which were randomly divided into two

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groups of 30 each using random numbers table. Patients with age between 8 to 35 years, with recurrent tonsillitis were selected to undergo tonsillectomy. Patients with significant comorbidities requiring perioperative/postoperative steroids (severe reactive airway disease), diseases for which steroids are contraindicated (diabetes mellitus), patients undergoing adenotonsillectomy and patients with bleeding disorders were excluded from the study.

Patients between ages 8-12 years were treated as pediatric group and above 12 years as adults. Informed consent was taken from subjects/parents. Each group consisted of 30 patients. Group A received postoperative dexamethasone (Decadron MSD) intravenously in a dose of 0.25 mg/kg body weight (maximum 20 mg) for 3 days while group B (control group) did not receive any steroids. One ml ampule containing 4 mg of dexamethasone cost 12 rupees which is easily available and affordable.

Only a designated group of experienced surgeons performed tonsillectomy. General anesthesia and postoperative care were

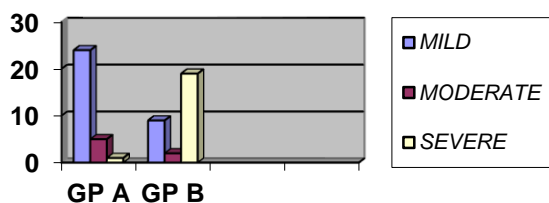
standardized for both groups. All patients were prescribed a 5 day course of Amoxicillin. (dose in pediatric group was 40 mg/kg body weight/day orally in three divided doses and in adults was 500 mg thrice daily orally. Acetaminophen was used as analgesic for 5 days duration. (dose in pediatric group was 10-15 mg/kg body weight /day orally and in adults was 500 mg thrice daily orally).The pain was assessed by visual analogue scoring (VAS) system where 0 represents no pain and 10 represent severe pain. Mild pain was labelled once the score was between 0 to 4 on the VAS, moderate between a score of 5 to 7 on VAS and severe pain with a score of 8 to 10 on VAS.

The number of the episodes / day was used to assess emesis, 3 or less episodes per day were considered as mild emesis while 4 or more episodes were labeled as moderate emesis. Hemorrhage was assessed by its presence or absence.Procedure adopted for per operative control of bleeding was pressure application with gauze and electrocautery, if necessary. Data was entered in a proforma which included no of days, pain (VAS system), episodes of emesis per day and secondary hemorrhage (24 hours postoperative) by its presence and absence. This was subsequently used to compile the results.

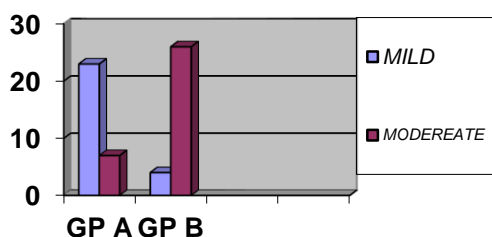
Data was analyzed using SPSS-11. Mean and standard deviation were calculated for age. Frequency was calculated for gender, pain, haemorrhage and emesis. Chi-square test was applied to determine statistical significance of difference between the two groups (A and B) for pain, hemorrhage, and emesis. *p* values of < 0.05 was considered as significant.

**RESULTS**

Each group consists of 30 patients. There were 16 (53.3%) males in group A while in group B there were 22 (73.3%) males.The age of patients varied from 8 to 35 years. In group A mean for age was 13.23 years (SD ± 6.4), while for group B, it was 14.37 years (SD ± 6.9). Mean for height in group A was 100.2 cms (SD ± 38), while for group B it was 102.4 cm (SD ± 35.6). Mean for weight was 36 kg (SD ± 20.1) and for group B it was 38 (SD ± 17.7). Both the groups



**Figure-1: Graphical presentation of pain between both groups.**



**Figure-2: Graphical presentation of emesis between both groups.**

**Table-1: Comparison of pain between both groups.**

	Group A n = 30	Group B n = 30
Mild VAS 0-4	24 (80%)	09 (30%)
Moderate VAS 5-7	5 (16.6%)	2 (6.6%)
Severe VAS 8-10	1 (3.3%)	19 (63.3%)

**Table-2: Comparison of emesis between both groups.**

Emesis	Group A n =30	Group B n = 30
Mild	23 (76.6%)	4 (13.3%)
Moderate	07 (23.3%)	26 (86.6%)

$p < 0.05$

were comparable with respect to demographic characteristics.

In group A, patients with mild pain numbered 24 (80%), with 5 (16.7%) patients having moderate pain and 1 (3.3%) patient severe pain. In group B, 9 (30%) patients had mild pain, 2 (6.7%) had moderate pain and 19 (63.3%) had severe pain (Table 1 & Fig 1).  $p < 0.05$ .

In group A, 23 (76.7%) patients had mild emesis and 7 (23.3%) had moderate emesis. while 4 (13.3%) had mild emesis and 26 (86.7%) had moderate emesis in group B. (Table 2 & Fig 2).  $p < 0.05$

Post operatively in group A, 3 (10%) patients had secondary haemorrhage. In group B, 2 (6.7%) had secondary haemorrhage.  $p > 0.05$ .

Patients in both the groups recovered from anesthesia without any complications. Patients were kept on postoperative steroids, antibiotics and analgesics as per protocol mentioned in data collection and discharged between third and fourth postoperative day.

## DISCUSSION

Tonsillectomy is one of the most commonly performed surgical procedure worldwide<sup>8</sup>. Various techniques are used to remove tonsils and it is up to each surgeon to develop his own method under close instruction and supervision. This procedure has got significant morbidity and mortality like

bleeding, pain, nausea, vomiting, poor oral intake and dehydration<sup>7,9</sup>.

In our study the frequency of severe pain was 63.3% in the control group while it decreased to 3.3% in the group which received dexamethasone. For moderate pain the frequency was 16.6% in the dexamethasone group while it was 6.6% in the placebo group. Pappas et al in their study experienced the similar results. Steward et al in his meta-analysis of eight studies did not show any significant difference in pain scores in the two groups, which is in contrast to our results. The authors of that study themselves gave limitations of difference in evaluation methods and missing data in this regard. TenVolk et al also did not find any difference in complains of postoperative pain<sup>11</sup>. This difference is probably due to different surgical techniques used for tonsillectomy.

Moderate emesis was 86.6% in placebo group, the frequency of which was significantly higher than dexamethasone group (23.3%). Elhakim et al showed incidence of postoperative vomiting to be 30% and 56% in the dexamethasone group and placebo respectively<sup>12</sup>. Aouad et al found the incidence to be 10% and 30% respectively<sup>7</sup>. Steward et al also showed the incidence of vomiting to be decreased by two times in the group receiving dexamethasone<sup>10</sup>. These above mentioned studies validate our findings. Catlin et al did not find any significant difference in episodes of vomiting in the two groups<sup>13</sup>. These results do not correspond to our findings.

There was no significant difference in regards to secondary hemorrhage in the two groups we studied. Diane and Heatley<sup>14</sup> in 2001 found steroid to be effective in reducing postoperative hemorrhage in patients undergoing tonsillectomy by dissection method. This finding does not correspond to our findings.

Steroids are believed to act to reduce tissue damage and postoperative pain by suppressing fibrin deposition, capillary dilatation, edema formation and leukocyte migration<sup>5,13,15</sup>. A prolong anti emetic effect of intravenous dexamethasone is well known by its central

depression<sup>7,16</sup>. Decrease in pain is due to the fact that edema at the cut end of nerves is reduced there by reducing pain stimulus. As far as the complications of corticosteroid therapy are concerned, they are typically related to its long-term use and risks of steroid therapy of less than 3 days duration is negligible<sup>17</sup>. Our results have shown that the use of dexamethasone for a few days (3 days in our study) has been cost-effective and had less post operative morbidity like pain and emesis.

Our study had limitations in terms of data which is qualitative and not quantitative. The aim of the study was to improve the postoperative morbidity by use of postoperative corticosteroid and thus early recovery to routine lifestyle. This has been proved by our study. However further studies at the larger level need to be planned to validate these findings.

## CONCLUSION

Dexamethasone given postoperatively for few days significantly reduces the postoperative morbidity that is pain, episodes of emesis with no effect on secondary hemorrhage in patients undergoing tonsillectomy by dissection method.

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