Reviewer’s report

Title: Asthma rehabilitation at high vs. low altitude: randomized parallel-group trial

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Reviewer: Rupert Jones

Reviewer's report:

This is an interesting and important paper addressing pulmonary rehab in low versus high altitude for patients with poorly controlled asthma. There are some specific suggestions to improve the paper.

The writing could be simplified and clarified e.g.

Line 58 Asthma belongs to the major global health problems affecting over 300 million people worldwide with increasing prevalence in developing countries [1].

Could be changed to:

Asthma is a major global health problem affecting over 300 million people worldwide with increasing prevalence in developing countries [1].

Line 69 Besides the pharmacological treatment, rehabilitation programs might be beneficial for asthma patients.

A reference for this statement on the benefits of rehabilitation in asthma would be helpful, and a summary of what the guidelines state?

Line 75

Since decades, asthma patients were sent to altitude clinics aiming to improve asthma control [6, 7]. Altitude is an environment with less allergen exposure [8, 9], e.g. house dust mites do not exist >1600 m above sea level (asl).

Might better read:

For decades, asthma patients have been sent to high altitude clinics aiming to improve asthma control [6, 7]. At high altitude there is less allergen exposure, e.g. house dust mites do not exist >1600 m above sea level (ASL). [8, 9],
The reason why high altitude may specifically improve the benefits of rehab, rather than just being a restful, low allergen place, could be stated more clearly.

A statement of aims would be helpful at the end of the background

Methods:

Line 109 Participants

How and where were the patients recruited?

Line 128 The PEF-variability was computed as \[\frac{(\text{day's highest}-128 \text{ day's lowest})}{\text{mean of day's 129 highest+lowest}}\] [1].

Please could this be made more clear, especially the time period over which variability was measured and how frequently were the recordings made?

Line 130 Secondary outcomes (assessed at 760m) were the percentage of patients with well
131 controlled or partially controlled asthma (ACQ score <1.5),

It could be made clearer that the observation were taken at 360m ASL in all patients a and how the patients from high altitude were moved down.

Line 141 Sample size calculations-

Were these powered for superiority or non-inferiority?

The calculations seemed to be based on ACQ and PF variability, but the primary outcomes were the DIFFERENCES between groups, what was the standard deviation of the differences?

Line 165

The data is reported in adherence with the CONSORT guidelines

Not all aspects of CONSORT methods are reported - e.g. blinding of allocation
Results

These are fine

Discussion

The discussion is well written. The one patient with acute altitude sickness bears mention in the discussion

Conclusions should address the co-primary endoints more specifically, or revised in line with a statement of aims.

Tables:
Table 1- it would be helpful to include smoking status.
Other tables are good.

Overall this is an interesting and important RCT and merits publication. There are some issues which would need to be sorted prior to acceptance. In particular the paper could be improved by adding the aims and then the reporting would be clearer. At present there is a tension between the beneficial effects of rehab per se and the differences between low and high altitude settings.

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 recommend additional statistical review

Quality of written English
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

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