

Is amoxicillin better than placebo for adults with acute maxillary sinusitis?

Evidence-Based Answer

Amoxicillin may be better than placebo for acute sinusitis in adults. (SOR **C**, based on limited evidence in 1 systematic review.) The prudent physician should remember that antibiotics are more likely to be beneficial for patients who have undergone advanced workups and that more than two-thirds of sinusitis cases resolve spontaneously. (SOR **A**, based on systematic reviews.)

A Cochrane review of 49 randomized controlled trials (RCTs) involving 13,660 patients evaluated antibiotic treatment for acute maxillary sinusitis.¹ Only 2 of these trials, by Lindbaek et al² and van Buchem et al,³ with a total of 344 patients, compared amoxicillin with a placebo. Combined analysis did not demonstrate significantly increased cure rates with amoxicillin (relative risk [RR]=2.06; 95% confidence interval [CI], 0.65–6.53), but the confidence interval was wide and there was significant heterogeneity between trials. Citing “limited evidence,” the Cochrane review concluded that in adults with acute bacterial maxillary sinusitis confirmed radiographically or by sinus aspiration, penicillin or amoxicillin 500 mg 3 times daily for 10 days is more effective than placebo.¹ This conclusion was partly due to the weight of evidence from penicillin trials and extrapolation from that drug’s similar antimicrobial spectrum with amoxicillin.

The Agency for Healthcare Research and Quality (AHRQ) commissioned a review of the literature on antibiotic therapy for sinusitis covering the years 1966–1998.⁴ They identified 30 RCTs on treatment. They concluded (as did the Cochrane review) that antibiotic treatment was significantly more effective (in terms of earlier resolution of signs and symptoms, and fewer treatment failures) than placebo for treating sinusitis, but they did not evaluate amoxicillin by itself. Importantly, symptoms improved or were cured in 69% of patients without antibiotics. Also, the trial with the least stringent criteria for sinusitis (clinical symptoms alone without further diagnostic documentation) had the highest cure rates in the placebo group (85% at 10 days), whereas trials with more tightly defined patient populations and lower spontaneous improvement rates showed a clearer benefit from antibiotics.

An AHRQ update for years 1997–2004 identified 39 studies, including 5 placebo-controlled RCTs not previously reviewed.⁵ Only 2 of the studies used amoxicillin in their treatment arms, and no new studies comparing amoxicillin to placebo were found. One of the studies with amoxicillin showed significant reduction in the clinical failure rate, whereas the other one did not. Overall, antibiotics were seen as more effective than placebo, reducing the risk of clinical failure by about 25% to 30% within 7 to 10 days of treatment ($P<.01$). Amoxicillin-clavulanate was found to be more effective than cephalosporins for reducing clinical failure in early therapy (10–25 days), but not over the longer term (24–45 days).⁵

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1. Williams JW Jr, Aguilar C, Cornell J, et al. Antibiotics for acute maxillary sinusitis. *Cochrane Database Syst Rev* 2003; (2):CD000243. [LOE 1a]
2. Lindbaek M, Hjortdahl P, Johnsen UL. Randomised, double-blind, placebo controlled trial of penicillin V and amoxicillin in treatments of acute sinus infections in adults. *BMJ* 1996; 313:325–329. [LOE 1b]
3. van Buchem FL, Knottnerus JA, Schrijnemaekers VJ, Peeters MF. Primary care based randomized placebo controlled trial of antibiotic treatment in acute maxillary sinusitis. *Lancet* 1997; 349:683–687. [LOE 1b]
4. Lau J, Zucker D, Engels EA, et al. *Diagnosis and Treatment of Acute Bacterial Rhinosinusitis*. Evidence Report/Technology Assessment No. 9. Rockville, MD: Agency for Health Care Policy and Research; March 1999. AHCPR publication 99-E016. [LOE 1a]
5. Ip S, Fu L, Balk E, Chew P, DeVine D, Lau J. *Update on Acute Bacterial Rhinosinusitis*. Evidence Report/Technology Assessment No. 124. Rockville, MD: Agency for Healthcare Research and Quality; June 2005. AHRQ publication 05-E020-2. [LOE 1a]

ERRATUM

For the February 2008 HDA (p. 5) entitled, “In adolescent females with primary dysmenorrhea, are oral contraceptive agents as effective as nonsteroidal anti-inflammatory drugs (NSAIDs) for reducing abdominal pain?” the authors’ affiliation is listed incorrectly as Oklahoma University Health Sciences Center. It should have been St. Anthony Family Medicine Residency.

We invite your questions and feedback.
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