Reviewer's report

Title: Intestinal parasitic infections in relation to HIV/AIDS status, diarrhea and CD4 T-cell count

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Reviewer: Mirko Paiardini

Reviewer's report:

This study by Assefa and colleagues was undertaken to determine the prevalence of intestinal parasitic infections, with both single and multiple parasites, among HIV-infected and uninfected people living in the southern Ethiopia area. In addition, these frequencies of infections were associated with history of diarrhea and immune status (i.e. number of peripheral CD4+ T-cells). The research focus is highly significant, due to the recent great interest in the negative impact of HIV infection on intestinal barrier integrity and functions.

The main findings here reported are:

1) the prevalence of intestinal parasites infection was significantly higher in HIV-infected than uninfected individuals. This was due to an increased frequency of mixed infections (2-4 parasites). Furthermore, an exclusively susceptibility to infection with Cryptosporidium and I. belli has been determined in HIV-infected individuals;

2) the rate of parasitic infection was significantly higher in HIV-infected individuals with compromised immune system (CD4 count <200 cells/ul);

3) incidence of diarrhea was not associated with HIV infection.

Major Compulsory Revisions:

1) Strength of this study is in the high number of subjects included (378 total, 214 HIV positive and 164 HIV negative). Having a large cohort of HIV-infected individuals, the fact that the study has been conducted as cross-sectional, and not longitudinal, is an important limitation. A longitudinal design will have provided more detailed information, particularly on the effects of intestinal parasites infection on levels of CD4+ T-cell counts. A highest infection rate was observed in HIV-infected individuals with CD4+ T-cell below 200 cells/ul. As the author pointed out in their introduction, parasitic infections cause chronic immune activation, that in turn is one of the main factors contributing to disease progression in HIV-infected individuals (as well as SIV-infected rhesus macaques). Without a longitudinal study is difficult to understand HIV-induced immunodeficiency facilitate establishment of opportunistic parasites (increased susceptibility to infection and/or defective clearance), as the authors concluded, or opportunistic parasites induced chronic immune activation that, in turn, accounts for the loss of CD4+ T-cells. The authors should comment on this in the "Discussion".
2) The paper will benefit by the inclusion of levels of immune activation. Is there any chance that the authors may determine levels of Ki-67, or other markers associated with activation, in the subjects included in the study (or even in a fraction of them)?

Minor Essential Revisions:
1) As the authors have done for tables 2, they should add the p-value for HIV positive vs. HIV negative also in tables 3 and 4.

Level of interest: An article of importance in its field

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 interest