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Intestinal parasitosis in relation to CD4⁺ T cells levels and anemia among HAART initiated and HAART naïve pediatric HIV patients in model ART center, Addis Ababa, Ethiopia

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Background: Intestinal parasites (IPs) are major concerns in most developing countries where HIV/AIDS cases are concentrated and almost 80% of AIDS patients die of AIDS-related infections. In the absence of highly active antiretroviral therapy (HAART), HIV/AIDS patients in developing countries unfortunately continue to suffer from the consequences of opportunistic and other intestinal parasites. The aim of the study was to determine the prevalence of intestinal parasites in relation to CD4⁺ T cells levels and anemia among HAART initiated and HAART naïve pediatric HIV patients in a model ART center in Addis Ababa, Ethiopia.

Methods: A prospective comparative cross-sectional study was conducted among HAART initiated and HAART naïve pediatric HIV/AIDS patients attending a model ART center at Zewditu Memorial Hospital between August 05, 2013 and November 25, 2013. A total of 180 (79 HAART initiated and 101 HAART naïve) children were included by using consecutive sampling. Stool specimen was collected and processed using direct wet mount, formol-ether concentration and modified Ziehl-Neelsen staining techniques. A structured questionnaire was used to collect data on socio-demographic and associated risk factors. CD4⁺ T cells and complete blood counts were performed using BD FACSCalibur™ and CELL-DYN 1800, respectively. The data was analyzed by SPSS version 16 software. Logistic regressions were applied to assess any association between explanatory factors and outcome variables. P values <0.05 were taken as statistically significant.

Results: The overall prevalence of IPs was 37.8% where 27.8% of HAART initiated and 45.5% of HAART naïve pediatric HIV/AIDS patients were infected ($p < 0.05$). *Cryptosporidium* species, *E. histolytica/dispar*, Hook worm and *Taenia* species were IPs associated with CD4⁺ T cell counts <350 cells/ μ L in HAART naïve patients. The overall prevalence of anemia was 10% in HAART and 31.7% in non-HAART groups. *Hook worm*, *S. stercoralis* and *H. nana* were helminths significantly associated with anemia in non-HAART patients [AOR, 95% CI: 4.5(1.3, 15.2), $P < 0.05$]. The prevalence of IPs in non-HAART patients was significantly associated with eating unwashed/raw fruit [AOR, 95% CI: 6.3(1.2, 25.6), $P < 0.05$], open field defecation [AOR, 95% CI: 9.3(1.6, 53.6), $P < 0.05$] and diarrhea [AOR, 95% CI: 5.2(1.3, 21.3), $P < 0.05$]. IPs significantly increased in rural residents [AOR, 95% CI: 0.4(0.1, 0.9), $P < 0.05$].

Conclusion: The overall prevalence of intestinal parasites significantly differed by HAART status and *cryptosporidium* species were found only in HAART naïve patients with low CD4⁺ T cell counts. Anemia was also more prevalent and significantly associated with IPs in non-HAART patients. This study identified some environmental and associated risk factors for intestinal parasitic infections. Therefore, Public health measures should continue to emphasize the importance of environmental and personal hygiene to protect HIV/AIDS patients from infections with intestinal parasites and maximize the benefits of HAART.

Biography

Dr Hylemariam Mihiretie is currently working in Wollega University, Ethiopia. His research interests are pediatric HIV/AIDS, maternal and neonatal healthcare etc.

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