



**Keri Bergeson, MD;**  
**Nina Rogers, MD;**  
**Shailendra Prasad,**  
**MBBS, MPH**

North Memorial  
Family Medicine Residency  
Program, University of  
Minnesota (Drs. Bergeson  
and Prasad); Department  
of Family Medicine, The  
University of Chicago  
(Dr. Rogers)

**PURLs EDITOR**

**Bernard Ewigman,**  
**MD, MSPH**

Department of Family  
Medicine, The University  
of Chicago

# Corticosteroids for a sore throat?

One dose of a steroid can alleviate the pain—and has the potential to decrease unnecessary use of antibiotics.

## PRACTICE CHANGER

Consider prescribing a single dose of corticosteroids for patients with sore throat, which has been found to bring quicker pain relief and resolution of symptoms.<sup>1</sup>

## STRENGTH OF RECOMMENDATION

**A:** Based on a meta-analysis of randomized controlled trials (RCTs) in ambulatory care settings.

Hayward G, Thompson M, Perera R, et al. Corticosteroids as stand-alone or add-on treatment for sore throat. *Cochrane Database Syst Rev.* 2012;(10):CDC008268.

## ILLUSTRATIVE CASE

A 28-year-old woman comes to your clinic because she's had a severe sore throat and low-grade fever for the past 2 days. She has no associated cough. Examination reveals erythematous posterior oropharynx with exudate. A rapid strep test is negative. The patient says the sore throat is very painful and asks for medication to make it better. What should you prescribe?

**M**ost sore throats—particularly in adults—are viral and self-limiting.<sup>2,3</sup> Group A B-hemolytic *Streptococcus* infections account for just 10% of sore throats in adults and 15% to 30% in children.<sup>4</sup> Yet US physicians have been found to prescribe antibiotics for more than half of patients who present with sore throat.<sup>5-7</sup>

## Do patients want antibiotics, or simply pain relief?

Antibiotics produce only a modest reduction in symptoms of pharyngitis (fever and throat soreness), presumably in patients with

bacterial infections, and increase the risk of adverse events.<sup>5,6</sup> Research suggests that patients who request antibiotics for sore throat may primarily be seeking pain relief.<sup>8</sup> Thus, a treatment that's more effective in alleviating symptoms of a sore throat would likely contribute to a decrease in unnecessary use of antibiotics.

A short course of corticosteroids has been used successfully and shown to be safe for conditions such as acute sinusitis, croup, and asthma.<sup>9-11</sup> Could the anti-inflammatory effects of corticosteroids reduce pain in patients with sore throat, as well? A 2010 systematic review suggested that was the case.<sup>12</sup> Cochrane reviewers recently took another look.<sup>1</sup>

## STUDY SUMMARY

### Steroids bring speedier pain relief

This meta-analysis included 8 RCTs (the same 8 trials used in the systematic review<sup>9</sup>) that compared corticosteroids with placebo for the symptomatic treatment of exudative or severe sore throat.<sup>1</sup> Sore throat was defined as clinical evidence of pharyngitis and/or tonsillitis or the clinical syndrome of painful throat and odynophagia.

Five studies were conducted in the United States, and one each in Canada, Turkey, and Israel. Five studies focused on adults (N=413); the other 3 studied children (N=393). Overall, 47% of participants had exudative sore throat, and 44% were positive for group A B-hemolytic *Streptococcus*.

In all 8 RCTs, antibiotics were given to those in both the treatment and placebo groups. In addition, all participants

were allowed to use traditional analgesia—either acetaminophen or nonsteroidal anti-inflammatory drugs. Corticosteroids (oral dexamethasone, oral prednisone, or intramuscular [IM] dexamethasone) were used as an adjunctive treatment in all the RCTs.

Primary outcomes varied among the studies. Four of the 8 RCTs included the proportion of patients with improvement or complete resolution of symptoms within 24 to 48 hours. Mean time to onset of pain relief was the primary outcome in 5 of the 8 studies. Some of the secondary outcomes in the individual trials included relapse rates, adverse events, and days missed from school or work.

Overall, patients who received corticosteroids were 3 times more likely to report complete resolution of symptoms at 24 hours (relative risk=3.2; 95% confidence interval, 2.0-5.1;  $P<.001$ ) and had a reduced mean time to onset of pain relief of about 6 hours. The number needed to treat to prevent one patient from experiencing pain at 24 hours was  $<4$ .

Adverse events were reported in only one of the trials ( $N=125$ ): Five patients (3 in the steroid group and 2 on placebo) were hospitalized for fluid rehydration, and 3 patients (one in the steroid group and 2 on placebo) developed peritonsillar abscess.<sup>12</sup> Three RCTs did not find any significant difference in days missed from school or work, and 4 trials reported no difference in recurrence of symptoms. One of the trials found that 16% of the patients in the placebo group returned to seek additional care, while none in the steroid group did.<sup>13</sup>

#### WHAT'S NEW

### Steroids haven't been tested as standalone treatment

Steroids are not currently recommended for routine use to treat symptoms of sore throat. This Cochrane review found that patients with severe or exudative sore throat benefit from pain reduction with corticosteroids, used as an adjunct to antibiotics and other analgesics without increased risk of harm. Nonetheless, the use of steroids in this patient population would address a practical concern of those seeking symptom relief and has the potential to decrease unnecessary antibiotic use.

#### CAVEATS

### Questions about effects on antibiotic use, heterogeneity remain

The studies in this meta-analysis did not assess whether the use corticosteroids would reduce unnecessary use of antibiotics, so we cannot conclude that this would be the case. Because the effect was similar in all subgroups analyzed, however, it is reasonable to expect that reduced antibiotic use could be a positive effect. The main documented benefit was resolution of pain, an important patient-centered outcome that justifies consideration of treating painful pharyngitis with corticosteroids.

Corticosteroids have an immunosuppressant effect and carry the theoretical risk of exacerbating an existing infection. That did not occur in these studies. Nor has it occurred when used for short courses in other illnesses such as croup, infectious mononucleosis, asthma, contact dermatitis, and chronic obstructive pulmonary disease.<sup>14</sup> Thus, this theoretical risk is not a barrier to implementation.

It is important to note that single and multiple doses of corticosteroids and oral and IM routes were effective, with only minimal differences in results.

#### CHALLENGES TO IMPLEMENTATION

### Determining the severity

Acetaminophen and NSAIDs are used for pain relief in sore throat, and have been shown to be effective—but may be inadequate for severe pain.<sup>15</sup> There are no head-to-head trials that have compared steroids to NSAIDs or acetaminophen in this clinical scenario. So the challenge for clinicians will be to decide when pharyngitis is severe enough to justify the use of corticosteroids, rather than simple analgesics alone.

JFP

#### ACKNOWLEDGEMENT

The PURLs Surveillance System was supported in part by Grant Number UL1RR024999 from the National Center for Research Resources, a Clinical Translational Science Award to the University of Chicago. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Center for Research Resources or the National Institutes of Health.

Copyright © 2013. The Family Physicians Inquiries Network. All rights reserved.

CONTINUED



Research suggests that patients who request antibiotics for a sore throat may be seeking pain relief.

References

1. Hayward G, Thompson M, Perera R, et al. Corticosteroids as stand-alone or add-on treatment for sore throat. *Cochrane Database Syst Rev.* 2012;(10):CD008268.
2. Cherry DK, Woodwell DA. National Ambulatory Medical Care Survey: 2000 summary. *Adv Data.* 2002;328:1-32.
3. Bisno AL. Acute pharyngitis. *N Engl J Med.* 2001;344:205-211.
4. Del Mar CB, Glasziou PP, Sprinks AB. Antibiotics for sore throat. *Cochrane Database Syst Rev.* 2006;(4):CD000023.
5. Linder JA, Stafford RS. Antibiotic treatment of adults with sore throat by community primary care physicians: a national survey, 1989-1999. *JAMA.* 2001;286:1181-1186.
6. Linder JA, Bates DW, Lee GM, et al. Antibiotic treatment of children with sore throat. *JAMA.* 2005;294:2315-2322.
7. Hong SY, Taur Y, Jordan MR. Antimicrobial prescribing in the USA for adult acute pharyngitis in relation to treatment guidelines. *J Eval Clin Pract.* 2011;17: 1176-1183.
8. van Driel ML, De Sutter A, Deveugele M, et al Are sore throat patients who hope for antibiotics actually asking for pain relief? *Ann Fam Med.* 2006;4:494-499.
9. Venekamp RP, Thompson MJ, Hayward G, et al. Systemic corticosteroids for acute sinusitis. *Cochrane Database Syst Rev.* 2011;(12):CD008115.
10. Russell KF, Liang Y, O’Gorman K, et al. Glucocorticoids for croup. *Cochrane Database Syst Rev.* 2011;(1):CD001955.
11. Rowe BH, Spooner C, Ducharme F, et al. Early emergency department treatment of acute asthma with systemic corticosteroids. *Cochrane Database Syst Rev.* 2001;(1):CD002178.
12. Korb K, Scherer M, Cenot J. Steroids as adjuvant therapy for acute pharyngitis in ambulatory patients: a systematic review. *Ann Fam Med.* 2010;8:58-63.
13. Olympia RP, Khine H, Avner JR. Effectiveness of oral dexamethasone in the treatment of moderate to severe pharyngitis in children. *Arch Pediatr Adolesc Med.* 2005;159: 278-282.
14. Manson SC, Brown RE, Cerulli A, et al. The cumulative burden of oral corticosteroid side effects and the economic implications of steroid use. *Respir Med.* 2009;103:975-994.
15. Wei JL, Kasperbauer JL, Weaver AL, et al. Efficacy of single-dose dexamethasone as adjuvant therapy for acute pharyngitis. *Laryngoscope.* 2002;112:87-93.

An INDUSTRY DIRECT supplement to *The Journal of Family Practice*

➔ INDUSTRY DIRECT

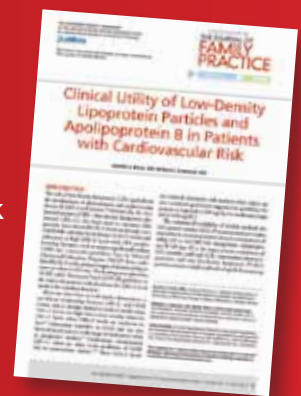
NOW AVAILABLE IN THIS ISSUE AND ONLINE

# Clinical Utility of Low-Density Lipoprotein Particles and Apolipoprotein B in Patients with Cardiovascular Risk

Jennifer L. Ennis, MD; and William C. Cromwell, MD

A suggested approach to incorporating low-density lipoprotein particle numbers into clinical practice for patients with moderate to high cardiovascular risk, including:

- Assessing clinical risk
- Establishing therapy goals appropriate for the degree of assigned risk
- Prescribing therapeutic lifestyle changes and medications as indicated
- Assessing therapy efficacy and modifying treatment as needed



This INDUSTRY DIRECT supplement to *The Journal of Family Practice* is brought to you by Laboratory Corporation of America® Holdings. This article was neither developed, nor peer reviewed, by *The Journal of Family Practice*.