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To Treat or Not to Treat: Adjunctive Antibiotics for Uncomplicated Abscesses

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To the Editor

Schmitz et al¹ reported the results of a prospective study of adjunctive antibacterial therapy for the treatment of uncomplicated cutaneous abscesses. They concluded that “[a]fter the incision and drainage of uncomplicated abscesses in adults, treatment with trimethoprim-sulfamethoxazole does not reduce treatment failure but may decrease the formation of subsequent lesions.” However, given the point estimate and wide 95% confidence interval (CI) of the difference in treatment failures with and without antibiotics (9%; –2% to +21%), conclusions should not be drawn from this study about the efficacy of antibacterial agents for therapy of uncomplicated abscesses. Indeed, the clear trend to a reduction in treatment failures and the significant reduction in recurrent lesions with antibacterial therapy despite the small sample size underscore the possibility that antibacterial therapy is of substantial benefit for uncomplicated cutaneous abscesses. Unfortunately, this study is but the latest in a string of underpowered investigations into this important clinical issue (Table).

We are unaware of any previously published discussion about what difference in treatment failure or abscess recurrence rate is clinically meaningful when studies of uncomplicated abscesses are evaluated. However, an estimated 1.8 million *Staphylococcus aureus* infections occur per year in the United States, of which greater than 90% are skin and soft tissue infections.² Hence, a failure rate of 9%, which was the point estimate for excess failures in the placebo arm of the study by Schmitz et al,¹ would result in 145,000 excess treatment failures per year in the United States. Even a difference of 5% would be clinically meaningful, with an excess of greater than 80,000 treatment failures per year in the United States. These failures may lead to inpatient hospitalization, the need for repeated procedures, loss of work time, and other morbidity. Failure of treatment associated with development of bloodstream infection or deep tissue infection, though rare, is of grave concern. Therefore, studies should be powered to rule out a difference in treatment failure rates of less than 5% between patients treated with and without antibiotics.

A review of previously published studies suggests that there may be a 5% to 10% excess failure rate when an active antibiotic is withheld after incision and drainage of an uncomplicated abscess (Table). The 95% CI for outcomes in previous underpowered, smaller studies all included differences of this magnitude. Meta-analysis of the reviewed studies is not likely to elucidate the issue, given the mixture of observational and randomized trials, the discordant types of antibiotics and doses used, and the clear heterogeneity of results. Rather, we hope that the 2 ongoing National Institutes of Health–funded placebo-controlled trials (NCT00730028 and NCT00729937) of uncomplicated abscesses will finally clarify the issue by providing an adequately powered comparison of an active antibacterial agent versus placebo. Until such time as adequately powered studies are available, we urge caution in interpreting available data and recommend against concluding that adjunctive antibacterial therapy is of no benefit in the treatment of incised and drained, uncomplicated abscesses. Finally, close monitoring is warranted for patients from whom antibacterial therapy is withheld after incision and drainage.

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References

1. Schmitz GR, Bruner D, Pitotti R, et al. Randomized controlled trial of trimethoprim-sulfamethoxazole for uncomplicated skin abscesses in patients at risk for community-associated methicillin-resistant *Staphylococcus aureus* infection. *Ann Emerg Med*. 2010; 56:283–287. [PubMed: 20346539]
2. Chambers HF. Community-associated MRSA: resistance and virulence converge. *N Engl J Med*. 2005; 352:1485–1487. [PubMed: 15814886]
3. Duong M, Markwell S, Peter J, et al. Randomized, controlled trial of antibiotics in the management of community-acquired skin abscesses in the pediatric patient. *Ann Emerg Med*. 2010; 55:401–407. [PubMed: 19409657]
4. Llera JL, Levy RC. Treatment of cutaneous abscess: a double-blind clinical study. *Ann Emerg Med*. 1985; 14:15–19. [PubMed: 3880635]
5. Macfie J, Harvey J. The treatment of acute superficial abscesses: a prospective clinical trial. *Br J Surg*. 1977; 64:264–266. [PubMed: 322789]
6. Ruhe JJ, Smith N, Bradsher RW, et al. Community-onset methicillin-resistant *Staphylococcus aureus* skin and soft-tissue infections: impact of antimicrobial therapy on outcome. *Clin Infect Dis*. 2007; 44:777–784. [PubMed: 17304447]
7. Paydar KZ, Hansen SL, Charlebois ED, et al. Inappropriate antibiotic use in soft tissue infections. *Arch Surg*. 2006; 141:850–854. discussion 855-856. [PubMed: 16983028]
8. Lee MC, Rios AM, Aten MF, et al. Management and outcome of children with skin and soft tissue abscesses caused by community-acquired methicillin-resistant *Staphylococcus aureus*. *Pediatr Infect Dis J*. 2004; 23:123–127. [PubMed: 14872177]

Table

Studies comparing active antibacterial therapy versus inactive therapy/placebo for uncomplicated cutaneous abscesses.

First Author, Year	Results	Difference, % (95% CI)*	P Value
Randomized controlled trials			
Schmitz, ¹ 2010	Treatment failure: 15/88 (17% TMP-SMX) vs 27/102 (26% placebo)	9 (−2.2 to 21.1)	.1
	Recurrence: 4/46 (9% TMP-SMX) vs 14/50 (28% placebo)	19 (4.4 to 34.2)	.02
Duong, ³ 2009	Treatment failure: 3/73 (4% TMP-SMX) vs 4/76 (5% placebo)	1 (−7.0 to 9.3)	.5
	Recurrence: 9/70 (13% TMP-SMX) vs 19/72 (26% placebo)	13 (−0.7 to 27.8)	.04
Llera, ⁴ 1985	Treatment failure: 1/27 (3.7% cephadrine) vs 1/23 (4.3% placebo)	0.6 (−14.4 to 15.6)	.9
Macfie, ⁵ 1977 [†]	Recurrence: 0/57 (0% clindamycin) vs 3/41 (7% placebo)	7 (−2.8 to 17.4)	.07
Observational studies			
Ruhe, ⁶ 2007	Treatment failure: 16/312 (5% active antibiotics) vs 29/219 (13% discordant antibiotics)	8 (2.6 to 13.6)	.001
Paydar, ⁷ 2006 [‡]	Treatment failure (intention to treat): 2/178 (1% active antibiotics) vs 22/263 (8% discordant antibiotics) [§]	7 (3.8 to 11.4)	.001
Lee, ⁸ 2004	Treatment failure: 0/26 (0% active antibiotics) [§] vs 4/37 (11% discordant antibiotics)	11 (−2.5 to 24.1)	.1

TMP-SMX, Trimethoprim-sulfamethoxazole.

*The 95% CI in the study by Schmitz et al¹ is reported as it was in the article, without continuity correction; all other CIs in this table were recalculated with continuity correction.

[†]Two study arms in which abscess cavities were sutured shut are not included; clindamycin given at very low dose (150 mg orally every 6 hours).

[‡]When patients lost to follow-up were excluded, failure rates were 2 of 166 (antibiotics) vs 1 of 242 (no antibiotics), but the “failure” in the no-antibiotic arm was subsequent development of necrotizing fasciitis requiring leg amputation.

[§]Includes 5 patients who were treated initially with active antibiotics and 21 patients who initially received discordant antibiotics but who began receiving active antibiotics instead after culture results became available.