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Putting Evidence into Practice

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Antibiotics for Sore Throat

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Clinical Question

Should we prescribe antibiotics for sore throat?

Evidence-Based Answer

Compared with placebo, antibiotics can shorten the duration of sore throat symptoms by about 16 hours and can reduce complications. In countries where the absolute rates of complications are higher, antibiotic therapy is more likely to be effective. The effectiveness of antibiotic therapy is greatest in persons with streptococcal pharyngitis. (Strength of Recommendation: A, based on consistent, good-quality patient-oriented evidence.)

Practice Pointers

Sore throat is commonly encountered in primary care, accounting for approximately 1.3% of outpatient visits, and is often treated with an antibiotic.[1,2] Although antibiotics are useful for treating sore throat with bacterial etiology, the cause of sore throat is not always confirmed at the time of treatment, and most cases are caused by nonbacterial agents.[3] Antibiotic prescribing rates vary considerably among physicians, and high prescribing rates increase costs and microbial resistance.

In this Cochrane review, the authors identified 27 studies comparing antibiotics with placebo. They examined the effect on symptom duration, the likelihood of clinical response, and the likelihood of secondary outcomes such as headache, acute rheumatic fever, acute glomerulonephritis, peritonsillar abscess, acute otitis media, and acute sinusitis. They found a mean 16-hour reduction in sore throat symptoms treated with antibiotics. Symptom resolution after three days was greatest in persons who were culture positive for group A streptococcus (number needed to treat [NNT] = 3.7), yet antibiotics also modestly benefited patients who were culture negative (NNT = 6.5) and those who were never tested (NNT = 14.4). A benefit of antibiotic treatment on development of secondary complications was also noted. Compared with no treatment, antibiotic therapy decreased the incidence of acute rheumatic fever, acute otitis media, acute sinusitis, and peritonsillar abscess, although the absolute risk reduction for each of these was modest.

Although these data are compelling, the dates of the studies included in the review should be considered. Most were conducted before 1975, when there were much higher rates of secondary complications, making the benefits of antibiotics seem more dramatic. As an example, the review found that the incidence of acute otitis media as a secondary complication of sore throat was 3% before 1975, compared with 0.7% in 2013. This difference increases the NNT from 50 to nearly 200 to prevent a single case of acute otitis media.

This systematic review found a modest reduction in the duration of sore throat symptoms and complications with antibiotic treatment, even among patients who had a negative culture for streptococcus. However, the impact on complications in contemporary developed nations is much smaller. Some patients who had a negative culture for group A streptococcus might have had group C streptococcus or may have had a false-negative culture. Limitations in design (e.g., inadequate blinding and allocation concealment, loss to follow-up) may have created a bias in favor of treatment. In addition, treating nonstreptococcal pharyngitis with antibiotics increases costs as well as antimicrobial resistance, and unnecessarily exposes patients to potential adverse effects. Special consideration should be given if the clinician is practicing in a location with a high incidence of acute rheumatic fever. The Infectious Diseases Society of America recommends that confirmed cases of streptococcal pharyngitis be treated with an appropriately selected antibiotic for a duration sufficient to eliminate the infection (typically a 10-day course).[3]

SOURCE: Spinks A, Glasziou PP, Del Mar CB. Antibiotics for sore throat. *Cochrane Database Syst Rev.* 2013;(11):CD000023.

The practice recommendations in this activity are available at http://summaries.cochrane.org/CD000023.

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Topiramate for the Prophylaxis of Episodic Migraine in Adults

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Clinical Question

Is topiramate (Topamax) an effective prophylactic medication for adults with episodic migraine?

Evidence-Based Answer

Topiramate in a dosage of 100 mg per day is effective for decreasing the frequency of headaches in adults with episodic migraine. (Strength of Recommendation: A, based on consistent, good-quality patient-oriented evidence.)

Practice Pointers

Migraine headaches are common, affecting approximately 18% of women and 6% of men in the United States.[1] Episodic migraine describes a headache frequency of fewer than 15 days per month as opposed to chronic migraine, in which headaches occur 15 or more days per month. Pharmacologic migraine treatment options include acute and preventive therapies. Population-based studies suggest that approximately 26% of persons who have migraines need preventive therapy, but only 13% use it.[1]

Topiramate is an antiepileptic drug used as preventive therapy for migraines.[2] This meta-analysis studied whether topiramate was effective in reducing the occurrence of migraines and/or improving migraine-related quality of life in patients with episodic migraine. Seventeen prospective, controlled trials of topiramate were included in this analysis. Nine of these studies compared topiramate with placebo and found that it reduced headache frequency by 1.2 attacks per 28 days (mean difference = –1.20; 95% confidence interval [CI], –1.59 to –0.80). Patients taking topiramate daily were more likely to report a 50% or more reduction in headache frequency compared with patients taking placebo (relative risk = 2.02; 95% CI, 1.57 to 2.60). The number needed to treat for a 50% reduction in migraine headaches with topiramate vs. placebo was 4 (95% CI, 3 to 6).

Topiramate in dosages of 50 to 200 mg daily improves outcomes compared with placebo. A meta-analysis of three studies showed that the 100-mg dose was more effective at reducing headache frequency than the 50-mg dose (mean difference = –0.71; 95% CI, –1.32 to –0.10), and equivalent to the 200-mg dose. In trials that compared topiramate with placebo, seven adverse effects were reported by at least three studies: anorexia, fatigue, memory problems, nausea, paresthesia, taste disturbance, and weight loss. All adverse effects except nausea were significantly more common in persons taking 100 mg of topiramate daily vs. placebo. Topiramate is known to cause birth defects if taken during pregnancy, and should be used with caution in women of childbearing age.

Guidelines from the American Academy of Neurology, the American Headache Society, and the Canadian Headache Society list topiramate as a first-line agent to prevent episodic migraine. Other first-line agents are beta blockers (metoprolol, propranolol, and timolol); the antiepileptic valproate (Depacon); and butterbur, an herbal medication.[3] The American Academy of Neurology suggests offering preventive treatment when an individual reports one of the following: six or more headache days per month, four or more headache days with at least some impairment, or three or more headache days with severe impairment or requiring bed rest. Only a few head-to-head drug comparison trials are available, and these suggest that topiramate is probably as effective for the prevention of migraines as other recommended first-line agents (e.g., propranolol, valproate).[2] In conclusion, topiramate in a dosage of 100 mg daily is a reasonable choice for migraine prophylaxis in patients with episodic migraine.

SOURCE: Linde M, Mulleners WM, Chronicle EP, McCrory DC. Topiramate for the prophylaxis of episodic migraine in adults. *Cochrane Database Syst Rev.* 2013;(6):CD010610.

The practice recommendations in this activity are available at http://summaries.cochrane.org/CD010610.

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