Reviewer's report

Title: Factors associated with frequency of monitoring of liver and renal function and lipid laboratory markers among individuals initiating combination antiretroviral therapy: a cohort study

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Reviewer: Esteban EM Martinez

Reviewer's report:

This paper reports on the factors associated with frequency of monitoring of liver and renal function and plasma lipids in a cohort of HIV-infected patients starting antiretroviral treatment in several centers from Canada. The rationale for performing this assessment was to know whether HIV-positive patients were accessing services equitably within a public-funded healthcare system and whether there was any measurement bias that had an impact on the HIV co-morbidities monitored with these laboratory parameters. Authors concluded that liver enzymes were more commonly measured than renal and lipid tests, but paradoxically hepatitis C co-infected infected through intravenous drug use had liver tests less commonly measured.

General comments:

Although this paper is interesting in providing potentially useful information, there are some important points to be addressed to correctly interpret the findings. Although patients were treated through a publicly funded healthcare system (and therefore, at no cost limitation that could have precluded access to care), there were several centers participating in this cohort. An important bias may be that from the 8002 patients of the cohort, nearly half of them (N=3778) were excluded. When looking at Table 1, it can be clearly seen that the proportions of patients who were aboriginal, injection drug users, and hepatitis C positive were much higher in the excluded patients than in the included ones. This is a reflect of missing visits, and not just of having blood tests done less frequently. This needs to be clarified, measured and correctly reported.

It is also necessary to know whether the protocol of frequency of routine visits (which is usually linked to the frequency of blood tests, but may not) and the frequency of routine analyses were the same across centres and across patients within the same centre. This information is essential to correctly understand the objectives and the results of this paper.

First is the chemistry test protocol. Usually routine blood tests for monitoring HIV-positive patients include several pre-scheduled chemistry parameters, and when ordering blood tests the default option would be that those parameters are routinely monitored. In contrast for some other chemistry parameters which are not part of the blood tests protocol, the default option is not to have them routinely collected in every patient, but only in those for whom the specific tests
are explicitly ordered.

Second is the frequency of visits. For stable patients who are well controlled, the frequency of visits may be longer than for unstable patients who have uncontrolled HIV replication.

Third is the reasons out of the HIV care that may impede patients to attend routine visits. Despite a publicly funded healthcare system, it may be that patients older or with low economic status (e.g. aboriginal patients) or living far away from the HIV centre may find it more difficult to afford attendance to every routine visit scheduled. Intravenous drug users as well as psychiatric patients or patients with other mental health reasons may loss routine visits more commonly than those without these problems.

Data on the abovementioned issues is necessary to correctly interpret the results of this study. It would be interesting to assess separately those patients with and without missing visits to see how much results may differ in each group.

Specific comments:

1. Abstract: The first sentence of “Conclusions” is not supported by data in the “Results” section.

2. Methods, Outcome measures: Policy of routine blood tests in each participating centre should be clearly explained, as well as if there are major differences in this policy among centres to see whether this may have an impact on the results.

3. Methods, expalantory variables of intererest: Geographic area should be also included among covariates.

4. Results, page 8, lines 143-147: These two sentences seem to be opposed. Please, revise and clarify.

5. Discussion, first paragraph, second sentence: Authors wonder why patients with hepatitis C co-infection were not monitored more closely in accordance with “many clinical guidelines (5, 9)”. Reference 5 is from EACS and 9 from BC. Do Canadian guidelines in regions other than BC make a recommendation similar or different to guidelines from references 5 and 9?

6. Discussion, page 12, lines 230-232: This limitation is or paramount importance to correctly assess the objectives of this report. Authors should be able to investigate and to assess this fact into their analysis and results.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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

Declaration of competing interests:
No to all above