Antibiotics for Acute Sinusitis: A Teachable Moment

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Story from the Front Lines

A middle-aged man with no significant past medical history presented to an urgent care clinic complaining of a rash. He had been seen in clinic the previous week, complaining of a two-day history of nasal congestion, sinus pressure, and headache without nasal discharge, fever, or cough. He had tried over-the-counter decongestants without relief and asked for a prescription for antibiotic therapy. No further workup was performed at that time, and he was prescribed a course of amoxicillin. Ten days later, he developed a generalized red rash. Physical examination revealed a maculopapular rash present on the trunk, limbs, and neck without epidermal detachment or involvement of mucous membranes. Amoxicillin was stopped and the rash gradually resolved over the next two weeks.

Teachable Moment

There is limited value in using antibiotics to treat acute sinusitis, given that most cases are viral in origin; this is especially true soon after symptom onset. Nonetheless, antibiotics are frequently prescribed for this condition, accounting for roughly 20 percent of all antibiotic prescriptions written in the outpatient setting.\(^1\) A recent Cochrane review found that while antibiotics decreased treatment failure rates compared to placebo, the overall clinical impact was minimal, as improvement or cure rates were high in both antibiotic and placebo groups (91 percent and 86 percent respectively).\(^2\) Another meta-analysis of randomized controlled trials came to a similar conclusion, finding that 15 patients would need to be treated with antibiotics in order to cure one additional patient.\(^3\)

In addition to limited clinical benefit, antibiotics present risks to patients and increase financial costs of care delivery. Side effects in one study occurred about 10 percent more frequently in groups receiving antibiotics than those receiving placebo, including a mean adverse effect rate for amoxicillin of 31 percent.\(^2\) Serious side effects were rare, with the most frequent adverse effects to antibiotics being gastrointestinal complaints and skin rash. More importantly, use of unnecessary antibiotics can lead to increased antibiotic resistance, threatening our ability to treat future infections. Furthermore, unnecessary antibiotic use leads to a financial cost for patients and the health system, estimated to be a minimum of $31 million dollars annually in the United States, along with associated costs for millions of office visits each year.\(^4\)

Current recommendations suggest antibiotics only for certain subgroups presenting with symptoms of acute rhinosinusitis.\(^5\) Recommendations from the Infectious Disease Society of America suggest the following groups of patients to prescribe antibiotics: (1) those with 10 or more days of symptoms that have not begun to improve, (2) those with severe symptoms (fever >39.0 degrees Celsius, purulent nasal discharge, facial pain for 3-4 consecutive days), or (3) those with a recent history of an upper respiratory infection who were improving but then developed worsening symptoms (new onset of fever, headache, or increased nasal discharge). For these patients, amoxicillin-clavulanate is recommended as empiric therapy.
Despite the evidence that antibiotics have limited clinical benefit in the treatment of acute sinusitis, they continue to be routinely prescribed. As such, curbing unnecessary antibiotic use represents an opportunity to not only decrease patient harm, but also to reduce antibiotic resistance patterns and overall healthcare costs. Reassuring patients that their symptoms should resolve on their own in about a week without antibiotic therapy—a frustrating reality nonetheless—has the potential to improve the value of care and avoid unnecessary harm.

References