Reviewer’s report

Title: Employment of an Algorithm of Care Including Chest Physiotherapy Results in Reduced Hospitalizations and Stability of Lung Function in Bronchiectasis

Version: 1 Date: 06 Jan 2019

Reviewer: Annemarie Lee

Reviewer’s report:

The aim of this retrospective study is to identify the effects of high frequency chest wall oscillation, bronchodilator and mucolytic therapy in addition to antibiotic therapy in lung function and rate of hospitalisations in people with bronchiectasis. The study overall demonstrates some interesting date, but there are key points which need further clarity.

Abstract: The chest physiotherapy component of the study is considered the key contributor to the outcomes of interest. However, this was provided as part of a treatment algorithm, which includes bronchodilator therapy for 100% of patients and mucolytic therapy for 95%. It is misleading to the readers to attribute the findings to a single component of the treatment algorithm and this needs to be modified throughout the manuscript. This is particularly important given the % of patients commenced on bronchodilator and mucolytic therapy as part of the algorithm and this therapy was started before airway clearance.

In view of this, the background statement needs to be modified to accurately reflect what was studied.

The term NCFBE has been recommended to be changed to simply bronchiectasis, in reference to this being a diagnosis/disease in its own right and worthy of this change (refer to 'Reclaiming the name 'bronchiectasis', Thorax 2015). Please modify through the manuscript.

Background

The authors have referred to predominantly CF guidelines/papers in mucociliary clearance therapy, but there are at least 2 Cochrane reviews focused on bronchiectasis, which have specifically reviewed the literature in this population and provide an overview what was techniques have been studied.

Line 45 - techniques of huffing and coughing or autogenic drainage are classed as expiratory flow therapies rather than mechanical therapies (Polverino et al 2017).

Line 50, what other inhaled medications are the authors referring to if not, rhDNase or hypertonic saline? Could this be spelt out more clearly (ie. Bronchodilator, corticosteroid therapy?)
The authors highlight that the primary endpoint of the study was to determine the clinical effectiveness of a treatment algorithm centred on early initiation of HFCWO as an airway clearance therapy, but there are multiple confounders in the outcomes selected.

Methods

How was the diagnosis of bronchiectasis confirmed for the database? (HRCT)

What symptoms were considered to warrant entry by clinic staff?

Was the definition of an exacerbation based on previous references?

It is stated in Table 2 that 95% of patients were commenced on HTs - does this mean that the remaining 5% were commenced on n-acetylcysteine inhaled therapy?

In the methods, it is stated that HFCWO therapy was offered to augment therapy, but the primary aim was stated that this therapy was the centre of the study and that other treatments (macrolide and nebulised mucolytics) were adjunctive therapy?

The word 65 should be written in full

What was the compliance/adherence rate to each of the types of therapies over the follow up period? This is particularly important for mucolytic and airway clearance therapy and it has been previously documented that adherence in adults with bronchiectasis is troublesome? Without adherence rates, it is difficult to be clear on the conclusions of the study, particularly with multiple treatments.

Results

For all hospital records of exacerbations, can it be guaranteed that all data related to this outcome was captured by the database? If not, it should be acknowledged as a limitation of the study.

What defines a severe exacerbation?

The following sentences 'Thus, allowing an estimation of the effect the algorithm had on the amount of antibiotics prescribed and the number of severe exacerbations....' And "although a small subset of participants did have an increased severe exacerbation rate..." are poorly phrased, please rephrase.

Add 's' on end of purposes

According to what reference/clinical guideline is a course of home antibiotics considered a severe exacerbation? Is there a precedence for this?
The authors switch between participants and patients. It is best to select one and be consistent throughout.

Discussion

The first paragraph of the discussion includes some information which would be better placed in the background section. The authors need to consider also the Australian and New Zealand guidelines for bronchiectasis, as these directly comment on airway clearance therapy.

The American guidelines are incorrectly attributed to the American Thoracic society and these are not originating from this society, and are not guidelines, but a clinical review.

The authors conclusion that HFCWO can be a beneficial long term treatment is only true in the context of the other treatments that participants were exposed to as part of the study. With 95% of patients receiving mucolytic therapy, which has been proven to impact on lung function and exacerbation rates, the results found cannot be directly attributed to one treatment (or giving most of the credit to that one treatment). This needs to be modified through the discussion.

The authors mention frequent exacerbators in relation to macrolide therapy - were there any frequent exacerbators in the current study?

The authors mention other comorbidities, but they have only eluded to COPD, which other comorbidities did participants have in this study to justify this statement?

Other weaknesses include the lack of detail regarding compliance to treatment and the fact that being in a database and attending clinic regularly for follow up may have influenced some outcomes.

The conclusion has some repetitive points particularly around limitations of the study.

Figure 1 - it is difficult to identify the mean lines in these figures.

Figure 2 - the shading in figure 2B, needs to be clearer, it is difficult to interpret.

**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.

Unable to assess

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

No

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**
Please indicate the quality of language in the manuscript:

Acceptable

**Declaration of competing interests**
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare I have not competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license ([http://creativecommons.org/licenses/by/4.0/](http://creativecommons.org/licenses/by/4.0/)). I understand that any comments
which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal