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Research Article

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Evaluate the Dexamethasone Drug as Preventing Repeated Fever by Acute Tonsillitis in Pediatric Patients: A Prospective Study

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Abstract

Background: *To determine the effectiveness of dexamethasone drug in reducing the pain and fever associated with moderate to severe Acute tonsilitis in pediatric patients.*

Methods: *Prospective, randomized, Ethics approval was to complete all parts of the form and append consent form(s), information sheets, and any other materials in support of consent. The Institutional Review Board of the Faculty of Medical Technology, affiliated with Sabratha University in a Libyan pediatric department (PED) between March to July 2024, Children aged 5 to 12 years with moderate to severe Acute tonsillitis. Study patients were randomly assigned to receive dexamethasone drug (0.6 mg/kg with a maximum of 10 mg). Daily follow-up was conducted until the complete resolution of the sore throat. outcome variables included hours to initial relief of sore throat and time to the complete resolution of pain and fever.*

Results: *A convenience sample of 57 patients were randomized to receive either dexamethasone. patients available for data analysis; 57 received dexamethasone. Patients who received dexamethasone reported earlier onset of pain and fever relief (9.2 vs 18.2 hours; P,.001), and fewer hours to complete resolution of sore throat (30.3 vs 43.8 hours; P=.04). less time to complete resolution of sore throat (37.9 vs 70.8 hours; P=.006).*

Conclusions: *Children with moderate to severe acute tonsilitis had an earlier onset of pain and fever relief and a shorter duration of sore throat when given dexamethasone drug.*

Keywords: Dexamethasone, Acute Tonsillitis, Fever

1. Introduction

Background: Acute Tonsillitis is a prevalent condition among children, characterized by inflammation of the tonsils due to bacterial infections. One of the primary symptoms associated with this illness is fever, which can recur multiple times during the course of the infection. Managing fever episodes effectively is crucial not only for alleviating discomfort but also for preventing complications that may arise from prolonged high temperatures [1].

The pain associated with acute tonsillitis can be reduced minimally by non-steroidal anti-inflammatory drugs, acetaminophen, and antibiotics if bacterial infections are present. Nevertheless, continued odynophagia might result in the absence from school or work for the child or the child's guardian and the risk of dehydration from reduced oral intake [2-9]. A recent article found that children with bacterial infections usually miss at least 2 days of school because of their illness [6]. Intramuscular and oral glucocorticoids have been shown to reduce pain in adults with acute severe exudative tonsillitis [7-10]. In contrast, in a study of children with acute tonsillitis, there was no significant difference in time to onset of clinically significant pain relief or time to complete pain relief in children who received oral dexamethasone [11]. Another study showed that a single oral dose of dexamethasone provided only short-lived pain relief in children with suspected infectious mononucleosis who had acute tonsillitis [12]. However, in both these pediatric studies [11,12]. The authors included children with mild complaints of sore throat and did not quantify the amount of tonsillitis erythema or edema to be included in the study, which might be a reason why a difference was not detected. This study aimed to Evaluate the Dexamethasone Drug as Preventing Repeated Fever by Acute Tonsillitis in Pediatric Patients.

The aim of this study was to evaluate whether Dexamethasone has a role in reducing recurrent fever resulting from acute tonsillitis in pediatric patients and focus on Dexamethasone drug, which can be made a prescribed medication for children diagnosed with acute tonsillitis. This study represents a major advance in pediatrics and highlights potential treatment options for this common disease in children.

2. Material And Method

2.1 Study Design

This study was A prospective, randomized, and informed consent was obtained from all participants prior to inclusion in a Libyan pediatric department (PED) between : ***March*** to ***July 2024.***

Ethics approval was to complete all parts of the form and append consent form(s), information sheets, and any other materials in support of consent.

The Institutional Review Board of the Faculty of Medical Technology, affiliated with Sabratha University, approved this study Evaluate was 59 samples of children, aged 5 to 12 years, was eligible if they came to the PED with moderate to severe Acute Tonsillitis, defined as having all of the following: presence of odynophagia or dysphagia, moderate to severe tonsillitis erythema, or swelling as determined by the pediatric medicine physician.

Patients were excluded if they were immune-compromised or allergic to dexamethasone; if they had a retropharyngeal or peritonsillar abscess; or if they had used any form of glucocorticoid within the previous week. Eligible patients were enrolled as the primary research groups. The study was approved by the pediatric department (PED). Study patients were randomly assigned to receive oral dexamethasone or Intramuscular (0.5 mg/kg with a maximum of 8 mg). The consent was obtained, the study medication was administered orally by the pediatric medicine physician. If the child vomited the medication, another syringe was obtained with the same study medication from the pharmacy. If the child refused the study medication or vomited the medication twice, then the child was excluded from the study.

2.2 Clinical Study

Before discharge from the pediatric department, Patients were instructed to use a weight-appropriate dose of non-steroidal anti-inflammatory drugs or acetaminophen as needed for fever or pain at home. The child or child's guardian was contacted by telephone daily by 1 of us from the time of discharge to the time of complete resolution of the sore throat. Follow-up information obtained daily included:

(a) the pain score on the throat ; (b) the time to inception of pain relief; (c) the time to complete resolution of pain; (d) the presence or absence of fever; (e) the type, dosage, and frequency of anti-inflammatory or antipyretic medications; (f) the need to obtain further medical care; (g) the persistence of associated symptoms or potential side effects of dexamethasone, We considered a potential side effect of dexamethasone to include headache, nausea or vomiting, abdominal pain, myalgia, mood changes, dizziness, and swollen legs.

2.3 Statistical Analysis: These were performed with SPSS 20.0 software (SPSS Institute). *P-value* less than (0.05) was considered statistically significant.

The results:

Characteristic	(n = 57) (95% CI)
Mean age, y	12.6(11.6 to 13.6)
Duration of sore throat, h	72.0(43.8 to 81.2)
Temperature, °C	37.6(37.4 to 37.8)

Table 1: Characteristics Study

A total of 50 patients were enrolled in this study between ***March*** to ***July 2024***. All participants completed the study and none were excluded. Patients' demographics are summarized in Table 1.

Characteristic	Dexamethasone Group (n - 57)	95% CI
Required IVF in the PED	3(5)	2 to 14
Hospitalization in first 24 h	2(4)	1 to 13
Returned to PED/PCP in first 24 h	1(2)	O to 10
Used NSAIDs in first 24 h	14 (25)	16 to 38
Used acetaminophen in first 24 h	6(11)	5 to 22
Hospitalization after 24 h	1/24 (4)	1 to 20
Returned to PED/PCP after 24 h	0/24	O to 14

Used NSAIDs after 24 h	2/24 (8)	2 to 25
Used acetaminophen after 24 h	1/24 (4)	1 to 20
Develop peritonsillar abscess	1(2)	O to 10

Table 2: Characteristics Study of Clinical

Table 2 describes the clinical course of patients following the administration of study medication. Five patients were hospitalized, all owing to dehydration secondary to poor oral intake from extreme odynophagia.. The groups did not differ in the presence of fever or potential side effects.

Characteristics	Dexamethasone Sodium Phosphate Group (n » 57)	Difference (95% Cl)
Time to initial relief of sore throat, h	9.2 ± 7.5	9.0 (3.9 to 14.1)
Time to complete relief of sore throat, h	30.3*27.8	13.5 (0.4 to 26.6)
Change in score in first 24 h|	0.58*0.26	0.15 (0.05 to 0.25)
Change in score in the next 24 hi	0.31 *0.23	0.06 (-0.05 to 0.17)

Table 3: Characteristics Study of Clinical

Table 3 outlines the clinical response of each treatment group and the responses stratified. There was a significant difference the dexamethasone groups in the onset of fever relief, but we detected no differences in the hours to complete resolution of sore throat or in the change in pain score in the first 24 hours. In patients with fever, there was a significant difference in the onset of pain relief, in total duration of sore throat, and in the change in pain score in the first 24 hours between patients specified dexamethasone drug.

4. Discussion

Several studies have investigated the role of glucocorticoids in managing pain, and fever associated with acute pharyngitis. In a placebo-controlled trial in adults, a single intramuscular dose shortened the time to initial pain relief (a difference of 6.1 hours) and to complete resolution of pain (a difference of 20.4 hours) [7]. Similarly, a single intramuscular dose of betamethasone in adults with acute exudative pharyngitis led to earlier initial pain relief (a difference of 4.9 hours) and time to complete resolution of pain (a difference of 14 hours) [8]. More recently, a study comparing the effectiveness of dexamethasone with placebo for adults with acute pharyngitis showed that both dexamethasone groups (subjects received it via either oral or intramuscular routes) were equally effective and superior to placebo [9,10]. However, these adult studies included few pediatric patients, so the results might not be generalizable to children. In a prospective, randomized, double-blind, placebo-controlled study of oral dexamethasone (0.3 mg/kg; maximum dose, 15 mg) for the treatment of pharyngitis in children aged 5 to 18 years with suspected infectious mononucleosis, Roy et al found a significantly greater proportion of children who received oral dexamethasone achieved pain relief within the first 12 hours compared with placebo (12/20 vs 5/19; P=.03) [12]. However, this difference did not exist at subsequent follow-up. In a prospective, randomized, double-blind, placebo-controlled study of oral dexamethasone (0.6 mg/kg; maximum dose,10 mg) for 184 children aged 5 to 16 years presenting with acute pharyngitis, *Bulloch et al* noted that a subgroup of children without GABHS did not show any benefits from oral dexamethasone in terms of hours to initial pain relief or complete resolution of sore throat [11]. For children with GABHS, oral dexamethasone showed a beneficial effect in terms of the number of hours to initial relief of sore throat (difference, 5.5 hours; 95% confidence interval, (1 to 10), but there was no difference in the number of hours to complete resolution of sore throat [11]. Our results are similar to those of *Bulloch et al 11* for the subgroup of children.

For these children, oral dexamethasone provided an earlier onset of pain relief, but because children with Bacteria usually have a shorter duration of pain after receiving antibiotics, the effect of oral dexamethasone was not apparent at subsequent follow-up. However, in contrast to previous pediatric studies, we found that children without Bacteria who received oral dexamethasone experienced greater beneficial effects in both the number of hours to initial pain relief and the number of hours to complete the resolution of symptoms. We believe the reason for this difference between our study and previous studies is due to the difference in enrollment criteria.

5. Conclusion

Our study involved a convenience sample; however, patient characteristics that might have influenced the effect of dexamethasone were distributed evenly among the groups. However, we did not detect any immediate complication. Therefore, long-term follow-up would have been important in detecting these potential complications. Because no scoring system exists for defining mild, moderate, or severe pharyngeal erythema or swelling, inclusion was based on the subjective findings of the pediatric emergency medicine physician.

Our data demonstrate that immunocompetent children with moderate to severe pharyngitis benefited from using dexamethasone in achieving earlier onset of fever relief and shortened duration of pain. Thus, the use of dexamethasone appears to be a safe adjunct to nonsteroidal anti-inflammatory drugs or acetaminophen and, if necessary, antibiotics in the treatment of moderate to severe fever in children.

Declarations

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Conflicts of Interest: The authors declare no conflict of interest.

Authors' Contributions: AAE and ZMA conducting study, interpreted data and draft the manuscript. All authors approved the paper for publication

The Institutional Review Board of the Faculty of Medical Technology, affiliated with Sabratha University, approved this study.

Contributions: Ahmed EBshena and Zubaeda Alsayeh conducting studies, interpreting data, and drafting the manuscript. Both authors approved the paper for publication.

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