Reviewer’s report

Title: Digital versus analogue chest drainage system in patients with primary spontaneous pneumothorax: a randomized controlled trial

Version: 0 Date: 13 Jan 2020

Reviewer: Robert John Hallifax

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This randomised study aimed to assess whether digital suction was superior to analogue drainage system.

The study appears to be well conducted but was terminated early due to lack of recruitment. I think it still provides interesting insight into the management of PSP, but requires significant revision.

1) The figure is a useful flow-chart but this paper is missing a CONSORT diagram. Please provide numbers of patients screened and reasons for non-enrolment. How many where observed, or went direct to surgery?

2) Why was it so difficult to recruit to?

3) Why did some patients go directly to surgery? That is not standard practice as per current guidelines

4) I note the higher surgery in the digital arm. What was the criteria used to refer patients in the study to surgery? This could introduce bias, if the same criteria were not used in both arms?

5) Discussion Page 4 Line 200-211: This paragraph is very speculative. For example the sentence "since the digital drainage system appears to have an advantage over analogue systems in uncomplicated PSP" is not true - the primary outcome was negative. Likewise "As soon as the digital device indicates that there is less than 15 ml air flow per minute and 205 the chest X-ray shows no more than a small pneumothorax, the tube can be safely removed." - what is the evidence for this statement? The authors can speculate that digital drainage MAY identify cessation of leak earlier, this was not the focus of this study and is not evidence based at the moment. I would suggest toning down the paragraph.

6) I think that a key point here is that patients NOT requiring surgery MAY benefit from digital drainage, but at present we do not have a good way of predicting who these patients are.

There has been another publication which looks at the use of digital airflow measurement in PSP. This would be worth citing: Thorax. 2019 Apr; 74(4): 410-412 (doi: 10.1136/thoraxjnl-2018-212116).
7) The authors should be careful to conclude too much from a sub-group analysis. The conclusion section is correct, but the final sentence in the discussion overstates the case and should be removed.

Minor points:
- Please use "height" rather than "length" in demographics

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
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