CLINIC IQ

Clinical Question: Does Treatment with Corticosteroids Improve Pain Outcome in Patients with Acute Pharyngitis?

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Answer: Yes
Data answer was determined: June 7, 2006
Level of evidence: five RCT
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Summary of Issues:
Patients seek care for pharyngitis because of inadequate analgesia and concern over group A ß-hemolytic streptococcal infection.

Regardless of the nature of the infection, antibiotics such as benzathine penicillin or erythromycin, if allergic to penicillin, do little in the acute phase to relieve the pain and inflammation associated with this disease. The goal of adjuvant therapy with steroids for pharyngitis is to decrease inflammation, reduce pain, and improve oral intake to prevent dehydration and possible hospitalization.

Pharmacologically glucocorticosteroids inhibit recruitment of neutrophils, monocytes, and macrophages into the area of inflammation and also inhibit formation of prostaglandins and leukotrienes actions that moderate acute inflammation.

Summary of the Evidence:
(1). Wei JL, Kasperbauer JL, Weaver AL, Boggust AJ. In this prospective, randomized, double-blind, placebo-controlled study conducted from August 1998 to July 2000, a total of 118 adult patients with acute pharyngitis were enrolled. The three arms of the study were: placebo (n = 37), a 10-mg single dose of intramuscular dexamethasone (n = 39), and a 10-mg single dose of oral dexamethasone (n = 42). All patients were given oral antibiotics and had bacterial throat cultures. Telephone follow-up 12 hours after treatment was available in 111 patients, and 24-hour follow-up data were available in 116. The change in pain (visual analogue scale) scores reported by patients who were given either intramuscular or oral dexamethasone was significantly greater than that of the patients who were given placebo (P <.001 and P =.002, respectively). In a subgroup analysis, these differences were confirmed only when group A ß-hemolytic streptococcal infection was confirmed (n = 47).

(2). Marvez-Valls EG, Ernst AA, Gray J, Johnson WD. In this randomized, double-blind, placebo-controlled, outpatient clinical trial, a total of 92 patients with acute pharyngitis were enrolled. Each patient was asked to rate his or her pain on a 10-cm, numbered visual analog scale (VAS; 0-10). Throat swabs were obtained from each patient and sent for bacterial culture and all of the patients received injectable benzathine penicillin. If allergic to penicillin, they were started on a 10-day course of polyenteric-coated erythromycin (PCE). Each patient was randomized to receive either IM betamethasone or IM placebo. All patients were contacted by telephone at 24 and 48 hours by one of the study investigators and asked to rate their pain based on another VAS. If their pain was not resolved by 48 hours, they were called again daily between the third and seventh days after the initial visit to determine the time of pain resolution. RESULTS: 46 patients were randomized to receive placebo and 46 to receive bethamethasone. Eight patients were excluded from the statistical analysis because of inability to obtain follow-up. Demographic comparison showed that gender distributions, ages, mean initial pain scores, mean times to the first and second follow-up calls, and treatment regimens were similar in the 2 groups. There were significantly reduced pain scores for the bethamethasone group at first follow-up (p = 0.0005), at second follow-up (p = 0.004), and in number of hours until relief of pain (p = 0.004). When only those patients with a positive culture for a streptococcus species were analyzed, there also were significant reductions in pain score at the first (p = 0.006) and second (p = 0.02) follow-up visits.

(3). O'Brien JF, Meade JL, Falk JL. In this prospective, randomized, double-blinded, placebo-controlled clinical trial, 51 patients aged 12 to 65 years with acute pharyngitis were enrolled. All patients received oral penicillin (500 mg Pen VK) or erythromycin (333 mg base) three times daily for ten days in addition to either 10 mg single-dose dexamethasone or saline placebo IM injection. Follow-up was obtained to determine their condition at 24 hours. At entry, there were no significant differences in age, weight, antibiotic assignment, or initial pain score between groups. Improvement in pain score (initial versus 24 hours) was 1.8 +/- 0.8 in the 26 patients of the dexamethasone group and 1.2 +/- 0.9 in the 25 patients of the placebo group (P < .05). Time to onset of pain relief was also faster in steroid-treated patients who demonstrated relief beginning at 6.3 +/- 5.3 hours, compared with 12.4 +/- 8.5 hours in the placebo group (P < .01). Of the 26 patients evaluated at seven days (13 in each group), time until complete lack of pain averaged 15.0 +/- 11.4 hours in the dexamethasone group and 35.4 +/- 17.9

hours in the placebo group (P < .02).

(4). Kiderman A, Yaphe J, Bregman J, Zemel T, Furst AL. In this randomized placebo-controlled trial, by five GPs in three urban and one rural Israeli family medicine clinics between November 2001 and October 2002, 79 patients aged 18 to 65 years with acute pharyngitis were enrolled, of whom 40 were randomized to receive 60 mg prednisone orally for 1 or 2 days and 39 identical placebo treatment. Each subject was then examined clinically and had a throat swab taken. Antibiotic treatment (penicillin VK, amoxicillin or erythromycin) was prescribed at the GPs' discretion but was ceased if the throat culture subsequently proved negative for Group A streptococci. Initially, all patients were asked to rate their pain on a 10 cm numbered VAS where 0 represented no pain and 10 the worst pain the patient had ever experienced. They were asked again during four telephone follow-ups by their own GP at 8–12, 24, 48 hours and 7 days after study entry The main outcome measures were throat pain, measured by a visual analogue scale at 12, 24, 48 and 72 hours after presentation, time off work, fever, dysphagia, recurrence of symptoms and bacterial recurrence. Patients treated with prednisone experienced more rapid throat pain resolution than those in the placebo group.

(5). Bulloch B, Kabani A, Tenenbein M. In this prospective, randomized, double-blind, placebo-controlled trial of 184 children aged 5 to 16 years who presented to the emergency department with acute pharyngitis. Children rated their pain on a standardized color analog scale and had a rapid streptococcal antigen detection test performed to determine group assignment. Children were randomized to dexamethasone (0.6 mg/kg, maximum dose 10 mg) or placebo. Blinded research assistants called all families daily to determine pain scores until the point of complete pain relief. The primary outcome measures were the time to clinically significant pain relief and the time to complete pain relief. There were 85 children in the antigen-positive group, of whom 45 were randomized to dexamethasone and 40 to placebo. In children with group A beta-hemolytic streptococcal pharyngitis, the median time to clinically significant pain relief was 6 hours in the dexamethasone group versus 11.5 hours in the placebo group (P=.02; effect size of 5.5 hours with 95% confidence interval [CI] of 1.0 and 10.0 hours), and the time to complete pain relief was similar (36 hours for placebo versus 40 hours for dexamethasone, P =.86; effect size of 4.0 hours with 95% CI of -9.3 and 17.3 hours) in the placebo group. There were 99 children enrolled in the antigen-negative group, of whom 47 received dexamethasone and 52 received placebo. In this group, the median time to clinically significant pain relief was 13 hours in the dexamethasone group versus 9 hours in the placebo group (P =.32; effect size of 4 hours with 95% CI of -2 and 10 hours), and the time to complete pain relief was similar (48 hours for placebo versus 50 hours for dexamethasone, P =.61; effect size of 2 hours with 95% CI of -11.8 and 15.8 hours).

Search terms: steroids, placebos, pharyngitis, pain, and randomized clinical trials.

Inclusion and Exclusion Criteria: We chose to only review RCTs involving patients with acute exudative pharyngitis.

List of articles reviewed:

1. Wei JL, Kasperbauer JL, Weaver AL, Boggust AJ. Efficacy of single-dose dexamethasone as adjuvant therapy for acute pharyngitis. *Laryngoscope*. 2002; 112(1): 87-93.
2. Marvez-Valls EG, Ernst AA, Gray J, Johnson WD. The role of betamethasone in the treatment of acute exudative pharyngitis. *Acad Emerg Med*. 1998;5(6):567-72.
3. O'Brien JF, Meade JL, Falk JL. Dexamethasone as adjuvant therapy for severe acute pharyngitis. *Ann Emerg Med*. 1993; 22(2): 212-5.
4. Kiderman A, Yaphe J, Bregman J, Zemel T, Furst AL. Adjuvant prednisone therapy in pharyngitis: a randomized controlled trial from general practice. *Br J Gen Pract*. 2005; 55(512): 218-21.
5. Bulloch B, Kabani A, Tenenbein M. Oral dexamethasone for the treatment of pain in children with acute pharyngitis: a randomized, double-blind, placebo-controlled trial. *Ann Emerg Med*. 2003; 41(5): 601-8.