Full of Hot Air? Do Patients With Large Spontaneous Pneumothoraces Require Hospitalization?  
September 2014 Annals of Emergency Medicine Journal Club

Guest Contributors
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Editor's Note: You are reading the 41st installment of Annals of Emergency Medicine Journal Club. This Journal Club refers to the Voisin et al1 article published in the September 2014 edition. This bimonthly feature seeks to improve the critical appraisal skills of emergency physicians and other interested readers through a guided critique of actual Annals of Emergency Medicine articles. Each Journal Club will pose questions that encourage readers—be they clinicians, academics, residents, or medical students—to critically appraise the literature. During a 2- to 3-year cycle, we plan to ask questions that cover the main topics in research methodology and critical appraisal of the literature. To do this, we will select articles that use a variety of study designs and analytic techniques. These may or may not be the most clinically important articles in a specific issue, but they are articles that serve the mission of covering the clinical epidemiology curriculum. Journal Club entries are published in 2 phases. In the first phase, a list of questions about the article is published in the issue in which the article appears. 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 answers to this journal club will be published in the February 2015 issue. US residency directors will have immediate access to the answers through the Council of Emergency Medicine Residency Directors Share Point Web site. International residency directors can gain access to the questions by going to http://www.emergencymedicine.ucla.edu/annalsjc/ and following the directions. Thus, if a program conducts its journal club within 5 months of the publication of the questions, no one will have access to the published answers except the residency director. The purpose of delaying the publication of the answers is to promote discussion and critical review of the literature by residents and medical students and discourage regurgitation of the published answers. It is our hope that the Journal Club will broaden Annals of Emergency Medicine’s appeal to residents and medical students. We are interested in receiving feedback about this feature. Please e-mail journalclub@acep.org with your comments.

DISCUSSION POINTS

1. Voisin et al1 describe this study as a large case series that detailed their outpatient management of consecutive patients with spontaneous pneumothoraces treated in the emergency department (ED) and respiratory disease center during a 4-year period.

NOV A Why might these authors consider this study design to be a case series and not a cohort study? Describe the differences between a case report, case series, and cohort study. Was their interpretation correct? Discuss the advantages and limitations of a case series study design. Should results from case series be sufficient to recommend a change in clinical practice? Should the conclusions from this case series change the management of spontaneous pneumothoraces?

NOV B Did they record patient data and outcomes prospectively or retrospectively (ie, chart review)? Consider whether the investigators decided in 2007 to consent and systematically review the medical records of all patients treated in their ED for spontaneous pneumothorax. What type of study design would that hypothetical investigation represent? Opine why these investigators chose a retrospective review of this practice change rather than prospectively enrolling patients as in the hypothetical example.

INT C Imagine if an investigator at that hospital were interested in studying the occurrence of hospital-associated pneumonias among patients admitted with tube thoracostomy catheters and reviewed medical records from 2000 to 2011. How might their investigation and conclusions be affected by this hospital’s practice change in February 2007?

INT 2.A This investigation reports the clinical outcomes of a specific process improvement protocol that transitioned the management of spontaneous pneumothoraces from the inpatient to the outpatient setting. Quality and process improvement projects often result in important scientific knowledge; however, combining quality improvement and clinical research presents specific challenges. Discuss some of the challenges associated with this type of clinical investigation and reporting quality improvement results in the medical literature.

INT B Patients were discharged from the ED with a pigtail catheter in place and followed every 2 days until successful...
treatment or failure requiring operative intervention (Figure 1 in the article by Voisin et al\(^1\)). Would a similar protocol with frequent outpatient assessments be possible at your hospital? What might be the greatest challenge to implementing this protocol at your hospital? What if a patient presented on a Friday morning? Do you think the patient was treated on Sunday or is “2 days” a label for a first visit that might have occurred sometime before or after 48 hours? Even if these respiratory physicians had 7-day availability, do you believe that there was not a single patient who missed an appointment or came a day early because he or she was under duress? Would it be important for investigators to report what actually happened or is the “2-day” labeling sufficient?

C What other common ED complaints or disease processes that are currently treated with hospitalization might be suitable for close outpatient management?

3.A This article reports results in the form of percentage for group A (confidence interval [CI] for group A) and group B (CI for group B). At *Annals of Emergency Medicine*, authors are requested to present these data as group A mean, group B mean, difference (CI for difference). Discuss the pros and cons of each format. Use any available software to calculate all of these numbers, using the data from the article’s Table 2 that support the following statement: “The success rates of ambulatory management with pigtail catheters in primary and secondary spontaneous pneumothoraces were not different at day 4 (85% [95% CI 78% to 92%] versus 73% [95% CI 54% to 92%]; Table 2).”\(^1\)

B Do you agree that the percentage successful was “not different” between the 2 groups? Why do you think this article uses the first format mentioned above when most *Annals* articles use the second?

You might have a look at the articles cited at the end of this sentence that make the case that (1) we are doing the wrong research; (2) much of what is reported is not true; and (3) every trial should be justified by a before-and-after systematic review that justifies why the particular study is needed and of adequate size to produce an “after” systematic review that resolves the uncertainty found in the “before” systematic review.\(^3\)-\(^6\)

A The authors cite the most current systematic review as reference 14 of their article and consider it in their discussion. This review was published (2013) after the authors presumably planned their study (≈ 2012), but all of the studies reviewed by Brims et al\(^1\) were published before 2012. So we put Voisin et al\(^1\) up to the Chalmers and Altman\(^6\) test. Does this study have the potential to answer the question (by which we mean influence the systematic review so that a definitive answer results) or should a different study have been conducted?

B If you said “different study” for 4A, can you explain why the authors conducted the study they did? Do you think that was a mistake or do you think that what they did is justifiable? How should clinical medical research proceed in light of critiques presented in the cited articles?

**REFERENCES**