Opportunistic Parasitoses among Egyptian Hemodialysis Patients in Relation to CD4+T-Cell Counts: A Comparative Study

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ABSTRACT

- **Background:** Patients with chronic renal failure undergoing hemodialysis (HD) are immunocompromised individuals suffering from a change in CD4+T lymphocytes phenotype and proliferation parameters. Several parasites were documented to cause serious illness among immune-compromised individuals. Although few reports are available on the frequency of opportunistic parasitosis among HD patients yet there is paucity of data on the correlations of the CD4 levels and these infections. **Aim:** Therefore, this study was conducted to determine the prevalence of the different parasites among HD patients and to try to elucidate the possible associations between parasitosis and the CD4 cell counts. **Methods:** A comparative cross-sectional study was carried out on 120 HD patients and 100 apparently healthy individuals. Stool samples collected were stained by Trichrome, Quick hot gram chromotrope and modified acid-fast stains. A complete blood picture was done for hemoglobin and CD4 counts estimation. Serum was tested for Toxoplasma immunoglobulins. **Results:** HD patients presented with a significantly higher rates of both IPIs and toxoplasmosis than healthy individuals (52.5% &33.3% respectively vs 12% & 8% respectively). The most prevalent parasites detected were Cryptosporidium (32.5%), *B. hominis* (24.2%) and microsporidia (11.7%). The majority of HD patients (95%) were anemic. Significantly higher rates of cryptosporidiosis were observed among patients with counts <350 than those with higher counts. HD patients with low CD4 count (< 200) presented with significantly higher rates of both microsporidium and *T.gondii* infections (28.6% and 61.9% respectively). **Conclusion:** HD patients are at high risk of infection with parasites. Parasitism is closely related to the degree of compromise of their immunity. So routine screening, treatment of these parasites, management of anemia and raising the immune status of these patients is advocated for improving their well-being.

RESULTS

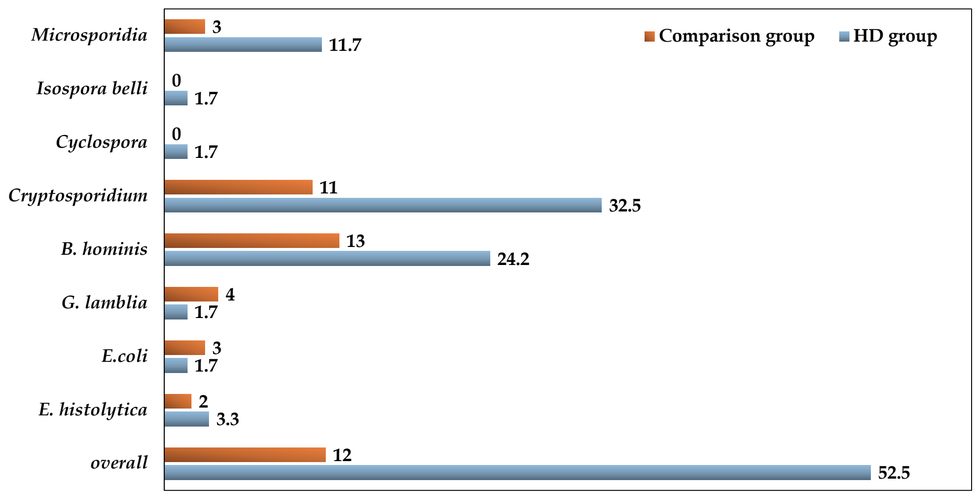


Figure (1): Prevalence of Intestinal Protozoan Parasitosis among HD patients and their apparently healthy counterparts

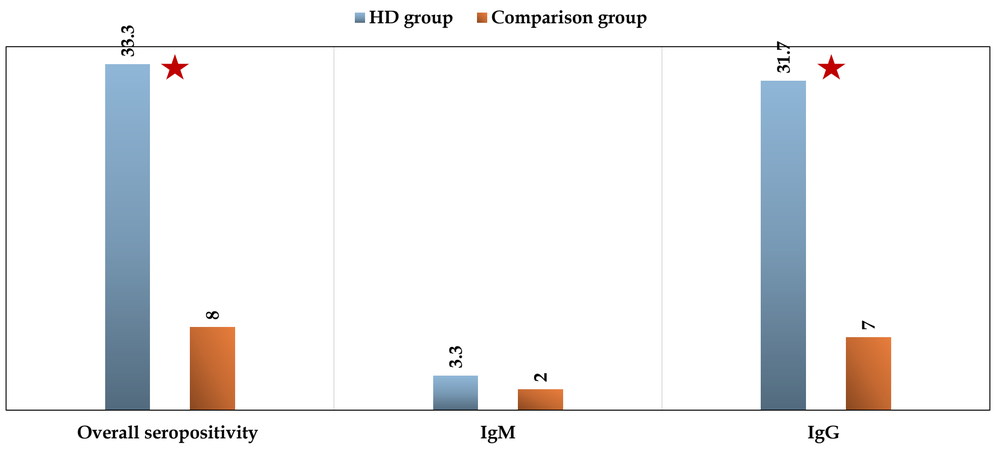


Figure (2): Seroprevalence of *T. gondii* among HD patients and their apparently healthy counterparts in Alexandria (2014-2016)

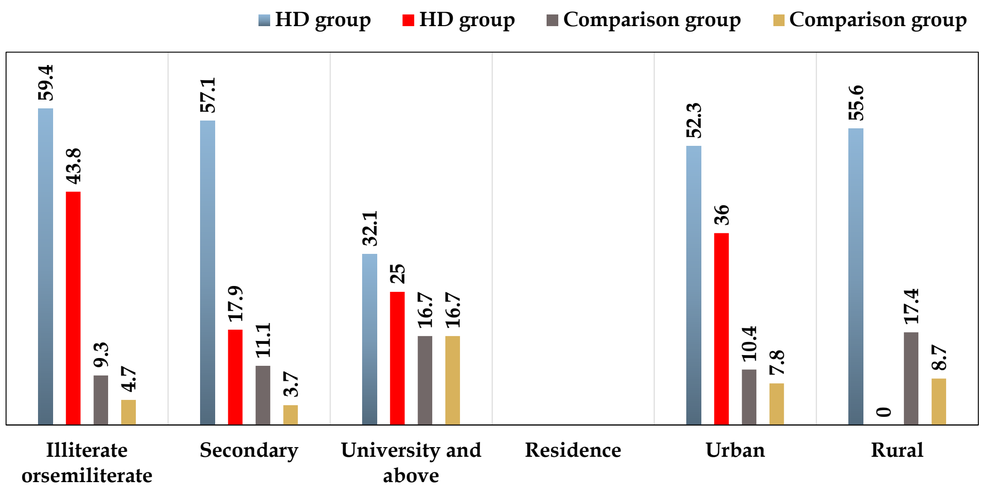


Figure (3): Association of some sociodemographic characteristics with Intestinal Parasitosis and *T. gondii* among HD patients and healthy counterparts

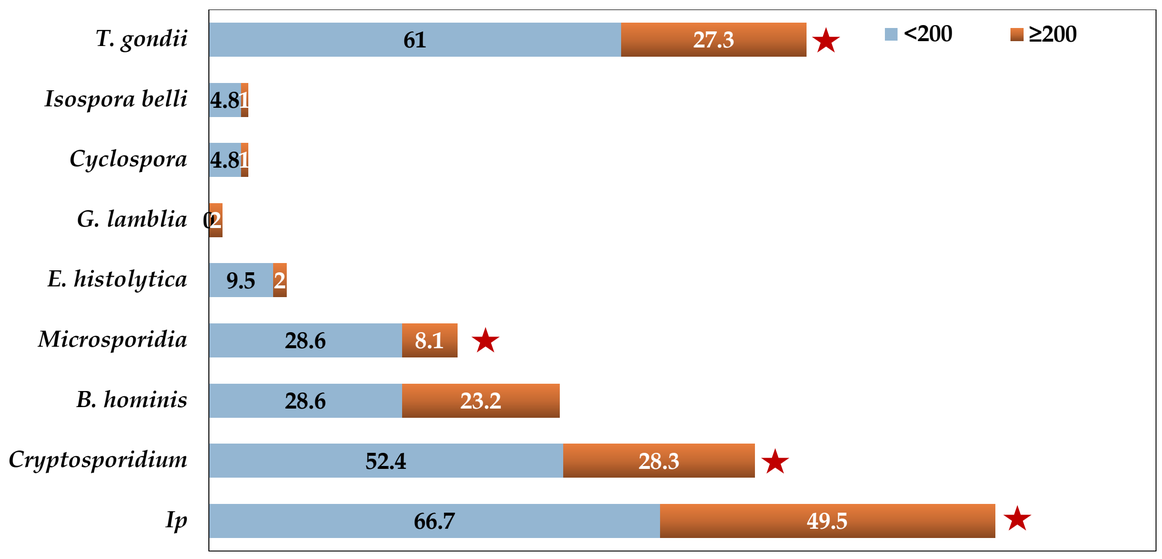


Figure (4): Association of CD4+T cell count with Intestinal Parasitosis and *T. gondii* among Hemodialysis patients

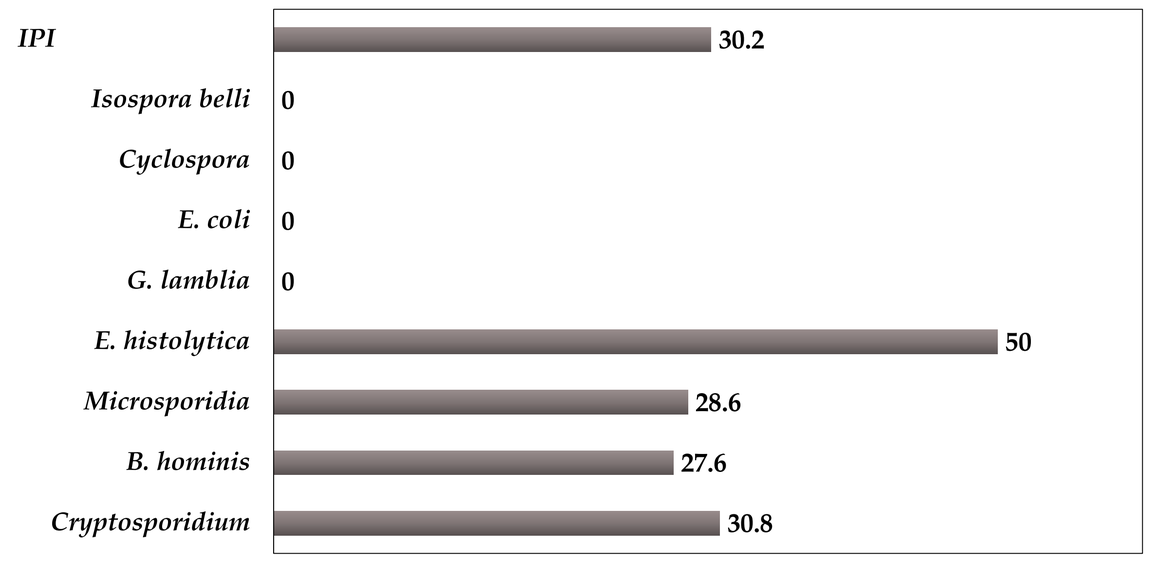


Figure (5): Relation between different Intestinal Parasitosis and Diarrhea among Hemodialysis patients

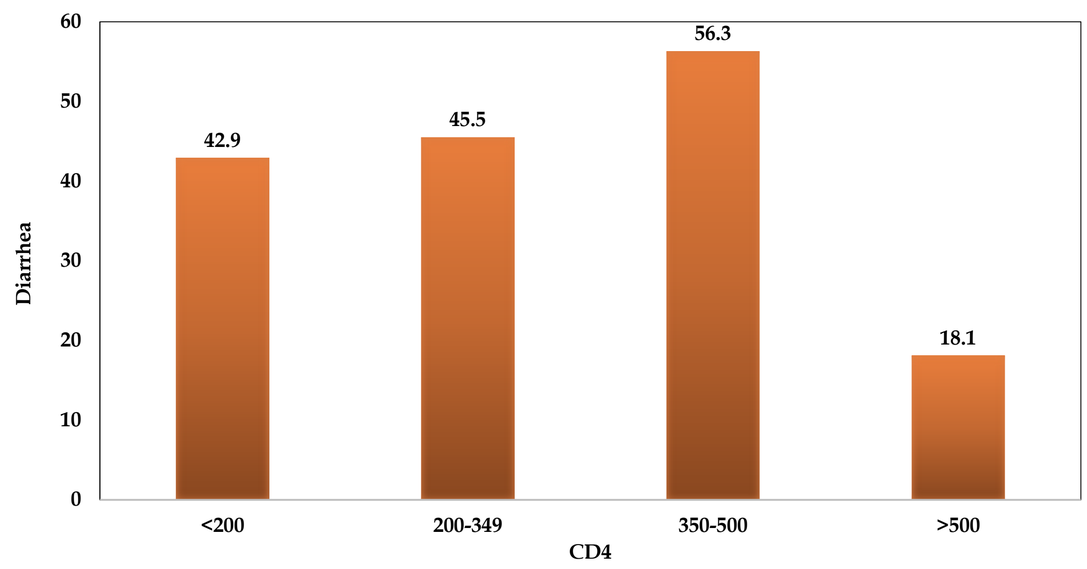


Figure (6): Relation between Diarrhea and CD4+ T cell count among Hemodialysis patients

RECENT PUBLICATIONS

1. Amany I. Shehata, Faika I. Hassanein, Rashad Abdul-Ghani Seroprevalence of Toxoplasma gondii infection among patients with non-schizophrenic neurodevelopmental disorders in Alexandria, Egypt Acta Tropica.2016;154:155–159 DOI: 10.1016/j.actatropica.2015.11.016.
2. Faika I Hassanein, Amany I Shehata, Rashad Abdul-Ghani. G. lamblia and H. pylori infections among mentally challenged individuals in rehabilitation centers in Alexandria, Egypt. J Infect Dev Ctries 2017; 11(7):577-582. doi:10.3855/jidc.8783.
3. Faika I Hassanein, Amany I Shehata Rapid Immunochromatographic Test (RDT) Versus ELISA Technique for Diagnosing Toxoplasmosis among Individuals with Mental Disabilities. International Journal of Innovative Research &Development.2018;7(6):61-66. DOI No. : 10.24940/ijird/2018/v7/i6/JUN18058.



BIOGRAPHY

- Amany Ibrahim Shehata Hassan has got- her M.B.B.Ch in 1988 from Faculty of Medicine, Alexandria University, Egypt. She has got her Master and doctor degrees of Public Health Majoring Parasitology from the High Institute of Public Health, Alexandria University, Egypt in1995 and in 2002 respectively. He is a lecturer of Parasitology in the Tropical Health Department, HIPH. She is an expert in field studies concerning endemic parasitic diseases in Egypt, especially among vulnerable population groups as mentally challenged individuals. She was one of the members of Kafr El-Sheikh team (PI: Prof. Dr. Rashida Barakat) in the Schistosomiasis Research Project (SRP) from 1990 to 1994. She was nominated by the WHO to participate in the course: "Capacity Building in Research Methods and Ethics. Organized by WHO & TDR & IPT, in Tunisia in 2016. She has published many papers in reputed journals.

Notes/Comments

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