Reviewer’s report

Title: Vitamin D deficiency among patients with pulmonary hypertension

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Reviewer: Ekkehard Grünig

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Atamanuk et al. report the study results of a cross-sectional study comparing the vitamin D levels of patients with pulmonary hypertension (PH), patients with left ventricular failure and healthy controls.

Patients with PH showed lowest vitamin D levels and the highest amount of patients with vitamin D deficiency. Prevalence of vitamin D deficiency showed a significant correlation with WHO functional class in patients with PH. Furthermore, vitamin D levels significantly correlated with 6-minute walking distance.

The manuscript is well-written; the topic of this study is of high interest and could lead the way to further treatment options in PH.

While the study results are of valuable information, the authors should consider a few points:

Methods

- Please add to the methodology (statistics) section "due to the exploratory nature of the study, p-values were not corrected for multiple testing".

- Healthy subjects are defined as "no known medical conditions and normal cardiac ultrasonography". How were these subjects recruited? Please also add details on recruitment of the other patients.

Results

- As is correctly stated, the lacking difference of vitamin D between the PH subgroups may be attributed to the small sample sizes. The authors should consider leaving this test out of the analysis, as sample sizes appear too small to test for differences between PH subgroups.

Furthermore, mean vitamin D values of the different subgroups are likely to be influenced by the severity of the disease (WHO-FC, 6-minute walking distance).
- Except the 5 CTEPH-patients, all patients with PH belong to classification group 1. This can be a limitation with inhomogeneous cohort. If possible you may consider to exclude patients with CTEPH.

- Why did only 68% of patients receive PH specific treatment? Please explain.

- The description of the study population should be moved to the beginning of the results section.

- It is not shown, whether the presented data results from a complete dataset. Please indicate any missing values.

- Please provide a second table with the characterization of the left ventricular failure and healthy subjects groups.

- Please give the correlation coefficient for vitamin D - 6-minute walking distance.

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

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