Reviewer's report

Title: Carotid intima media thickness is associated with body fat abnormalities in HIV-infected patients

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Reviewer: Giovanni Guaraldi

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Dr. Freitas and co-authors evaluate the association of lipodystrophy with cIMT. Regardless the association between lipodystrophy and subclinical or clinical CVD is not original this is one of the first report in which IMT was used as an outcome, and I hope this paper will contribute to include lipodystrophy among the risk factors for CVD in HIV infected patients.

My major concerns are the followings:

1. In the paper is not clear if authors want to describe the association between IMT and clinical diagnosis of lipodystrophy or objective measures of lipodystrophy. In my view the availability of objective measured of fat distribution is an advantage therefor the clinical description of lipodystrophy should just be mentioned but not be the criteria of diagnosis.

It is said that pts were categorized into one of 4 groups according to the presence or absence of either lipoatrophy or abdominal prominence using FMR assessed with DXA. I suggest that table 1 should use these 4 group categories to describe population characteristics. This table should incorporate VAT data (specify how many pts have VAT measurement)

2. The objective of the study should be rephrased in consideration of the choice of patient categorization

3. If you use HOMA, there is no need to use QUICKI. I suggest to remove this variable.

4. “The presence of subclinical carotid atherosclerosis was defined as IMT > 0.80 mm”. Please describe in your data set to what percentile of IMT distribution this correspond.

5. “Carotid IMT was higher in patients with lipodystrophy than patients without lipodystrophy [mean (SD) 0.81 (0.24) vs. 0.76 (0.25); p=0.037]”. I suggest this data to be drown in a box plot figure

6. “Using generalized linear models, cIMT means were adjusted for age and body fat distribution measured by central vs. peripheral fat ratio estimated by quantitative CT. No significant differences remained after this adjustment when patients with and without lipodystrophy were compared”. Of course body fat measures and lipodystrophy diagnosis are collinear: for this reason should not be
placed in the same model.

7. “It was our aim to evaluate the association of lipodystrophy per se in cIMT.”
I suggest to attenuate this sentence because you cannot exclude an indirect asociacion.

8. Other studies have analysed the association between lipodystrophy and body fat measurement (VAT and EAT) and subclinical cardiovascular disease, former CVD event and at Lipodistrophy meeting this year with future CVD. Authors should discuss to what extent the use of IMT as an end point add significant information.

**Level of interest:** An article of importance in its field

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.