Reviewer’s report

**Title:** 18F-fluorodeoxyglucose–positron emission tomography/computed tomography for the diagnosis of polymyalgia-like illnesses: A retrospective study

**Version:** 0  **Date:** 05 Sep 2019

**Reviewer:** Dario Camellino

**Reviewer's report:**

This is a retrospective study on patients with suspected PMR who underwent FDG-PET/CT scan.

The main underlying question is whether PET can differentiate between patients with PMR and patients with polymyalgic presentations but with different diseases.

The issue is interesting since many times clinicians have to evaluate whether a patient with polymyalgic presentations might have cancer or infection.

Authors retrospectively studied 25 patients, of whom 17 had a final diagnosis of PMR.

One of the most interesting points of the paper is the very high number of patients with PMR-like illness who fulfilled the criteria for PMR. All non-PMR patients fulfilled the Bird’s criteria (which were the entry inclusion criteria) and up to 75% fulfilled the ACR/EULAR criteria, highlighting how these sets of criteria cannot assist in resolving clinical dilemma about differential diagnosis.

One of the limitations of the study is the small number of patients, even though the control group includes several types of disease (cancer, infection, etc).

Some parts of the manuscript are quite difficult to read. In particular, some sentences that might need clarification or rephrasing are:

In the abstract, the explanation of the visual score (the comparison with the liver uptake) and, in the results, the part on "FDG-accumulation"
Page 3 line 52: "The diagnostic criteria consist of non-specific symptoms and laboratory signs of inflammation": these are not the diagnostic criteria rather the clinical presentation; some of these features are included in different sets of diagnostic criteria
Page 3 line 63: I would use "the presence of uptake" rather than "positive results"
Page 4 line 77: "we also evaluated their condition" is not clear
Page 5 line 120: instead of "Ps" I would rather use "p values"
Page 7 line 145: I would add "mean" between "the" and "value".

I would kindly suggest to the Authors to consider an English language editing. In particular I think they should revise:
Page 2 line 30: "FDG-PET/CT scan" instead of "FDG-PET/CTs"
Page 3 line 51: maybe I would consider "stiffness in" rather than "stiffness of"
Page 6 line 141: "out of the 17 patients" or "among the 17 patients" instead of "from"

Some general observations:
Authors refer to the uptake of the spinous processes, but it is reputedly the uptake of the interspinous bursae

When Authors listed the diagnosis of the control group, the one patient with undefined diagnosis is not mentioned in the abstract

The captions of the tables should not contain results or comments ("We found significant differences between the two groups using the Mann-Whitney U test") but should be only descriptive

How the Authors define abnormal uptake when using the SUV instead of the visual score?

The last sentence of the Result section is an interpretation and should be moved into the Discussion section

Page 12 line 228: in my view, this assertion is too strong on the basis of the presented data

Reference 19 should be before the dot.

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.

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.

Not relevant to this manuscript

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

Not suitable for publication unless extensively edited
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