Reviewer's report

Title: Is Treated HIV Infection Associated with Knee Cartilage Degeneration and Structural Changes? A Longitudinal Study using Data from the Osteoarthritis Initiative

Version: 0 Date: 18 Mar 2019

Reviewer: Paolo Alberton

Reviewer's report:

The manuscript reports a longitudinal study on the association between the metabolic disorders, which might affect PLWH on ART, and eventual knee cartilage structural changes. The authors demonstrated that PLWH on ART have a higher tendency to present disordered cartilage matrix composition, increased joint inflammation and abnormalities of the IPFP and the SPFP, which altogether lead to a higher chance to develop osteoarthritis. Even though the sample size is relatively small, this analysis is the first of its kind, and definitely contribute to increase the knowledge and awareness of the side effects of ART on HIV patients. Therefore, I strongly believe that the study has good potential to positively contributes to increase the quality of life of PLWH.

The authors show awareness and are critic to their work citing the major limitations of the study, like: small sample size, and the limited resolution of the WORMS scoring system to pick up cartilage composition changes. The imaging techniques are well described and results clearly stated, yet there are few issues which should be further discussed in introduction and discussion. In summary the manuscript is suitable for publication after some revision in the text, which I am suggesting below.

1. The authors extensively introduce and discuss the topic of HIV, ART, Metabolic disorders and related cartilage structural changes/osteoarthritis. However, there is no reference on the available literature of HIV and hand osteoarthritis which in my opinion is worth to mention (some suggested publications: Larcher et al., Joint Bone Spine Oct;82(5):365-7; Tomi et al., Ann Rheum Dis 2016 Dec 75(12):2101-2107; Adizie et al., BMC Infectious Diseases (2016) 16:100).

2. Authors states that, the PLWH included in the study are on ART regime since at least one year. Since it is still unclear how HIV comorbidities, ART treatments and metabolic disorders contributes to the onset of osteoarthritis, I think would be informative to at least mention or take in consideration this factor and the impact on the cartilage degeneration outcome.
3. Results are corrected for ages, sex, race ecc... Still, (as recommended in point 2) would be nice a comment on the sex and past or actual activities of the patients (i.e.: job or practiced sports).

Minor points:

1. Line 158, 160, 218: Name of radiologists should be stated.
2. Line 336: 'presented with a diffuse': 'with' can be deleted.
3. Line 342: 'Studies have reported' can be change to 'studies have been reported'.
4. Line 464: Reference (V L V, P M, M R, G M) should be formatted to the journal's style.

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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Please indicate the quality of language in the manuscript:

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