Are Antibiotics Necessary for Patients with Uncomplicated Abscesses?

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Patients frequently present to the ED with skin and soft tissue infections (SSTIs), typically cellulitis and abscess. Incision and drainage (I&D) remains the standard of care for patients with uncomplicated abscesses, but controversy still exists over the necessity of subsequent antibiotic therapy given the prevalence of CA-MRSA, estimated to cause 50-81% of SSTIs. Traditionally, most strains of CA-MRSA isolated from SSTIs are susceptible to Trimethoprim/sulfamethoxazole (TMP-SMX), consequently the most widely used antibiotic for such cases.

A randomized controlled trial by Schmitz et al. (2010) compared TMP-SMX vs. placebo for adult patients with uncomplicated skin abscesses. The study found a statistically similar incidence of treatment failure in patients receiving TMP-SMX (15/88; 17%) versus placebo (27/102; 26%), a difference of 9%. A reduction in new lesions in the antibiotic vs. placebo group was also noted, a difference of 19%. Based on the results, Schmitz et al. concluded that the addition of TMP-SMX to I&D did not decrease rates of failure by 15% or more by 7 days compared with placebo, but may decrease new lesion development within 30 days.

Although provocative, the study has garnered criticism. In an editorial response, Spellberg et al. (2011) argued that the point estimate and wide 95% CI of the difference in treatment failures precludes conclusions about the efficacy of antibacterial agents for the treatment of simple abscesses. In fact, the trend toward a reduction in treatment failures and recurrent lesions with TMP-SMX actually suggests its potentially substantial benefit. Spellberg et al. also warn against the dangers of inappropriately choosing a percent difference in treatment failures between the two groups by which to dismiss the utility of antibiotics. Given the prevalence of SSTIs in the U.S., a 9% difference still translates to 145,000 excess treatment failures per year, which lead to further complications such as worsening infection and costly repeat procedures.

A similar editorial by Joshua Seth Broder, MD, notes the minimal cost of oral TMP-SMX ($4 at national retail chains such as Wal-Mart and Kroger) and argues that the cost of preventing one case of treatment failure remains far lower than the copay that most insurance plans charge for a repeat ED visit. Spellberg et al. thus argue for studies to be powered to rule out a difference in treatment failure rates of less than 5% between patients in the antibiotic vs. placebo group. Dr. Broder also criticizes Schmitz et al. for failing to acknowledge that inadequate powering may prevent their study from demonstrating a statistically significant difference between the two treatment groups. Such a ß error (failure to reject the null hypothesis that antibiotics and placebo are equivalent for treatment of cutaneous abscess) may
encourage physicians to inadvertently harm patients by withholding effective therapies based on insufficient evidence claiming a lack of benefit.

Two ongoing NIH funded placebo-controlled trials of uncomplicated abscesses will hopefully result in an adequately powered comparison between outcomes in patients treated with active antibiotics vs. those only treated with I&D. Until then, clinicians must be cautious when deciding to withhold antibiotic therapy for patients presenting with uncomplicated abscesses.

References:
