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Effect of Dexamethasone on Postoperative Sore Throat in the Patients Undergoing Elective Orthopaedic Surgery

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ABSTRACT

Objective: To determine the effectiveness of IV dexamethasone for the prevention of sore throat and hoarseness after tracheal intubation. We compare the effect of dexamethasone with placebo to reduce the incidence of postoperative sore throat.

Method: Fifty ASA I – II patients undergoing elective orthopaedic surgery aged 20-50 years having tracheal intubation. Those patients having sore throat, Malampatti grade 3&4, Lane Cormack grade 3&4, more than one attempt at intubation and the duration of surgery longer than 4 hours were excluded. Patients were divided into two groups, Group A received I/V dexamethasoen 8mg and Group B received I/V saline one hour before surgery. The patients were evaluated at 0, 6, and 24 hours after surgery. The severity of sore throat assessed on 4 point scale.

Results: The data was analyzed in SPSS version 15 and t test was used to compare the results. The incidence of sore throat was less in Group A as compared to Group B ($P < 0.001$). The incidence of hoarseness was also lower in group A than Group B ($P < 0.05$).

Conclusion: The prophylactic used of 8mg dexamethasone IV significantly reduces the incidence and severity of sore throat and horarseness after orotracheal intonation.

Key Words: Dexamethasone, Sore throat, Hoarseness, tracheal intubation.

INTRODUCTION

Sore throat is very common after tracheal intubation because of the trauma to the tracheal mucosa [1]

It is one of the most undesirable side effects of general anaesthesia and leads to post operative morbidity and higher degree of patient dissatisfaction[2, 3]

Sore throat is directly related to many factors i.e. size of endotracheal tube[4] excessive airway manipulation[5] repeated intubation attempts [5], high cuff pressure of endotracheal tube [6] and movement of endotracheal tube during surgery [7] Many attempts have been made in past to decrease the incidence of sore throat in the post operative period, i.e smaller sized endotracheal tube with lignocane jelly[8], ketamine gargles[9] and gentle airway handling during intubation and with lignocane jelly[8] , Ketamine gargles[9] and gentle airway handling and extubation. Dexamethsone has been widely used to treat post operative sore throat [11] and there is interesting amount of experimental data suggesting that prophylactic dexamethasone is very much effective in reducing post operative sore throat. The aim of present study is to determine the effectiveness of prophylactic intravenous administration of dexatmethasone for the prevention of sore throat after oral endotracheal intubation.

MATERIAL AND METHOD

After approval from ethical committee of Ghurki trust teaching hospital, written informed consent was taken from 50 ASA 1- 11 elective patients undergoing orthopaedic surgeries age 20- 50 years under general anaesthesia. Exclusion criteria was the patients having pre exiting sore throat, Mallampati grade 3&4, lane cormack grade 3&4, those requiring more than one attempt at intubation and the patient with duration of surgery longer than 4 hours. It took 5 months to complete the whole study. Patients were divided into two groups, Group A received Intravenous dexamethasone 8mg and Group B received a placebo of normal saline intravenous one hour before induction of anaesthesia.

Monitoring consisted of three lead ECG, Non invasive arterial blood pressure and pulse oximetry. Induction was achieved by IV Suxanmethonium 1.5 mg/Kg, to ensure excellent relaxation. Then tracheal intubation was performed by an experienced anaestheiologist with a soft, low pressure high volume polyvinyle chloride endotracheal tube. After induction and intubation, anaesthesia was maintained with oxygen 30% and

N_2O 70% supplement with sevoflurane 1-1.5% and inj.

Atracurum 0.5mg/kg following by increments were given. Cuff was just inflated to prevent air leak up to the peak airway pressure of 25cm H_2O. At the end the patients were given inj. Neostigmine 40 ug/kg I/V atropine 1mg, oropharyngeal suction was done very gently and under direct vision to minimize trauma.

Patient was extubated when fully awake and obeying verbal command. The patients were evaluated at 0, 6 and 24hours after surgery for the occurrence of sore throat and hoarseness. Post operative sore throat after surgery was graded on 4-point scale, 1. No sore throat, 2. Mild sore throat (complaining on asking) 3. Moderate sore throat (complaining itself) 4. Severe sore throat (hoarseness or throat pain). Hoarseness was defined as a change in voice.

RESULTS

The data was analyzed using SPSS version 15.0 and t. test was used to compare the results. The severity of sore throat was lower in Group A as assessed by VAS scale (Table1). No patient in Group A had severe throat as compared to group B in which 5 patients developed severe sore throat requiring treatment. There was no difference in gender, height, weight, and duration of surgery among two groups (Table2) ($P>0.05$). No patient was excluded from the study because none of them meets the exclusion criteria.

The incidence of post operative sore throat listed in the Table 3. The incidence of post operative laryngeal discomfort and sore throat was significantly lower in Group A as compared to Group B ($P<0.001$)

The incidence of post operative hoarseness was lower in Group A as compared to Group B as shown in table 3 ($P<0.05$). No complication with the use of single dose of dexamethasone was observed.

Group Data

Table 1:

Time	**0 hrs**	**6 hrs**	**24hrs**
Groups	A B	A B	A B
Discomfort Grading			
1. No Complaint	19 8	19 9	21 10
2. Mild	4 7	5 7	3 8
3. Moderate	2 5	1 5	1 3
4. Severe	0 5	0 4	0 4

Table 2:

	Group	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Gender	Group A	25	1.48	.510	.102
	Group B	25	1.48	.510	.102
Height	Group A	25	163.08	12.349	2.470
	Group B	25	164.48	10.936	2.187
Weight	Group A	25	74.36	9.819	1.964
	Group B	25	74.44	9.622	1.924
Duration	Group A	25	97.04	17.449	3.490
	Group B	25	96.48	15.056	3.011
Sore Throat	Group A	25	1.84	.374	.075
	Group B	25	1.40	.500	.100
Hoarseness	Group A	25	2.00	.000	.000
	Group B	25	1.84	.374	.075

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DISCUSSION

This study showed that single dose of 8mg of dexamethasone given I/V one hour before induction of anaesthesia decreased the incidence of sore throat as well as hoarseness after tracheal extubation at 0,6 and 24 hours as compared to placebo. Post op sore throat is the most common side effects associated with endotracheal intubation. [1, 2, 3] Even smooth intubation can result in post operative sore throat as seen in our study and this may be because of tracheal trauma[1]leading to tracheal edema, congestion and pain[4].We concluded that late onset of severe pain in control group reflects a more gradual development of local inflammatory process as concluded in the study conducted by Knoli et al[10]. Dexamethasone has been widely used for prophylaxis of post operative sore throat and hoarseness in clinical practice[11]. Moreover, Thomas et al[12]in a study demonstrated that 8mg dexamethasone significantly reduced the incidence of sore throat which is similar to our study results. The proposed mechanism of reduction of post operative sore throat with the use of dexamethasone is probably because of its anti-inflammatory activity. It also inhibits the leukocyte migration, inhibits the lysosomal release and reduces the proliferation of fibroblast [13,14]. The side effects of dexamethsone are peptic ulcer, hyperglycemia especially in Diabetic patients, fluid retention, increased susceptibility to infections and electrolyte inbalance[15]. However single dose steroid is not associated with the above mentioned side effects[15, 16]. We did not observe any side effect because 8mg dexamethasone was given as a single dose. In conclusion, prophylactic I/V 8mg dexamethasone reduces the incidence and severity of postoperative sore throat and hoarseness after endotracheal intubation.

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