SJIF Impact Factor: 5.464

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

ISSN: 2457-0400
Volume: 5.
Issue: 3.
Page N. 363-366
Year: 2021

Research Article ww.wjahr.com

DEXAMETHASONE(DEX) AND PARACETAMOL SUPPOSITORY VERSUS PARACETAMOL SUPPOSITORY ON POSTOPERATIVE PAIN, NAUSEA AND VOMITING AFTER PEDIATRIC ADENOTONSILLECTOMY

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Received date: 31 March 2021 **Revised date:** 20 April 2021 **Accepted date:** 10 May 2021

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ABSTRACT

Background: Tonsillectomy is one of the most common surgeries in children and post tonsillectomy pain and agitation management is a great challenge for anesthesiologists. **Objectives:** The aim of this study was to compare the efficacy of use dexamethasone parentally. We evaluated the effect of 0.15 (0.5 mg\ kg) DEX, and Paracetamol suppository(15 mg/kg) with Paracetamol suppository(15 mg/kg) alone on the incidence of postoperative nausea and vomiting (PONV) and on pain intensity After Pediatric Adenotonsillectomy. **Materials and Methods:** In this study, the subjects were randomly allocated into the two groups: first group used the dexamethasone(DEX) parentally with rectally Paracetamol suppository (15 mg/kg). and second group used rectally Paracetamol suppository (15 mg/kg) only. Was started 15 minutes before the end of surgery in both groups,. Using the children's hospital of eastern Ontario (CHEOPS) pain scale, pain and agitation score and also the incidence of nausea and vomiting after the surgery were recorded in 30 min, 3 and 10 hours after the operation. P value less than 0.03 was considered as statistically significant in all cases. **Results:** There was no significant difference between the two groups considering demographic data (age, sex distribution, weight and height). The CHEOPS pain scales were significantly lower in the DEX group compared to the control group at 30 minute and 3 hours after the surgery (P =0.003 and P = 0.023, respectively). There was no significant difference in the CHEOPS scale at 10 hours after the surgery, dose of adjuvant analgesic and the incidence of nausea and vomiting after the surgery between the two groups. **Conclusions:** According to the results of the current study, postoperative analgesia in children was improved in the DEX group. Therefore, for better management of post-tonsillectomy pain, use DEX administration with Paracetamol suppository is recommended.

KEYWORDS: Paracetamol suppository, DEX, Tonsillectomy, Pain.

INTRODUCTION

The tonsillectomy operation is associated with complications such as nausea, vomiting, hemorrhage and postoperative pain and the latest is the most common. If the postoperative pain is not well-controlled, especially in children, it can lead to a longer recovery period, delayed discharge, nutritional deficiencies, and resulting in dehydration of patients. These factors will increase the hospitalization period and the need for intravenous fluids.On the other hand, children are the patients who mostly undergo tonsillectomy.Postoperative pain has more undesirable effects on preschool patients than adult.We aimed to assess the effects of DEX. in association with acetaminophen on postoperative pain (according to the CHEOPS), nausea and vomiting after pediatric adenotonsillectomy in this study.

The children's hospital of eastern Ontario pain scale (CHEOPS) is a widespread used behavioral scale for rating postoperative pain in children.

PATIENTS AND METHODS

Because the patients enrolled in this study were children, before entering the study, parents were given full information about the study and informed consent was prepared. All standards for the control of postoperative pain and vomiting were administered for both groups.

In this randomized, triple blinded clinical trial, 98 American society of anesthesiologists (ASA) class 1 children aged between 3 and 12 years candidate for tonsillectomy were randomly allocated into the two

groups (control and intervention).

Inclusion criteria were: 3 - 12 years age, candidate for elective adenotonsillectomy surgery, and score 1 of ASA criterion. Exclusion criteria included history of psychiatric illness, using analgesic drugs 24 hours before surgery, sensitivity to DEX. or acetaminophen, history of liver and neurological diseases, and use of cautery for hemostasis.

The sample size was estimated to be 49 patients in each of the control and intervention groups.

The method of random blocks (block randomization) was used; two terms, “intervention” and “comparison” were written twice on four sheets of paper and the patients were randomly classified into two groups: intervention (DEX. and acetaminophen), comparison (acetaminophen). This procedure was continued again for the next four patients until the desired sample size was gained. In both groups the acetaminophen suppository and DEX. intravenously 15 minutes before the end of surgery.

All patients were premeditated with midazolam 0.5 mg/kg, and atropine 0.02 mg/kg. Induction of anesthesia was similar in both groups including fentanyl 1.5 µg/kg. propofol 2 mg/kg.and atracurium 0.5 mg/kg and then all patients were intubated and. Inhalational anesthesia was continued to the end of surgery by a isoflurane with MAC of 1%.

Paracetamol suppository (15 mg/kg) was started 15 minutes before the end of the surgery in both groups.

Intervention group received intravenous DEX 0.5 mg/kg 15 minutes before the end of the surgery. Control group received 2 mL of intravenous saline15 minutes before the end of the surgery.

The surgery technique was sharp dissection with snake and we did not use cautery for the hemostasis. After the surgery, neuromuscular block was reversed with 0.045 mg/kg.

neostigmine and 0.02 mg/kg atropine and after regular and adequate ventilation, the endotracheal tube was removed and the patients were transferred to postoperative care unit (recovery period).

Pain intensity was measured by children’s hospital eastern Ontario pain scale (CHEOPS) pain score 30 minutes, 3 and 10 hours after surgery. CHEOPS pain score is the earliest tools used to assess and document pain behaviors in young kids. It assesses the efficacy of interventions used in alleviating pain. It is a behavioral scale and includes six categories: cry, facial, child verbal, torso, touch, and legs.

The frequency of nausea and vomiting were recorded at half, 3 and 10 hours after surgery too. If the pain score was greater than 4 based on CHEOPS scale.The recurrences of vomiting, abnormal bleeding from the surgical site or any drug side effects were recorded.The collected data was analyzed using SPSS software version 16 and P value less than 0.03 was considered as statistically significant in all cases. For comparison of qualitative data like percentage of nausea and vomiting, chi-square test was used and independent sample t-test was used to compare the mean values.

RESULTS

In this study, 98 patients (49 patients in each group) were studied. Considering demographic data (age, sex distribution, weight and height), there was no significant difference between the two groups (Table 1).

Variable	Control	DEX	P Value
Age, y	6.32 ± 2.2	6.9 ± 2.4	0.21
Height	120.79 ± 15.4	115.51 ± 22.19	0.25
Weight	22.5 ± 7.4	25.5 ± 6.5	0.52
Gender			≥ 0.07
Male	22	27	
Female	27	22	

There was no significant difference in the mean of CHEOPS scale between the two groups at 10 hours after the surgery (Table 2(No statistically significant difference was observed between the two groups regarding the frequency of need for rescue narcotics to control the postoperative pain with chi-square test, (P= 0.297) (Table2)

Table 2: Comparison of the CHEOPS scale, Nausea and Vomiting and Adjuvant Narcotic usage in the two Groups.

Variable	control	DEX	P Value
CHEOPS, 0.5 ha	3.6 ± 1.2	4.01 ± 0.7	0.004
CHEOPS, 3 ha	3 ± 0.9	3.40 ± 0.73	0.03
CHEOPS, 10 ha	2.7 ± 0.8	2.956 ± 0.8	0.75
Nausea,%	13.2	11.2	0.075
Vomiting,%	25.5	19.4	0.68
Adjuvant narcotic,%	15.28	23.5	0.078

No complications such as agitation, hemodynamic instability, changes in heart rate, respiratory distress or airway spasms and bleeding were observed in both groups during the first 24 hours after tonsillectomy.

DISCUSSION

Pediatric pain management is one of the most important health care challenges. Pre-school aged children are particularly badly affected by adverse effects of postoperative pain than adults. So, effective management of postoperative pain including multi-method approach (different medicines with various mechanisms) is needed.

Providing perioperative analgesia by extreme use of opioid analgesics leads to a variety of perioperative side effects like respiratory depression, drowsiness, postoperative nausea and vomiting and ileus that delayed discharge. Therefore, nonopioid analgesic techniques as adjuvants for managing acute perioperative pain are extensively used now to minimize the adverse effects of opioids.

DEX. possesses broad clinical applications due to its unique pharmacological characteristics and physical properties.

The results of the current study showed that although no significant difference was observed between the two groups for postoperative nausea and vomiting and need for excessive narcotics, a meaningful decrease in pain intensity at 30 minutes and 6 hours after the surgery based on the CHEOPS pain scale was observed in the DEX. group compared to the control group. Consequently, a single dose of DEX in our study could effectively reduce pain after adenotonsillectomy.

We were not able to assess the pain score at 24 hours after surgery because of discharging before 24 hours of admission and this can be considered as one of the limitations of the current study.

CONCLUSIONS

The findings of the current study indicate that administration of intravenous DEX. (0.5 mg/kg) can effectively reduce the pain after adenotonsillectomy surgery, without an increased rate of side effects such as nausea, vomiting and agitation. So, it can be used in combination with paracetamol to get more efficiency than paracetamol, singly.

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