

Critical Review Form

Therapy

Outcomes of Emergency Department Patients Treated for Primary Spontaneous Pneumothorax, *Chest* 2008; 134: 1033-1036

Objective: “To describe the clinical outcome of a cohort of emergency department (ED) patients with PSP (primary spontaneous pneumothorax), with particular focus on the subgroup of patients who were managed conservatively, with a view to informing future research study designs”. (p. 1034)

Methods: Retrospective chart review without explicit methods (see limitations below) at two Melbourne, Australia community teaching hospitals for the period 1996 to 2005. Consecutive adult (16 – 60 years) ED patients were included unless clear description in medical record of traumatic, iatrogenic, or second pneumothorax. Secondary pneumothoraces included known asthma, COPD, cystic fibrosis, neoplasia, or pneumonia. For smoking status, previous PTX or intervention missing documentation presumed negative (not present), whereas documentation lacking age, gender, or PTX size was excluded from analysis.

The primary outcome was the proportion of patients successfully treated with the initial management strategy.

Guide		Comments
I.	Are the results valid?	
A.	Did experimental and control groups begin the study with a similar prognosis (answer the questions posed below)?	
1.	Were patients randomized?	No, this is a retrospective study without any ability to randomize subjects.
2.	Was randomization concealed (blinded)?	No randomization.
3.	Were patients analyzed in the groups to which they were randomized?	No randomization, but analyzed in their respective treatment groups.
4.	Were patients in the treatment and control groups similar with respect to known prognostic factors?	No. “The tube thoracostomy and aspiration groups having a higher proportion of large PSPs (<i>i.e.</i> , those using the descriptor “large or $\geq 50\%$ ”). (p. 1035) The observation group was also significantly younger than the other treatment group ($p < 0.001$).



B.	Did experimental and control groups retain a similar prognosis after the study started (answer the questions posed below)?																																	
1.	Were patients aware of group allocation?	Yes. Not allocated or blinded.																																
2.	Were clinicians aware of group allocation?	Yes.																																
3.	Were outcome assessors aware of group allocation?	Yes.																																
4.	Was follow-up complete?	No loss to follow-up was reported.																																
II.	What are the results (answer the questions posed below)?																																	
1.	How large was the treatment effect?	<ul style="list-style-type: none"> • 203 episodes of PSP in 154 patients including 38% (78/203) with prior PSP. • 32% of PSP were classified as large or $\geq 50\%$. • No patient has systolic BP < 90 mmHg and there were no cases of tension pneumothorax. <p><u>Treatment and Outcomes</u></p> <table border="1"> <thead> <tr> <th></th> <th>Observation (N = 91)</th> <th>Aspiration (N = 48)</th> <th>Chest tube (N = 64)</th> </tr> </thead> <tbody> <tr> <td>% large</td> <td></td> <td></td> <td></td> </tr> <tr> <td>PTX</td> <td>5</td> <td>60</td> <td>73</td> </tr> <tr> <td>% prev.</td> <td></td> <td></td> <td></td> </tr> <tr> <td>PTX</td> <td>40</td> <td>31</td> <td>44</td> </tr> <tr> <td>% Tx</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Success</td> <td>79</td> <td>50*</td> <td>73</td> </tr> <tr> <td>(95% CI)</td> <td>(69-87)</td> <td>(35-65)</td> <td>(61-83)</td> </tr> </tbody> </table> <p>*P = 0.014</p> <ul style="list-style-type: none"> • Aspiration was successful in only 50% of attempts significantly which was significantly lower than either observation or chest tube. • There were no emergency interventions. 		Observation (N = 91)	Aspiration (N = 48)	Chest tube (N = 64)	% large				PTX	5	60	73	% prev.				PTX	40	31	44	% Tx				Success	79	50*	73	(95% CI)	(69-87)	(35-65)	(61-83)
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2.	How precise was the estimate of the treatment effect?	Imprecise given the wide CI and non-randomized populations possibly comparing dissimilar groups.
III.	How can I apply the results to patient care (answer the questions posed below)?	
1.	Were the study patients similar to my patient?	Yes. ED patients with a mix of first and recurrent non-traumatic spontaneous PTX.
2.	Were all clinically important outcomes considered?	No assessment of complications, hospitalization rates, ED recidivism, patient satisfaction, or recurrent PTX.
3.	Are the likely treatment benefits worth the potential harm and costs?	No conclusions can be drawn from this retrospective review.

Limitations

- 1) **Insufficient description of [chart review](#) methods.**
 - **How were cases identified?**
 - **Who were chart abstractors?**
 - **How were chart abstractors trained and monitored?**
 - **Were chart abstractors blinded to study objectives?**
 - **Were meetings held to ascertain QA and abstraction issues?**
- 2) **No description of how many subjects were excluded by *a priori* criteria.**
- 3) **No clear description of conservative observation, aspiration or pneumothorax management protocols. Since no standardization for pneumothorax management or measurement was described, the investigators could be comparing apples and oranges.**
- 4) **No description of hospitalization rates, length of stay, complication rates, patient pain satisfaction or ED recidivism.**
- 5) **No details are provided on the proportion of large pneumothorax cases failing each management strategy.**

Bottom Line

Single city Australian chart review without explicit methods suggesting that small pneumothoraces in young males might safely be managed with observation alone. This review is meant to justify inclusion of observation arm in subsequent

prospective PTX trials (i.e. to demonstrate equipoise) not to change clinical practice at this time.

