Author’s response to reviews

Title: Digital chest drainage system versus traditional chest drainage system after pulmonary resection: A systematic review and meta-analysis

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Author’s response to reviews:

Dear Dr. Venuta:

We would like to thank the editor for giving us a chance to revise the manuscript, and also thank the reviewers for giving us constructive suggestions which would help us in depth to improve the quality of the paper. Here we submit a new version of our manuscript with the title “Digital chest drainage system versus traditional chest drainage system after pulmonary resection: A systematic review and meta-analysis”, which has been modified according to the reviewers’ suggestions. Efforts were also made to correct the mistakes and improve the English of the manuscript. We marked all the changes in red in the revised manuscript, and we also responded point by point to reviewer comments as listed below.

The following is a point-to-point response to the reviewer comments.

Reviewer 1:

- Comment 1: I suggest to add some comments to the meta-analysis recently published in the EJCTS 2018, and to the other reported papers.

- Answer: Thanks for the suggestion. Comments on the recently published meta-analysis and other papers had been added to the discussion section.
Reviewer 2:

- Comment 1: If authors agree I suggest keeping only the RCT, rather than RCT and OS.
  
  Answer: Thanks for the suggestion. Although we enrolled both RCTs and observational studies in this meta-analysis, we did not simply pool the data together. Actually, in the Results section, we conducted a subgroup analysis based on the study type for the endpoint “Prolonged air leak”, which suggested that results of both RCT and OS were similar. For endpoint “Duration of chest drainage” and “length of hospital stay”, we listed the data of each individual study in table 3. We believe that inclusion of both RCT and OS can better represent a real-world situation, with detailed subgroup analysis.

- Comment 2: Concerning reduction of the risk of prolonged air leak: It would be very interesting to discuss better how digital chest can reduce the risk of prolonged air leak. In the article, it is discussed that this system can regulate suction pressure. Do authors really believe that it is the only explanation?
  
  Answer: Thanks for the suggestion. Another possible explanation is that digital system makes possible an early patient mobilization and improves postoperative physiotherapy, which can reduce the risk of secretion retention and pneumonia, thus facilitates pulmonary re-expansion.

- Changes: Related content had been added to the 3rd paragraph in the discussion section.

- Comment 3: In the discussion chapter authors say that one of the advantages is the portability, but with traditional underwater seal, it is very easy to mobilize the patient.
  
  Answer: Thanks for the suggestion. When a suction pressure is needed, a traditional device should be connected to wall suction, which restricts early patient mobilization. While the digital device such as the Thopaz (Medela AG) can provide suction pressure by the device itself.
Reviewer 3:

- Comment 1: The authors initially identified 80 studies that would meet their criteria of which, 60 articles were excluded as non-relevant followed by a further 12. It would be interesting to know, how many of the excluded studies were randomised controlled trials (if there were any). This essentially trimmed down the sample size to the tenth of what is was hoped to be, and constitutes a major limitation for a systematic review of such a well-studied topic.

  Answer: Thanks for the suggestion. Among the 72 excluded studies, 3 studies were RCTs, among the 3 studies, 1 study was conducted in patients after pleural decortication (DOI: 10.1016/j.circir.2016.11.007), 1 study was conducted in patients of pneumothorax (doi: 10.1055/s-0033-1359714), and 1 study had no clinical endpoint (doi: 10.1016/j.ejcts.2008.09.005).

- Comment 2: The review did not mention that previous studies had also compared the 2 drainage systems from the angles of pleural inflammation and volume of pleural drainage. Michèle De Waele et al(1) have 2 publications on this, although they concluded to NO significant difference found.

  Answer: Thanks for the suggestion. Actually, we mentioned this study result as an independent paragraph in the discussion section (the 5th paragraph in discussion section).

Thank you and best regards.

Yours sincerely,

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