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Original Research Paper

To Evaluate The Effectiveness of A Single Dose Of Intravenous Dexamethasonein Pain Relief In Immediate Postoperative Period Of Tonsillectomised Individuals.

Medical Science

KEYWORDS : Fine needle aspiraton cytology, Scar endometriosis, Extra pelvic endometriosis.

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AIM

To evaluate the effectiveness of a single dose of intravenous dexamethasone in pain relief in immediate postoperative period of tonsillectomised individuals.

MATERIALS AND METHODS

An open prospective study of 100 patients admitted for chronic tonsillitis for tonsillectomy at Government E. N. T. hospital, Vizag conducted from February 2013 and October 2013.

0.15 mg/kg of intravenous dexamethasone is given along with pre anesthetic medication and pain assessed at the end of surgery by means of objective pain scale.

100 patients suffering from chromic tonsillitis are allocated in to 2 groups, each containing 50 members, for control and experimental groups. Along with premedication I. V. dexamethasone 0.15mg/kg is given for study group and post operative objective pain scores were calculated for all 100 patients. The groups are comparable to each other in several aspects like age, sex and demography etc.

INCLUSION CRITERIA:

All patients except those meeting exclusion criteria, who were admitted during above period were studied.

EXCLUSION CRITERIA:

Those who underwent additional adenoidectomy along with tonsillectomy in the same sitting.

Those who underwent tonsillectomy under local anesthesia.

Those with associated comorbidities.

Those who are not willing for the study.

All patients were premeditated with I.V. inj. Glycopyrrolate 0.004 mg/kg before induction. Inj. Pentazocine 0.3 mg/kg and inj. Midazolam 0.04 mg/kg were given IV. Following induction with inj. Thiopentone 5 mg/kg – 1 and inj. Suxamethonium 2 mg/kg, trachea was intubated. Anesthesia was maintained with 0.5 – 2% halothane and 66% N2O in oxygen and controlled ventilation using either inj. Vecuronium 0.08 mg/kg or inj. Atracurium 0.5 mg/kg.

Dissection and snare method was used for tonsillectomy while the patients were in in rose's position and mouth opened by means of Boyle Davis mouth gag and fixed by Draffin's bipods and Magauran's plate. Bleeders were ligated using ties. Haemostasis was achieved using packs or sutures. No electrocautery was used. No infiltration of local anaesthetic given.

Intraoperatively, lactated ringer's solution with dextrose was infused at a rate of 5 ml/kg/1hr. in addition, extra fluid 2 ml/kg/1hr of statrvation period was also administered. After surgery, residual secretions and blood were removed with gentle suction. Neuromuscular blockade was reversed with inj. Neostigmine and inj. Atropine. Patients were extubated when they had satisfactory motor recovery and when they were fully awake.

Pain was assessed using objective pain scale (OPS) in the post operative recovery room and in the word. If the objective pain score was more than or equal to 6 analgesia was considered.

Results were tabulated and analysed for statistical significance.

OBSERVATIONS

Post operative pain scores assessed with objective pain scale showed lower scores in the intervention group who received preoperative single dose of intravenous dexamethasone in the dose of 0.15 mg/kg along with preanaesthetic medication, when compared with the control group. Intervention group showed lower scores for rise of blood pressure, crying, movement, agitation, verbalization of pain.

Control Group (N1)				Experimental Group(N2)			Combined
Age Group	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Total (%)
0-4	01 (02.00)	00 (00.00)	01 (02.00)	00 (00.00)	00 (00.00)	00 (00.00)	01 (01.00)
5-9	12 (24.00)	10 (20.00)	22 (44.00)	05 (10.00)	04 (08.00)	09 (18.00)	31 (31.00)
10-14	12 (24.00)	11 (22.00)	23 (46.00)	19 (38.00)	18 (36.00)	37 (78.00)	60 (60.00)
15-19	01 (02.00)	02 (04.00)	03 (06.00)	01 (02.00)	03 (06.00)	04 (08.00)	07 (07.00)
20-24	00 (0.00)	01 (02.00)	01 (02.00)	00 (00.00)	00 (00.00)	00 (00.00)	01 (01.00)
Total	26 (52.00)	24 (48.00)	50 (100.0)	25 (50.00)	25 (50.00)	50 (100.0)	100 (100.0)

Table 5: Study Population According to Age and Six. (N = 100)

T test value = 2.36, degrees of freedom = infinite, P<0.02

The mean age of control group is 10.22 years with SD of 3.41 years and the mean age of experimental group is 11.54 years with SD of 2.16 years.

The combined mean age of the sample (both groups) is 10.88 years.

Parameters	Control Group (N=50)	Experimental Group (N=50)
Means	05	02
Standard Deviation	0.99	0.86
Mean Difference	03	Xxxxx
SE Difference	0.18	Xxxxx

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't' Value	16.67	Xxxxx
Degrees of Freedom	(98) Infinite	P ValueP <0.0001 ExtremelyStatistically Significant

Table 6: Comparison of OPS Score in Control and Experimental Groups
(N1 = 50, N2 = 50)

DISCUSSION

Tissue injury induced acute inflammation, nerve irritation and spasm of exposed pharyngeal muscle is known to play a role in genesis of post tonsillectomy pain.

By inhibiting phospholipase enzyme, corticosteroids block both the cyclooxygenase and lipooxygenase pathway and thus prostaglandin production, thereby leading to pain relief. Corticosteroids have shown significant analgesia for extraction of third molar teeth, hallux valgus correction, and haemorrhoidectomy.

Local infiltration of steroids and oral 4-day course of steroids have shown promising results in tonsillectomy patients. Dexamethasone is selected as it is highly potent and has long half life (36-72 hours) for glucocorticoid activity, so that the effect would remain even after the discharge of the patient. Single IV dose was used, as it is devoid of side effects like gastritis, adrenal suppression etc. IV drug was given before surgery to achieve peak effect in the early postoperative period. Both anaesthetic and surgical techniques were standardized. Pentazocine was used for intraoperative analgesia, as it is weak and short lasting and therefore would not bias the results.

The dose of dexamethasone is selected as 0.15 mg/kg for following reasons. Firstly, doses ranging from 0.15 mg/kg-1 to 1 mg/kg-1 with maximum doses ranging from 8 to 25 mg have been used in the children. On detail analyses of the studies, one would realize that, nearly half of the patients would receive less than the calculated per kg dose. Just for example in Vosdoganis's study, the dose used was 0.4 mg/kg (maximum dose 8mg).

Their weight range was 21.8+8.1 kg. this means that half of the patients received less than per kg dose. Secondly, in a large study involving 133 patients, Splinter and Roberts have used 0.15 mg/kg Dexamethasone with good results. Thirdly doses used in adults are 8 or 10 mg; this also corresponds to 0.15 mgkg – 1 dose. Fourthly, Wang et al have done a dose ranging study (1.25 mg to 10 mg) in females undergoing thyroidectomy; they have found minimum effective dose to be 5mg. this also corresponds to 0.10 mg/kg – 1 dose.

Objective pain scale is used to assess pain scores post operatively for all the patients for uniform results. OPS of 4 can be because of reasons other then pain also. OPS of 6 would better signify pain.

In addition to avoid the influence of factors other than pain on higher OPS, before administering rescue analgesic, a time period of 15 minutes was allowed to see if patient responded to tender loving care of pain subsided.

In the study OPS scores were lower in Dexamethasone group, throughout the postoperative period.

Majority of Dexamethasone treated patients were pain free in immediate post operative period. This indicates analgesic effect of Dexamethasome . Number of patients erquiring rescue analgesic were less in intervention group.

The results of the study are nearer to the study" Effect of Dexamethasone on post tonsillectomy morbidities" by Anila D. Malde Dr. Vinod S. Sonawane Dr. Sheetal R. Jagtap3.

CONCLUSION

A single dose of intravenous Dexamethasone 0.15 mg/kg given preoperatively along with preanaesthetic medication has got statistically significant pain which reinforces the use of same as suggested by clinical practice guide lines 2011 given American Academy of Otolaryngology – Head and Neck Surgery.

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