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HYDROCORTISONE THERAPY FOR RELIEVING OF POST-TONSILLECTOMY PAIN: A RANDOMIZED, PLACEBO-CONTROLLED STUDY

Md. Hasanul Haque*[1], Md. Jaber-Al-Sayied[1], Sonia Jahan Bithi[2], Habibur Rahman Palash[3], Nigar Sultana[4], H.M. Mustafizur Rahman[5] , Md. Abdur Razzak[6] and Md. Wahiduzzaman[7]

[*1]Medical Officer, Bangabandhu Sheikh Mujib Medical University.
[1]Medical Officer, Mugda Medical College & Hospital.
[2]Senior Consultant, Central Police Hospital, Rajarbag.
[3]Consultant, Dept of Otolaryngology –Head & Neck Surgery, Bangabandhu Sheikh Mujib Medical University.
[4]MS Resident, Gynae & Obs, ICMH, Matuail, Dhaka.
[5]Consultant, Dept of Otolaryngology –Head & Neck Surgery, Bangabandhu Sheikh Mujib Medical University.
[6]Medical Officer, Shaheed Tajuddin Ahmad Medical College, Gazipur.
[7]Asst. Prof., Dept. of ORLHNS, BSMMU, Dhaka.

***Corresponding Author: Dr. Md. Hasanul Haque**
Medical Officer, Bangabandhu Sheikh Mujib Medical University.

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ABSTRACT

Background: Post-operative pain following tonsillectomy is a common clinical problem faced by ENT surgeons. We investigated effect of two dose course of intravenous hydrocortisone in relieving pain following tonsillectomy. **Materials & Methods:** In this randomized, placebo-controlled trial, 40 consecutive patients between 20 and 40 years of age, who had no previous or known contraindications to steroid therapy, were randomly assigned at the time of surgery to either a two dose course of hydrocortisone (100 mg IV) or placebo; with the first dose administered during surgery and subsequent dose was given 12 hours following tonsillectomy. All of the patients were operated and treated by two same ranked surgeons. Postoperative pain was evaluated using visual analog scale. **Results:** In hydrocortisone group pain score was 6.55±0.76 & 2.65±0.87 at 1st & 7th POD respectively where as in placebo group pain score was 8.2±0.89 & 4.00± 0.92 respectively in 1st and 7th POD. There was significant pain reduction in IV hydrocortisone group. (P value 0.001) **Conclusion:** Application of 2 doses of hydrocortisone within 12 hours during and after tonsillectomy is advisable because of the reduction of postoperative pain.

KEYWORDS: Tonsillectomy, hydrocortisone.

INTRODUCTION

Post tonsillectomy pain is a major clinical concern despite advancement in surgical techniques and anaesthesia.[1] Patients remain dehydrated following tonsillectomy as they refuse to take food and drink due to severe pain. Usually this pain resolves within 2 weeks. Appropriate analgesia can reduce pain and thus can reduce dehydration. Different studies on effect of dexamethasone in post tonsillectomy healing have been carried out in different parts of world.[2-5] But there is no data on Bangladeshi population aiming to evaluate effect of hydrocortisone on post tonsillectomy pain. Hydrocortisone is preferred as it is mostly used steroid, low cost & has longer duration of action. Short term use of hydrocortisone, even in higher dose has no significant side effect.

MATERIALS AND METHODS

Total 40 patients who were admitted between July to September 2019 into ENT department of Bangabandhu Sheikh Mujib Medical University and Mugda Medical College & Hospital with recurrent tonsillitis, aged between 20 to 40 years and willing to undergo tonsillectomy were included in the study. Cases of acute tonsillitis, steroid contraindication (Glaucoma, GI Ulcer etc) and not willing to undergo surgery were excluded from the study. Patients were randomly selected for either hydrocortisone or placebo (normal saline), 20 in each group, according to a research randomizer software. General objective of the study was set to evaluate post tonsillectomy pain relieving effect of hydrocortisone. Specific objective was to evaluate score of visual analog scale (VAS) of pain in each study group. All patients consented to participate in the trial. They underwent clinical examination and evaluation of medical history prior to surgery. The first dose of hydrocortisone was administered at induction of anaesthesia and the

subsequent dose was given at 12 hours following tonsillectomy. Surgical procedures were done under general anaesthesia by using electro-cautery by two surgeons. Both groups received intravenous fluids until patients were fully conscious, and started on oral fluid 4 hours after surgery. Both groups also changed to normal diet on the first post-surgical day. All patients left the hospital one day after surgery. The post-operative signs and symptoms of pain were evaluated for one week. The dosage of postoperative analgesics during in-patient treatment and during the out-patient period was the same in all patients, consisting of two doses of 10 mg ketorolac per day. None of the patients took any additional medication. The severity of pain was scored on a visual analog scale (VAS) with a vertical drawer pulled along a ruler. The ruler was scaled from 0 to 10, with 0 defined as "no pain" and 10 defined as "worst pain". Pain was measured at 1st & 7th post-operative morning before using analgesics. The data were collected in the seventh postoperative day. Continuous variables were described by mean value and standard deviation. Student's t test was used as tests of significance at the 5% level.

RESULTS

Forty adult patients, aged between 20 and 40 years, took part in this study, with 20 patients in each study group. In hydrocortisone group mean age was 27±2.1 and in placebo group mean age was 29±2.4. Male female ratio was 1: 1.5

Table1: visual analog scale (VAS) of post-tonsillectomy pain in Hydrocortisone & Placebo group.

	Hydrocortisone (Mean ± SD)	Placebo (Mean ± SD)	P Value
1st POD	6.55±0.76	8.2±0.89	0.001
7th POD	2.65±0.87	4.00± 0.92	0.001

The evaluated pain scores showed clearly reduced pain in the hydrocortisone group in the postoperative period, with a mean value of 8.2±0.89 for the placebo group and a mean value of 6.55±0.76 for the hydrocortisone group on day 1. (Figure 1 & Table 1)

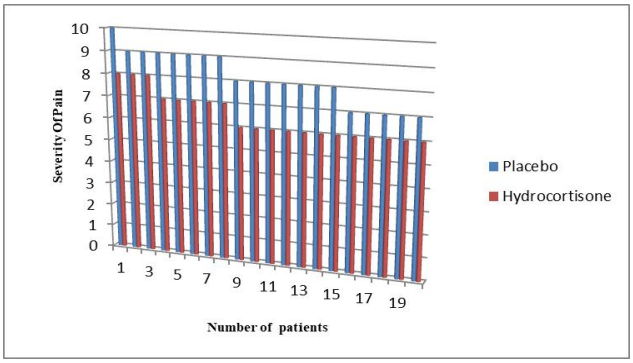

Figure 1: Showing severity of pain in VAS score in Hydrocortisone & Placebo group at 1st POD (n=20).

On day 8, the placebo group showed a mean value of 4.00± 0.92 on the pain score, while the hydrocortisone group had a mean value of 2.65±0.87. (Figure 2 & Table1)

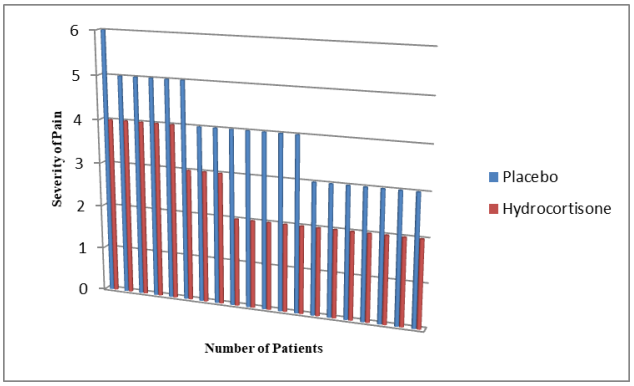

Figure 2: Showing severity of pain in VAS score in Hydrocortisone & Placebo group at 7th POD (n=20).

The differences were statistically significant (P<0.05) (Table 1). Consistent with the reduced pain scores, the patients in the hydrocortisone group reduced their intake of analgesics earlier than the placebo group. Patients with steroid treatment, however, tolerated fluid and diet better because of less pain and edema.

DISCUSSION

The effects of systemic corticosteroids on postoperative morbidity after tonsillectomy have been studied for decades, as this remains a significant clinical problem for the patient as well as physician.[1] In this prospective, randomized study, we determined the postoperative pain relieving effects of hydrocortisone in tonsillectomy patients. There was much less pain, the results being statistically significant (P<0.05). This positive outcome might be due to the route of administration and anti-inflammatory property of hydrocortisone as compared to most other studies. Studies on single-dose intravenous or peritonsillar application of hydrocortisone in children has inconclusive results.[1-3, 5-7] Whereas Carr et al 4 reported only slightly reduced pain over the first 10 days after surgery in non-pediatric patients undergoing electrocautery tonsillectomy, given an intravenous single dose of steroid intraoperatively.[4] Short-term applications of steroids even in higher doses are routinely used and believed to be safe when applied to otherwise healthy patients in case of surgery in the head and neck region, to reduce edema and protect function.[6]

CONCLUSION

The present study showed that the intravenous application of 2 doses of hydrocortisone, within 12 hours of tonsillectomy is advisable because of reduction of postoperative pain.

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