Reviewer's report

Title: Clinical and Immunological outcomes according to adherence to first-line HAART in an urban and rural cohort of HIV-infected patients in Burkina Faso, West Africa: a longitudinal Cohort study

Version: 2 Date: 30 September 2013

Reviewer: Berhanu Gebremeskel

Reviewer's report:

This is an important study on ART adherence from a resource-limited country in Sub Saharan Africa where the toll of HIV is high and would add to the limited knowledge base in the region. The novelty of the research is the use of a multi-domain approach to measuring the multi-faceted adherence behavior. The approach seems to potentially be a feasible one. However the major weakness of the paper is the lack of detail on the adherence instrument that was used in the study. Although purported to be a novel approach, the authors have not clearly formulated how the instrument was developed, on what conceptual framework it was built upon, and if it has been pilot-tested or validated before use in this study. The paper lacks a lot of detail on statistical analysis, and should address in detail how the multivariable models were built and what initial variables were considered for inclusion. Repeated measures analysis would benefit a lot from more detail. Additionally, the language used sometimes detracts from full understanding and a bit of proof reading might be important.

Background:

The background is fairly comprehensive and make a good rationale for why we need to have a novel adherence measurement instrument that captures different facets. The objectives of the study are explicitly spelled out

Minor: In line 76, ‘multi-method’ approach is not a clear phrase

The sentence starting on line 84 does not clearly capture the conclusion from the reference (11)

The flow from the background to the aims section could be better structured

Methods. Describes the study population fairly well

Major: However the major weakness of the study is the lack of substantial detail about the adherence instrument (the ‘adherence score’ ). Even if the components of the score are mentioned, it is not apparent what each component constitutes. There is no information if the score was pilot –tested and/or validated before use in this study.

It is important to have the instrument (with the questionnaires ) as a supplement.

One would question if all the five components should be weighed equally and summed up as a composite score.

On what grounds were the 0-2 score given for each component?
What is meant by ‘proper knowledge of medical prescriptions’?

How was lost to follow up being defined?

The duration of treatment interruption (‘gap’) is an important aspect of adherence that is associated with virologic outcomes, but does not seem to be incorporated in the instrument. Is there a length of time for a gap to be considered as interruption, or are all ‘interruptions’ equal?

The duration of adherence measurement is variable [15 days, 30 days, and 3 months]. But it seems all the visits are being weighed equally even if the length of assessment is different. For all the components, evaluations that have variable time periods does not make sense as this might impact on ‘estimation’ by the physician.

Another important drawback is that the whole instrument relies on the estimation by the medical doctor

How were the three adherence categories created?

Major: The statistical analysis section is lacks considerable detail. This has to be substantially expanded with regards to how the multivariable model was built and what variables were considered initially for inclusion. Survival analysis descriptions are not adequately addressed.

The repeated measures analysis needs further expounding.

Minor:

Explicitly state that it is a retrospective study

Line 101 could go the background section

Results:

The section reports the findings fairly well.

Minor: Line 152: give proportions of those in stage 2 or 3 (instead of the F-test results)

With regards to CD4 count increase, was baseline taken into consideration for analyses looking at changes from 6month to year?

Major:

It is not clear why chi-square test was used to test associations between factors and adherence

Apart from Figure 2 and table 3, there is not report at all about the survival analysis. needs detail.

Discussion: Discusses the results in light of findings from other studies, and warns against direct comparisons with other studies

Minor

Line 215: these results are not reported in the results section.

The reference for the HR is not provided in Table 3. Table and Figures
Minor. Figure 1: This is a confusing graph. It could be better scaled.

Minor: Figure 2: the statistical significance of the Kaplan-Meier curve should be indicated.

Major: Table 3 should be expanded to include the other predictors considered.

**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:**

I declare that I have no competing interests.