Reviewer's report

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

Version: 1 Date: 8 February 2011

Reviewer: Yukari Manabe

Reviewer's report:

This is a generally well-written article regarding anemia after ART in rural Tanzania in a setting with limited laboratory diagnostics in the setting of programmatic roll-out of first line ART. In general, the paper is mostly descriptive and shows a high baseline proportion of patients with some level of anemia. A more detailed analysis of the small number of 102 patients with more than one hemoglobin measurement over the first 12 months was conducted to identify risk factors for persistent anemia. I had a few major concerns:

1) one clear limitation of the study is the inability to follow response in the patients since CD4 was not available until 2008 and there are no viral loads. It should be noted that poor adherence and viral failure could also account for persistent anemia. This should be stated as a limitation and some other more objective measure of adherence should be presented.

2) In the results section under hemoglobin evolution, were the 2 patients who had severe anemia persistently severe or the level fell over the 12 months? You also need to clarify the methods of the second hemoglobin since so few of the original cohort were tested. How often are patients tested for hemoglobin? Why did so few receive a test? Why was this? I think there could be significant bias in the multivariate analysis if there is selection by indication. In other words, if only patients in whom there is an issue get a hemoglobin done. A paragraph is devoted to those who died. Is the cause of death known?

3) In the discussion, the paper from Uganda is quoted—this paper does not conclude that zidovudine is “safe” rather that it should not be withheld in anemic patients in the absence of alternatives since the majority of patients improve their anemia with ART especially those with the most severe anemia

4) Is persistent anemia clinically significant? Again, the multivariate model is based on risk factors for persistent anemia, but is the finding of AZT clinically important

Minor issues:

1) Figure 2 does not add any real information—could be eliminated and placed in the results

2) Figure 3 needs standard error bars and a better legend (number of patients). May consider adding the AZT and D4T patients to this graph as separate lines
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