

Cochrane for Clinicians

Putting Evidence into Practice

These are summaries of reviews from the Cochrane Library.

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Corticosteroids for the Treatment of Sore Throat

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Clinical Question

Is treating sore throat with corticosteroids safe and effective?

Evidence-Based Answer

In adults with suspected bacterial pharyngitis who require antibiotic therapy, adding a corticosteroid may increase the likelihood of complete pain resolution at 24 hours. Further study is needed to assess the safety of corticosteroids and whether they can be recommended for presumed viral pharyngitis or for children. (Strength of Recommendation: B, based on inconsistent or limited-quality patient-oriented evidence.)

Practice Pointers

Pain caused by inflammation from viral or bacterial infection in the oropharynx or tonsils is a common reason that children and adults seek medical care. Many infections are likely caused by rhinovirus, coronavirus, and adenovirus, whereas the most common bacterial pathogen, group A beta-hemolytic streptococcus, is found in 10% of adults and in 15% to 30% of children with sore throat.^{1,2} Despite limited benefit of antibiotic therapy, prescribing rates remain inappropriately high; 40% to 50% of sore throat visits result in an antibiotic prescription.³ Analgesics have unclear benefit in pain reduction.⁴ Corticosteroids are used for their anti-inflammatory effects in other respiratory infections and may present an effective treatment for the pain of sore throat.

The authors searched for randomized controlled trials that compared any corticosteroid use vs. usual care or placebo in adults and children older than three years who presented with sore throat to outpatient clinics or emergency departments. The review included eight trials with 743 patients. Two

trials enrolled only children, two enrolled only adults, and four included both age groups. Antibiotics were used in all eight trials. In two trials, antibiotics were prescribed only to patients who tested positive for group A streptococcus. One trial enrolled only patients with test-positive streptococcal pharyngitis. In the remaining five trials, pharyngitis was diagnosed clinically, and antibiotic use was recommended either for all patients or by physician discretion.

High-quality evidence from four studies with 286 patients showed that participants who received corticosteroids were three times more likely to be pain free at 24 hours than those who received placebo (number needed to treat = 3.7). Moderate-quality evidence from six of the eight studies found that pain relief also started an average of six hours earlier in those treated with corticosteroids vs. placebo ($P < .001$). Included trials used oral or intramuscular corticosteroids, or both, with a single dose or two- or three-day treatment courses. Subgroup analyses to determine the optimal route or dosing regimen were not statistically significant, although corticosteroids tended to be more effective in patients with severe exudative bacterial pharyngitis than in those with milder symptoms or nonstreptococcal pharyngitis.

Of the two trials that enrolled only children, one reported a positive effect with corticosteroid use, and the other found no difference between the treatment groups. The studies that enrolled children, adolescents, and adults did not report outcomes by age, so reviewers were unable to stratify effectiveness by age group. No significant differences were noted in adverse event rates, complications of streptococcal disease, or recurrence or relapse rates between the corticosteroid and placebo groups, although conclusions regarding safety were limited because of the small number of trials.

The 2012 guidelines from the Infectious Diseases Society of America, which pooled recommendations from studies of children

and adults, recommend against the use of corticosteroids for the symptoms of acute bacterial pharyngitis.⁵ Although corticosteroids may be an effective adjunct treatment for the pain of sore throat in adolescents and adults, further study is needed to confirm effectiveness in children and as a potential stand-alone treatment in trials without antibiotics.

SOURCE: Hayward G, Thompson MJ, Perera R, Glasziou PP, Del Mar CB, Heneghan CJ. Corticosteroids as standalone or add-on treatment for sore throat. *Cochrane Database Syst Rev.* 2012;(10):CD008268.

The practice recommendations in this activity are available at <http://summaries.cochrane.org/CD008268>.

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The Role of Breathing Exercises in the Treatment of COPD

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Clinical Question

Do breathing exercises lead to improvements in dyspnea, exercise capacity, and health-related quality of life in patients with chronic obstructive pulmonary disease (COPD)?

Evidence-Based Answer

Patients with COPD who are treated with breathing exercises vs. standard care showed an improvement in exercise capacity, with inconsistent changes in dyspnea and health-related quality of life. Adding breathing exercises to a pulmonary rehabilitation program did not show any increased benefit. Breathing exercises may be helpful for those without access to a pulmonary rehabilitation program. (Strength of Recommendation: B, based on inconsistent or limited-quality patient-oriented evidence.)

Practice Pointers

Pulmonary rehabilitation is recommended for all patients with COPD to improve physical function and quality of

life. This multidisciplinary approach, which includes exercise training, education, nutritional intervention, and psychosocial support, improves dyspnea and functional capacity, and lowers the rates of hospital admission and mortality.^{1,2} Breathing exercises are commonly used as part of such programs, but data supporting their use alone are limited.

Breathing exercises are intended to reverse the typical COPD pattern of increased accessory muscle and rib cage use. This Cochrane review, which included 16 randomized controlled trials, evaluated breathing exercise techniques such as pursed lip breathing, diaphragmatic breathing, and pranayama yoga.

Pursed lip breathing improved outcomes of a six-minute walk test by 50.1 m (95% confidence interval [CI], 37.2 to 63.0) after eight weeks of an intervention involving 15 minutes of breathing exercises three times daily. However, there was no significant improvement in dyspnea using the University of California–San Diego Shortness of Breath Questionnaire after four weeks or 12 weeks when pursed lip breathing was taught using pulse oximetry for feedback with daily home practice. In a study comparing health-related quality of life for pursed lip breathing vs. placebo, pursed lip breathing showed a significant improvement in the dyspnea domain following eight to 12 weeks of training (mean difference = -12.9 units; 95% CI, -22.3 to -3.6), but no significant improvement in any other domain, including mood, social function, and well being.

Diaphragmatic breathing encourages patients to use their abdominal wall when breathing to reduce chest wall motion.¹ This technique increased dyspnea in one study, whereas it significantly improved dyspnea after four weeks of training in another study. There was also an increase in functional capacity of 34.7 m (95% CI, 4.1 to 65.3) as measured by a six-minute walk test, and improvement in quality of life as measured by the St. George's Respiratory Questionnaire (mean difference = -10.5 points; 95% CI, -17.7 to -3.3). One study found no significant difference in peak oxygen consumption, 12-minute walk distance, peak work, or endurance work with diaphragmatic breathing.

Results of yoga training on dyspnea and quality of life for patients with COPD are mixed. A meta-analysis of two studies noted a significant improvement in the six-minute walk test of 44.5 m after 12 weeks of yoga training, but one of the studies found no improvement in distress levels after the six-minute walk test. The same studies had conflicting conclusions about quality of life; one showed improvement, whereas the other did not.

Some of the included studies examined a combination of techniques. One study found that combining pursed lip breathing, diaphragmatic breathing, and

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nutritional supplementation improved total quality of life compared with usual care. Another study found that combining pursed lip breathing, diaphragmatic breathing, and walking improved symptom-related quality of life on the St. George's Respiratory Questionnaire. Yet, there was no significant difference in functional capacity as measured by the six-minute walk test (mean difference = 0.6 m; 95% CI, -23.4 to 24.2).

The Institute for Clinical Systems Improvement suggests using pulmonary rehabilitation programs to improve symptoms in those with moderate to severe COPD.³ Breathing exercises can be easily taught in the clinic; online resources are also available (e.g., <http://www.webmd.com/lung/copd/copd-breathlessness-9/exercise>). Although breathing exercises may be useful as an adjunct treatment for patients with COPD, family physicians should keep in mind that these exercises cannot replace full pulmonary rehabilitation for improvements in dyspnea or quality of life.

SOURCE: Holland AE, Hill CJ, Jones AY, McDonald CF. Breathing exercises for chronic obstructive pulmonary disease. *Cochrane Database Syst Rev*. 2012;(10):CD008250.

The practice recommendations in this activity are available at <http://summaries.cochrane.org/CD008250>.

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