



Cleaning Out Practice Myths: Another Emergency Medicine Treatment Debunked

Answers to the March 2016 Journal Club Questions

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Editor's Note: You are reading the 50th installment of Annals of Emergency Medicine Journal Club. This Journal Club refers to the Chinnock and Hendey¹ article published in the March 2016 edition of Annals. Information about journal club can be found at <http://www.annemergmed.com/content/journalclub>. Readers should recognize that these are suggested answers. We hope they are accurate; we know that they are not comprehensive. There are many other points that could be made about these questions or about the article in general. Questions are rated “novice” (NOV), “intermediate” (INT), and “advanced” (ADV) so that individuals planning a journal club can assign the right question to the right student. The “novice” rating does not imply that a novice should be able to spontaneously answer the question. “Novice” means we expect that someone with little background should be able to do a bit of reading, formulate an answer, and teach the material to others. Intermediate and advanced questions also will likely require some reading and research, and that reading will be sufficiently difficult that some background in clinical epidemiology will be helpful in understanding the reading and concepts. We are interested in receiving feedback about this feature. Please e-mail journalclub@acep.org with your comments.

DISCUSSION POINTS

1. A. What was the rationale for irrigating large abscesses? Why might irrigation help treat abscesses? Might there be potential adverse events or disadvantages associated with performing what seems to be a relatively benign procedure? (NOV)
- B. What variables did the authors use to compare outcomes in the 2 groups? In what ways were the treatment groups different and how might that affect interpretation of the results? Are there any other variables (eg, intravenous drug use, history of spider bite, culture results) that may have been important to adjust for in the analysis? (INT)
2. A. Other common emergency department (ED) practices have been studied and found not to improve patient care. List a few examples. Consider whether these practices still take place despite a lack of evidence demonstrating their effectiveness. (NOV)
- B. What are the benefits of studying such common practices that are widely used but do not demonstrate

evidence of efficacy? Are there any disadvantages to performing such studies?

- C. List 3 commonly used ED treatments that you would be interested in studying to determine their true effectiveness. How might you design a study to test one of these treatments? (ADV)
 - D. Imagine that your study failed to support the effectiveness of the practice. Would this provide sufficient evidence for you to change your clinical practice? Would you want additional studies to prove the treatment ineffective even if there were no studies that proved its effectiveness? Are the results from this study about irrigation of abscesses sufficient for you to change your practice? (INT)
 - E. Do you think individual physicians place more importance on their own clinical experience with a treatment or the published results of studies measuring a treatment's effectiveness? If the former, why might that be the case, especially for emergency physicians? (NOV)
3. The Consolidated Standards of Reporting Trials (CONSORT) statement is used to aid investigators in reporting results from randomized controlled trials.² How well does this study conform to the CONSORT criteria? Explain the importance of the detailed information provided in Figure 1. (NOV)
 4. This trial was registered with clinicaltrials.gov. (INT) Discuss why registration is important, especially with respect to this study that had a protocol change. Although a protocol change was clearly acknowledged in this article, how often are similar changes unreported in the literature? Why might authors choose to include or omit this information?

ANSWER 1

Q1.a What was the rationale for irrigating large abscesses? Why might irrigation help treat abscesses? Might there be potential adverse events or disadvantages associated with performing what seems to be a relatively benign procedure?

For many years, emergency clinicians have variably used irrigation as part of treatment for cutaneous abscesses, despite a lack of evidence showing its effectiveness. Common procedural manuals such as *Roberts and Hedges' Clinical Procedures in Emergency Medicine* discuss the use of irrigation as an optional part of standard treatment.³ Given that a major goal of incision and drainage includes the egress of pus from the abscess cavity, irrigation would seem like a rational mechanism to accomplish this goal after the majority of purulent material has been removed by wound dissection. Specific techniques for irrigating abscesses likely evolved from the practice of wound irrigation, which has been more extensively reviewed in the literature. Evidence demonstrates the reduction of bacterial counts within wounds after pulsatile jet irrigation; therefore, extrapolation to abscess management would lead one to believe that high-pressure irrigation might also help to reduce bacterial counts within abscess cavities.⁴ Studies have evaluated the most appropriate irrigant to be used for wound preparation. Dire and Welsh⁵ compared normal saline solution, povidone-iodine solution, and Shur-Clens and identified no difference among them. Normal saline solution, which is cost-effective and readily available, is recommended for abscess irrigation in *Roberts and Hedges* and was the most commonly used irrigant in this study. Evidence from wound irrigation research seems to have been extrapolated to abscess irrigation, guiding common clinical practice.

Although irrigation may seem like a benign procedure, potential disadvantages certainly still exist. Disadvantages to the patient may include increased discomfort; increased cost, depending on the materials used; and increased treatment time to perform this additional step. Irrigation may pose increased risk for the health care providers because of body fluid exposure during irrigation. Finally, irrigation may also increase the risk of contamination of the surrounding areas in the emergency department (ED). Given these disadvantages, clear evidence showing a change in outcomes should be demonstrated if irrigation is to remain a part of emergency medicine practice for cutaneous abscess treatment.

Q1.b What variables did the authors use to compare outcomes in the 2 groups? In what ways were the treatment groups different and how might that affect interpretation of the results? Are there any other variables (eg, intravenous drug use, history of spider bite, culture results) that may have been important to adjust for in the analysis?

The authors collected data on patient demographics, abscess size and location, comorbidities (ie, associated cellulitis, fever, diabetes, and immunocompromised state), and postprocedural abscess use of packing material and antibiotic administration. The investigators did not

perform multivariable analyses that specifically adjusted for these variables because this study was a randomized trial design. The expectation of a randomized trial, if randomization was successful, is that 2 treatment groups should be nearly identical, with the exception of the intervention being studied. Despite randomization, the irrigation group had higher rates of abscess packing and prescription of antibiotics at discharge. The unequal distribution of these variables is not surprising because the total sample was relatively small, with 209 patients of whom 187 patients were included in the primary analysis. Had the study enrolled 2,100 patients at multiple sites, one would have anticipated more equal distribution of the baseline characteristics. Although readers might assume that this difference would have led to improved outcomes in the irrigation group, the authors point out that these interventions have been studied in the past and have been shown not to affect outcomes, which may explain the lack of influence on the results.

Documentation of patients' history of intravenous drug use or of spider bite may have been beneficial to report, given their association with abscess formation. As mentioned above, one would hope that randomization would allocate patients with these risk factors equally to the treatment groups. A clearer definition of what constituted an immunocompromised status may improve the generalizability of the results to institutions that treat large populations of patients with HIV or organ transplants, or individuals undergoing chemotherapy. Additionally, if cultures were obtained during the process, this information could also be used to stratify patients. Although abscess size was provided, this measurement was a single dimension. Volumetric measurement of the abscess cavity by ultrasonography may more accurately allow comparison of overall abscess size.

ANSWER 2

Q2.a Other common emergency department (ED) practices have been studied and found not to improve patient care. List a few examples. Consider whether these practices still take place despite a lack of evidence demonstrating their effectiveness.

Although some common ED practices have been in regular use for many years, there is recent evidence to refute many of them. Frequent instruction after lumbar puncture in the ED includes a variable amount of bed rest in the supine position to help prevent postdural puncture headaches. A 2002 Cochrane review analyzed 11 trials including nearly 2,000 patients and failed to show benefit from this practice; however, many clinicians still include this instruction for ED patients after their lumbar

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