Q/Which treatments provide the most relief for pharyngitis pain?

Rebecca Frye, DO
David Grant Medical Center, Travis Air Force Base, Calif

Justin Bailey, MD
Family Medicine Residency of Idaho, Boise

Amy E. Blevins, MALS
Hardin Library for the Health Sciences, University of Iowa, Iowa City

ASSISTANT EDITOR

William Kriegsman, MD
Tacoma Family Medicine, Tacoma, Wash

EVIDENCE-BASED ANSWER

A/ **NONSTEROIDAL ANTI-INFLAMMATORY DRUGS** (NSAIDs), acetaminophen, antibiotics, and oral and intramuscular steroids are effective (strength of recommendation [SOR]: **A**, meta-analysis).

Ibuprofen relieves pain more effectively than acetaminophen (SOR: **A**, meta-analysis). Antibiotics reduce pain in confirmed bacterial infections (SOR: **A**, multiple randomized controlled trials [RCTs]). Steroids are superior to placebo (SOR: **A**, meta-analysis).

Traditional demulcents, agents that help form a film over mucous membranes, provide less than 30 minutes of pain relief (SOR: **B**, small RCT); demulcents that contain benzocaine or lidocaine are longer acting (SOR: **B**, small RCT).

The efficacy of herbal remedies can't be determined because of lack of high-quality studies (SOR: **A**, meta-analysis). Zinc doesn't reduce pharyngitis symptoms (SOR: **A**, meta-analysis).

Evidence summary

A meta-analysis of 54 RCTs that investigated pain control, 5 of which focused on pharyngitis, showed that both ibuprofen and acetaminophen are more effective than placebo.[1] In the 3 adult RCTs (N=346) and 2 pediatric RCTs (N=347) that studied pharyngitis specifically, 400 mg ibuprofen 3 times a day (10 mg/kg in children) provided more pain relief than 1000 mg acetaminophen 3 times a day (15 mg/kg in children).[1]

One of the RCTs, a double-blind, single-dose, single-center study of pharyngitis, found that 400 mg ibuprofen reduced pain by 80% at 3 hours compared with a 50% decrease for 1000 mg acetaminophen ($P<.01$).[2] At 6 hours, ibuprofen still produced 70% relief compared with 20% for acetaminophen ($P<.01$). The meta-analysis demonstrated no significant difference in side effects between the 2 drugs.[1]

Steroids help, but concomitant antibiotics muddy the data

A meta-analysis of 8 RCTs enrolling 743 patients (369 children and 374 adults) found that oral and intramuscular steroids reduce duration and intensity of pain in moderate to severe pharyngitis and exudative pharyngitis.[3] Four of the studies showed that corticosteroids completely resolve pain at 24 hours compared with placebo (number needed to treat [NNT]=3.7; 95% confidence interval [CI], 2.8-5.9), and 3 studies demonstrated pain relief at 48 hours (NNT=3.3; 95% CI, 2.4-5.6).

Although time to pain resolution varied among the studies, the research demonstrated a decrease in mean onset of pain relief by 6 hours compared with placebo (95% CI, 3.4-9.3; $P<.001$).[3] All of the studies in the meta-analysis were limited by the fact that steroids were given in combination with antibiotics.

Demulcents have short-lived effect with a boost from anesthetics

A multicenter, prospective, randomized, double-blinded, placebo-controlled study (N=60) showed that demulcents provide short-term pain relief. On combined self-reported pain scales at 5, 10, 15, and 30 minutes,

herbal tea demulcents were more effective than placebo (mean improvement in overall pain score=66.7 ± 39.2 on a 150-point scale, compared with 48.7 ± 32.8; *P*=.031). No difference was seen after 30 minutes.[4]

Demulcents with added anesthetics provide superior pain relief compared to placebo, as measured on a visual analog scale. In a single-center, randomized, double-blinded, placebo-controlled phase III study (N=240), patients who reported meaningful pain relief with lidocaine lozenges compared with placebo showed benefit from both single doses (38.3% lozenges vs 11.7% placebo; NNT=3.8) and multiple doses (73.3% lozenges vs 34.2% placebo; NNT=2.5). Additionally, pain relief lasted for >2 hours per lozenge. They also experienced more rapid onset of relief (24 minutes on average compared with 41 minutes).[5]

Ibuprofen works better than acetaminophen for sore throat pain.

Antibiotics work better in patients with strep

A Cochrane review comparing antibiotics with placebo for sore throat showed an NNT of 5.8 (relative risk [RR]=0.68; 95% CI, 0.59-0.79) for pain resolution by Day 3 and an NNT of 21 (RR=0.49; 95% CI, 0.32-0.76) for pain resolution by Day 7. Antibiotics reduced pain more effectively in patients who tested positive for *Streptococcus* (RR=0.58; 95% CI, 0.48-0.71) than patients who tested negative (RR=0.78; 95% CI 0.63-0.97).[6]

Don't bother with herbals or zinc

A Cochrane review of 7 RCTs of Chinese herbal remedies for sore throat pain found poor-quality methodology and thus, couldn't recommend their use.[7]

A Cochrane review of zinc supplementation (13 therapeutic trials [N=966] and 2 preventive trials [N=394]) showed no significant improvement in pharyngitis symptoms compared with placebo, although zinc decreases the duration of the common cold, if taken within the first 24 hours of cold onset (standardized mean difference, -0.97; 95% CI, -1.56 to -0.38; *P*=.001).[8] More patients in the intervention group experienced side effects (bad taste and nausea).

Recommendations

A primary care review article in the *New England Journal of Medicine* recommended acetaminophen as the drug of choice, while noting that ibuprofen has been shown in some studies to be more effective.[9] The authors also recommended anesthetic gargles or lozenges. Antibiotics should be used in medical management only to prevent complications from *Streptococcus*-antigen-confirmed pharyngitis, they say.

Treatments recommended by the Institute for Clinical Systems Improvement include acetaminophen or ibuprofen, throat lozenges or hard candy, gargling with salt water (¼ tsp salt per 8 oz water), eating soft foods and frozen desserts, drinking cool or warm liquids, and antibiotics for bacterial infections.[10] JFP

References

1. Pierce CA. Efficacy and safety of ibuprofen and acetaminophen in children and adults: a meta-analysis and qualitative review. *Ann Pharmacother*. 2010;44:489-506.
2. Schachtel BP, Fillingim JM, Thoden WR, et al. Sore throat pain in the evaluation of mild analgesics. *Clin Pharmacol Ther*. 1988;44:704-711.
3. Hayward G, Thompson M, Heneghan C, et al. Corticosteroids for pain relief in sore throat: systemic review and meta-analysis. *BMJ*. 2009;339:b2976.
4. Brinckmann J, Sigwart H, van Houten Taylor L. Safety and efficacy of a traditional herbal medicine (Throat Coat) in symptomatic temporary relief of pain in patients with acute pharyngitis: a multicenter, prospective, randomized, double-blinded, placebo-controlled study. *J Altern Complement Med*. 2003;9:285-298.
5. Wonnemann M, Helm I, Strauss-Grabo M, et al. Lidocaine 8 mg sore throat lozenges in the treatment of acute pharyngitis. A new therapeutic option investigated in comparison to placebo treatment. *Arznelmittelforschung*. 2007;57:689-697.
6. Spinks A, Glasziou PP, Del Mar C. Antibiotics for sore throat. *Cochrane Database Syst Rev*. 2010;(2):CD000023.
7. Shi Y, Gu R, Liu C, et al. Chinese medicinal herbs for sore throat. *Cochrane Database Syst Rev*. 2010;(3):CD004877.
8. Singh M, Das RR. Zinc for the common cold. *Cochrane Database Syst Rev*. 2011;(2):CD001364.
9. Bisno AL. Acute pharyngitis. *N Engl J Med*. 2001;344:201-211.
10. Institute for Clinical Systems Improvement. Diagnosis and treatment of respiratory illness in children and adults. Available at: www.icsi.org/guidelines_and_more/gl_os_prot/respiratory/respiratory_illness_in_children_and_adults__guideline_/respiratory_illness_in_children_and_adults__guideline__13110.html. Accessed February 10, 2011.