

# Review: Penicillin V or amoxicillin is better than placebo and equal to nonpenicillins for acute maxillary sinusitis

Williams JW Jr, Aguilar C, Makela M, et al. *Antimicrobial therapy for acute maxillary sinusitis*. Cochrane Review, latest version 26 May 1999. In: The Cochrane Library. Oxford: Update Software.

## QUESTION

Which antibiotics lead to higher clinical cure rates in adults with acute maxillary sinusitis?

## DATA SOURCES

Studies were identified by searching MEDLINE and EMBASE/Excerpta Medica (to October 1998), scanning bibliographies of relevant articles, and contacting pharmaceutical companies and experts in the field.

## STUDY SELECTION

Studies were selected if they were randomized controlled trials (RCTs) that compared an antibiotic with placebo or with another type of antibiotic in  $\geq 30$  patients who were  $\geq 18$  years of age and had a history consistent with acute maxillary sinusitis confirmed by radiography or aspiration.

## DATA EXTRACTION

2 or more reviewers independently extracted data on study characteristics; interventions; study duration; length of follow-up; co-interventions; compliance; and clinical, bacteriologic, radiographic, and adverse event outcomes.

## MAIN RESULTS

32 RCTs with 34 comparisons met the inclusion criteria. Treatment duration

ranged from 3 to 15 days. Penicillin V, 1200 to 3960 mg/d, led to an increase in clinical cure or improvement rates (Table). No difference in clinical cure was seen between the amoxicillin and control groups in 2 heterogeneous RCTs. Newer nonpenicillin antibiotics had the same clinical cure rates as penicillin V or amoxicillin (8 RCTs); macrolides or cephalosporins had the same clinical cure rates as amoxicillin-clavulanate (8 RCTs). 5 RCTs that compared tetracyclines with a heterogeneous mix of antibiotics could not be meta-analyzed. Dropouts caused by adverse effects were fewer for macrolides or cephalosporins

than for amoxicillin-clavulanate (9 RCTs) (Table).

## CONCLUSION

In adults with acute maxillary sinusitis, penicillin V or amoxicillin is more effective than placebo and as effective as nonpenicillins for achieving clinical cure.

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### Antibiotics vs placebo or other antibiotics for acute maxillary sinusitis\*

Outcomes (number of studies)	Comparisons	Weighted event rates		RBI (95% CI)	NNT (CI)
		Treatment	Control		
Clinical cure rate (2)	Penicillin vs control	35%	19%	72% (0 to 196)	7 (4 to 39)
Clinical cure or improvement rate (2)	Penicillin vs control	77%	62%	24% (0 to 53)	7 (4 to 84)
<b>RRR (95% CI)</b>					
Adverse events (9)	Macrolide or cephalosporin vs amoxicillin-clavulanate	2%	4%	56% (22 to 75)	44 (25 to 200)

\* Abbreviations defined in Glossary; RBI, RRR, NNT, and CI calculated from data in article. Follow-up ranged from 7 to 30 days in studies that reported follow-up.

## COMMENTARY

Is this systematic review by Williams and colleagues the definitive work on management of sinusitis (also referred to as rhinosinusitis) that primary care internists have been awaiting (1)? The review, based on cases of sinusitis diagnosed by radiography and bacteriologic tests, has determined that antimicrobial therapy with a course of penicillin or amoxicillin for 7 to 14 days is better than placebo and equal to newer, nonpenicillins in management leading to clinical cure. Dropouts caused by adverse effects, however, were more frequent with amoxicillin-clavulanate than with cephalosporin.

Despite the clinical trials being done in mostly otolaryngologic settings with diagnoses based on laboratory tests and radiography (rather than history and physical examinations used predominantly by the primary care physician), the newer generation of antibiotics provides no substantive benefit over penicillin or amoxicillin. The data about the usual organisms present and the cure rates obtained in this review show that no advantage exists for cephalosporins or macrolides over simple penicillins, except somewhat less frequent adverse effects.

The clinician judges clinical cure by noting symptom improvement in 3 to 5 days, with resolution of remaining symptoms by 10 to 14 days. Such additional investigative studies as endoscopy, plain or computed tomography, and bacteriologic cultures are obtained for patients whose clinical course either does not respond to first-line therapy or progresses rapidly, indicating a serious infection or central nervous system complication (2).

This review does not answer all the questions for physicians who manage patients with rhinosinusitis. However, we now have clear evidence for appropriate selection of commonly used effective antimicrobial agents for first-line therapy.

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## References

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