Reviewer’s report

Title: Specific motor cortex hypoexcitability and hypoactivation in COPD patients with peripheral muscle weakness

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Reviewer: Bruno Balbi

Reviewer's report:

The paper deals with a study investigating the possible causes of muscle weakness (MW) in COPD patients.

Starting from the hypothesis that together with peripheral alterations there could be also central alterations, the Authors tested 22 COPD with MW measuring voluntary activation through peripheral nerve (VAPeripheral), and transcranial stimulation (VAcentral). Corticospinal and spinal excitability (MEP/Mmax and Hmax/Mmax) as well as inhibition (silent period) were measured.

The results are very interesting as the COPD with MW as opposed to COPD patients without MW showed lower VAcortical and MEP/Mmax. Thus the Authors conclude that there are cortical mechanisms implicated in MW in COPD.

I found this study relevant as it opens a window on a very important problem in disabled COPD patients: MW.

I have some remarks.

Were patients consecutively enrolled? In how many weeks/months? A consort diagram would be useful. Can you list all the drugs that can impact brain function for which you excluded the patients from the protocol?

Low PaO2 patients had also desaturation on effort?

What about smoking history of all subjects? Any difference related to MW?

What about years of disease? Comorbidities (e.g. cardiaca)?

Are the data obtained in COPD patients with MW similar somehow to any other condition previously described?

Methodological considerations at page 19-20 can be moved elsewhere
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

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
Please indicate the quality of language in the manuscript:

Acceptable

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