Reviewer's report

Title: Antiretroviral treatment reverses HIV-associated anemia in rural Tanzania

Version: 1 Date: 13 February 2011

Reviewer: Christian Obirikorang

Reviewer’s report:

Major Compulsory Revisions

ABSTRACT
1. The background statement that the aetiology of HIV-associated anaemia and response to ART in rural Africa is poorly understood is not wholly supported and cannot be sustained. Extensive work on HIV-associated anaemia and ART has been undertaken with examples being works done by Odunukwe et al., (2005), Amballi et al., (2007) and Omoregie et al., (2008) in Nigeria; Amornkul et al., (2009) in Kenya.

2. The statement “non-pregnant HIV-infected …” should be modified as this is potentially misleading. Pregnancy was not the only exclusion criterion.

3. Do the 324 (49.9%) anaemic patients include patients with microcytosis, hypochromia and microcytosis & hypochromia? If this is so, the conclusion that “half of the patients had microcytosis and/or hypochromia suggestive of iron deficiency” is not totally valid in that microcytosis alone or hypochromia alone are not explicitly indicative of iron deficiency.

BACKGROUND
1. Third paragraph

The statement “management of HIV-associated anaemia in high-income countries includes erythropoietin treatment, which has been associated with recovery from anaemia and improved survival, but high costs restrict its use in resource-limited settings” should be re-interpreted within the light of the study conducted by Oguntibehju et al., (2006) on the “effect of a liquid nutritional supplement on viral load and haematological parameters in HIV-positive/AIDS patients”. Certainly other methods have been tried and tested other than erythropoietin treatment.

METHODOLOGY
1. Information on study setting and participants should be edited in other to make it short and precise.

2. Pregnancy was the only exclusion criterion stated with detailed explanation of how it impacts upon haemoglobin concentration. In the advent of HIV/TB co-infection, no mention was made of such an infection in 838 HIV-infected patients. HIV/TB co-infection is known to have a significant impact on a patient’s haemoglobin concentration.
3. Third Paragraph line 9
A statement was made to the fact that “efavirenz was used in patients with concomitant tuberculosis treatment”. Necessary measures should have been taken to rule out all other possible factors linked with anaemia so that the investigators will for certain deal with HIV-associated anaemia.

STATISTICAL ANALYSIS
1. Second paragraph
The statement “BMI was categorized according to recognized cutpoints” should further be explained in the context of the study. Referencing to another study might not be appropriate since the aims and objectives might differ.

RESULTS
1. Descriptive statistics which is normally used for non-parametric data was employed in the results section whilst the statistical analysis section stated explicitly that all tests were two-sided (assuming a Gaussian distribution). Why?
2. Percentages were quoted for grades of anaemia: mild, moderate and severe and all these were captured as Figure 2. A careful look at Figure 2 however gives no indication of anaemia grade.
3. The categories quoted for BMI in Table 1 represents sub-classifications for underweight (BMI <18.5). It then suffices to say that none of the patients had normal weight. Are all cases of anaemia triggered by malnutrition or malnourishment?
4. A lot of time and effort is given to presentation of results on patients who were excluded from the analysis. Why?

DISCUSSION
1. With the exclusion of women who were pregnant, became pregnant or given birth in past 6 weeks before the study, the addition of multiple deliveries to anaemia in women in the study group could be problematic.

Minor Essential Revisions
1. No mention was made of the specific HIV test kit used for diagnosing of patient’s HIV status. This information is relevant especially in the specific type of HIV (HIV-1 or 2) diagnosed.
2. Reading off percentage values from Figure 2 is quite difficult. Indicating percentages within the various sectors will make the figure more meaningful.

Discretionary Revisions
Tables should be arranged well since they look disorganised at first glance.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.