

Single Dose Dexamethasone Effect on Postoperative Pain in Pediatric Adenotonsillectomy In Habbobi Teaching Hospital in Nasiriyah / Iraq (2013-2015)

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Abstract :-

Objectives: To assess the effectiveness of single calculated dose of dexamethasone per-operatively in reducing pain in pediatric adenotonsillectomy.

Materials and Methods: its retrospective study of One hundred fifty patients underwent adenotonsillectomy with age range of 6-12 years old divided into two equal groups , the 1st group (treatment) receive single dose (0.5mg/Kg) dexamethasone intravenously at induction of general anesthesia , the 2nd (control) receive nothing , pain assessed postoperatively at 2, 8 and 16 hours using Visual Analogue Score (Mild "1-4" , Moderate "5-7" and Severe "8-10") .

Results : The difference at 2 hours postoperatively was statistically insignificant , but at 8 and 16 hours it was statistically significant (P-value <0.05) .

Conclusion : single dose dexamethasone at induction of adenotonsillectomy general anesthesia significantly reduce pain in the postoperative period .

Keywords :-

Adenotonsillectomy , Dexamethasone , Pain relief .

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Introduction :-

Although the modern surgical procedure was well established at the 20th century, tonsillectomy 1st described in India in 1000 B.C., Celsus in 'De Medicina' (14–37 AD) described 'induration' of the tonsils, which he advised could be removed by dissection with the fingernail. Tonsillectomy is the most common pediatric major surgery, more than 40% of pediatric otolaryngological procedures were Adenotonsillectomies. ^(1, 2)

Throat Pain (and referred otalgia) were a major problem in the postoperative period

, many mechanisms were proposed for pain such as muscle spasm of pharyngeal musculature caused by inflammation and irritation (by surgery), also it could be due to the exposed nerve endings in the surgical bed, and other suggest that surgical bed edema contributes substantially to the postoperative discomfort of adenotonsillectomy. ⁽³⁾

Different approaches to manage pain were considered like NSAID, opioids, local anesthetics, ... etc. ⁽⁴⁾. In our study we will try to estimate the efficacy of single

intravenous dexamethasone in adenotonsillectomy patients at the anesthesia induction in management of postoperative pain.

Material and Methods :-

A prospective analytic study conducted at the otolaryngology department at Habbobi Teaching Hospital –Al Nasiriyah – Iraq from Jan. 2013 to June 2015.

One hundred and fifty patient were subjected to the study from both sexes (66 female and 84 male) with age from 6-12 years old divided into two equal groups. Group 1 (treatment group) receive a single dose of 0.5 mg/Kg dexamethasone I.V. at the induction of anesthesia, the other Group 2 (control group) receive nothing.

All of them had no contraindication to steroids, blood diathesis or chronic illnesses (hypertension, diabetes, renal failure, ...etc.).

The patients admitted one night before surgery, detailed otolaryngological history and examination performed, a written informed consent was obtained from their caregivers. All of them were subjected to CBC, Viral screen and bleeding & clotting times.

The surgery performed under general anesthesia with cuffed endotracheal intubation and the standard calculated doses of Propofol and Atracurium were used for induction followed by Oxygen and Isoflorane for maintenance of anesthesia.

The sharp dissection method was performed in all patients by the same surgeon with hemostasis secured by moist gauze pressure and ligatures (2/0 silk threads). All patients receive oral antibiotics (Augmentin), simple analgesic (paracetamol) with encourage of oral feeding (in the form of cold liquids & Ice-cream).

The pain intensity were assessed at 2, 8, 16 hours interval postoperatively in both groups using the Visual Analogue Score (VAS) (and

caregiver notice) classified as mild (1-4) , moderate (5-7) & severe (8-10).

The statistical analysis of the data

performed using SSPS 17 and P value of <0.05 was considered as statically significant .

Results :-

A total of 150 patients (75 for each group) were included in this study over the period of 30 months , their age ranged from 6-12 years old , female 66 (44%) and males 84 (56%) .

Table (1) Distrbution between male and female

Group	Male	Female	Total
Treatment (1)	48 (32%)	27 (18%)	75 (50%)
Control (2)	36 (24%)	39 (26%)	75 (50%)
Total	84	66	150

Table (2) The severity of pain assessed for each group and P-value estimated aftr 2 – 8-16 hours postoperative

Time	Group	Pain Severity			P-value
		Mild	Moderate	Severe	
2 hours	Treatment (1)	25	30	20	< 0.01
	Control (2)	10	27	38	
8 hours	Treatment (1)	68	05	02	< 0.03
	Control (2)	30	23	22	
16 hours	Treatment (1)	62	13	00	< 0.02
	Control (2)	35	25	15	

Discussion :-

Adenotonsillectomies were one of the major surgeries in pediatric surgical practice and it is the most common otolaryngological surgical procedure, throat discomfort (and referred otalgia) still the major complain after the surgery and its sequels in delaying oral intake and the resultant poor oral hygiene which will accentuate the other complains (like bleeding , poor activity , .. etc.) , many regimes tried to resolve this discomfort like NSAID (low analgesic effect and high risk of compromised platelets activity "bleeding hazards") , opioids (fair from respiratory depression with compromised airway) , infiltration of local anesthetics at the surgical bed ... etc. with varying results .^{(5), (6)}

Dexamethasone is a potent glucocorticoid with minimal mineralocorticoid activity, by suppressing the migration of leukocytes and reducing the capillary permeability with inhibition of the prostaglandin and pro-inflammatory cytokines it acts to compete and decrease inflammation .⁽⁷⁾

This study shows that patients group with dexamethasone therapy show reduction of pain postoperatively

which statistically significant at 8 and 12 hours postoperatively (P -value >0.05) , therefore improving the patient compliance and postoperative oral feeding thus improving his return to normal activity in less time .

Several studies conducted at different centers agree with the results of our study like thus done by Khan et al⁽⁸⁾ , McKean et al⁽⁹⁾ , Stewart et al⁽¹⁰⁾ .

Conclusion :-

Single dose dexamethasone intravenous injection at induction of anesthesia was significantly reduces the severity of pain in postoperative period in pediatric adenotonsillectomy

Recommendation :-

A multi-center, randomized , with larger number of patients and different age – groups study must be conducted to prove the applications of dexamethasone as a standard analgesic after the procedure of adenotonsillectomy (or Tonsillectomy alone)

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تأثير الديكساميثازون في شدة الألم بعد عملية أستئصال اللوزتين والغداني في الأطفال

الدكتور أوس عادل الحصونة طبيب اختصاص أقدم في طب الأذن والأنف والحنجرة والعنق والرأس وجراحاتها- مستشفى الحبوبي التعليمي - الناصرية - العراق

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الخلاصة :

جرعة وريدية لمادة الديكساميثازون أثناء التداخل الجراحي لعملية استئصال اللوزتين والغداني في الأطفال على شدة الألم بعد التداخل الجراحي ، الفئة العمرية المستهدفة من الدراسة من ١٢ - ٦ سنة ، تم اختيار عينه من ١٥٠ طفل وتم تصنيفهم إلى مجموعتين ، المجموعة الأولى (٧٥ مريض) هم مجموعة العلاج وتم إعطائهم جرعة مفردة من الديكساميثازون (٠.٥ ملغم / كغم) وريدياً أثناء إعطاء أدوية التخدير الوريدية قبل البدء بالعملية الجراحية تحت التخدير العام . أما المجموعة حدة الألم الثانية (٧٥ مريض) لم يتم إعطائهم اي شيء إضافي . تم تقديرها بعد التداخل الجراحي (بعد إكمال العملية الجراحية) ب ٢ ساعة و ٨ ساعة و ١٢ ساعة تباعاً وفق تعريف رقمي بسيط متدرج بسيط من ٤ - ١ ، متوسط ٧ - ٥ ، شديد من ١٠ - ٨) .

كان الفرق غير مفيد إحصائياً وبدون فرق يذكر بعد ساعتين من إجراء العملية ولكن كان في المدى الآخر بعد ٨ و ١٢ ساعة واضحاً و كان الفرق الإحصائي مؤشراً .

من هذا نستنتج بأن جرعة الديكساميثازون المفردة أثناء عملية استئصال اللوزتين والغداني في الأطفال ذات تأثير إيجابي في تقليل حدة الألم بعد التداخل الجراحي .