CJEM Journal Club

Corticosteroids for a sore throat

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Article chosen

Hayward GN, Hay AD, Moore MV, et al. Effect of oral dexamethasone without immediate antibiotics vs. placebo on acute sore throats in adults: a randomized clinical trial. *JAMA* 2017;317(15):1535-43.

Keywords: Dexamethasone, oral corticosteroids, without antibiotics, primary care, acute, sore throat

BACKGROUND

A sore throat is a common presentation in the primary care setting.[1-4] A large proportion of these patients receive antibiotics despite the low risk of suppurative complications and limited symptomatic benefit.[5] In the search for an effective alternative to antibiotics, studies have assessed the effectiveness of steroids and antibiotics combined, but evidence is lacking for the exclusive use of steroids for a sore throat in primary care patients.[6] The study was called the Treatment Options without Antibiotics for Sore Throat (TOAST) trial and aimed to assess the clinical effectiveness of oral corticosteroids for an acute sore throat in the absence of antibiotics in an outpatient general practice setting.

POPULATION STUDIED

The investigators enrolled patients 18 years of age or older who presented to a primary care clinician with acute symptoms of a sore throat and pain with swallowing. The primary care clinician was either a general practitioner or practice nurse, and acute symptoms were defined as sudden onset in the previous seven days. Furthermore, the clinician needed to consider whether the sore throat was caused by an infection, but not requiring immediate antibiotics.

There were several exclusion criteria including pregnant patients, those using inhaled or oral corticosteroids in the previous month, and patients who had taken antibiotics in the previous 14 days.

STUDY DESIGN

The study was a randomized, placebo-controlled, and double-blind trial conducted at 42 family practices in South and West England. The study used block randomization that was stratified by study centre and receipt of delayed antibiotics. Patients fulfilling the inclusion criteria had throat swabs; then, clinicians decided between no antibiotics and delayed antibiotics. Next, patients from both groups were randomized to take 10 mg of dexamethasone or a placebo.

OUTCOME MEASURES

The primary outcome was complete resolution of a sore throat at 24 hours, regardless of whether the patients were offered a prescription for delayed antibiotics.

There were several secondary outcomes, and they included the complete resolution of the sore throat at 48 hours, duration of moderately bad symptoms (based on a Likert scale, 0, normal; 6, as bad as it could be), visual analog symptom scales (0–100 mm; 0, no symptoms, to 100, worst imaginable), health care attendance, days missed from work or education, consumption of delayed antibiotics or other medications, and adverse events.

The authors recorded serious adverse events including parapharyngeal abscess, peritonsillar abscess, severe tonsillitis, and pneumonia.

RESULTS

Five hundred seventy-six patients were eligible for enrolment; 288 received dexamethasone, 277 received a placebo, and 11 were excluded after they were found to be ineligible after their clinical notes were reviewed.

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A single dose of oral dexamethasone did not significantly increase the proportion of participants reporting complete resolution of their sore throat at 24 hours, regardless of receiving a delayed antibiotic prescription. Of those assigned to the dexamethasone group, 22.6% had complete symptom resolution at 24 hours, as compared with 17.7% of those assigned to the placebo group, indicating a risk difference of 4.7% (95% confidence interval [CI] –1.8 to 11.2). At 48 hours, 35.4% in the dexamethasone group v. 27.1% in the placebo group experienced complete symptom resolution with a risk difference of 8.7% (95% CI 1.2–16.2) and a number needed to treat (NNT) of 10 (95% CI 7–146). Those in the no-antibiotic prescription group were significantly more likely to have complete resolution of their sore throat with 37.6% in the dexamethasone group and 27.2% in the placebo group, with a risk difference of 10.3% (95% CI 0.6–20.1) and an NNT of 10 (95% CI 6–234). There were no differences in those offered a delayed antibiotic prescription. There were no significant differences in any other secondary outcomes. There were five serious adverse events, with two in the dexamethasone group and three in the placebo group.

COMMENTARY

This study was well designed, and the results are generally valid. All clinically important outcomes were considered; participants were analyzed in the groups to which they were randomized; blinding was employed; and the treatment arm groups were similar.

One consideration is that this study was powered based on a previous Cochrane Review to detect a modest effect size. It is possible that a larger study would have revealed a significant difference. Furthermore, the study was not powered to detect adverse events adequately.

The latest Cochrane Review on the topic demonstrated that the combination of antibiotics and corticosteroids led to a three-fold higher rate of complete resolution of a sore throat by 24 hours, as compared with a placebo.[6] Recently published meta-analyses and a systematic review found that two low doses of corticosteroids reduce the pain intensity and duration at 24 hours, provide complete resolution at 24 and 48 hours, and reduce the time to onset of pain relief.[7] The discrepancy between the previous research results and this study calls these results into question. It may be that the exclusion of patients requiring antibiotics excluded those patients who would most benefit from corticosteroids.

From an emergency medicine perspective, the greatest pitfall of this study was its questionable external validity. This study took place in a general practice setting, and patients whom the practitioner determined would require immediate antibiotics were excluded. These factors would likely lead to the inclusion of patients with a lower acuity than those presenting to a community emergency department (ED). Most patients had Centor Scores of 0–2; therefore, the usefulness of dexamethasone for a severe sore throat with Centor Scores of > 3 could not be drawn from this study. Furthermore, this study did not include children, who comprise a large proportion of patients presenting with a sore throat.

CONCLUSION

This study supported the use of corticosteroids to relieve the symptoms of a mild-to-moderate sore throat at 48 hours. However, with steroid use, only 9% more patients with a sore throat were pain free at 48 hours. This is a relatively small difference with wide CIs, suggesting that the clinical efficacy of corticosteroids in this population is modest, at best. Other reviews and systematic analyses have concluded that steroids alone, as well as in conjunction with antibiotics, significantly decreased throat pain in, as early as, 24 hours; however, most patients included in these studies had more severe symptoms than the individuals enrolled in this study. Moreover, the use of low-dose corticosteroids appears to be safe, but the decision to administer corticosteroids in an ED setting would need to be tailored to the specific patient in a shared decision model.

Competing interests: None declared.

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