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Research Report

Intestinal Parasites Infection in AIDS Patients with Chronic Diarrhea at Dr. Soetomo General Hospital Surabaya

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ABSTRACT

One of the mayor health problems among HIV-infected patients is opportunistic infection due to the defect of immunity. A cross sectional study was showed current the prevalence of intestinal parasites infection in AIDS patients with chronic diarrhea were being treated at Dr. Soetomo General Hospital Surabaya during the period June 2007 to May 2008. Fecal samples were collected from 122 AIDS patients with chronic diarrhea. Samples were examined for intestinal parasites using modified acid fast stain. Ninety-seven (79.5%) of the 122 were found to have intestinal parasitic infections, Entamoeba histolytica (61.5%; 75/122), Cryptosporidium (52.5%; 64/122), Giardia lamblia (5.73%; 7/122), and Trichuris trichiura (0,82%; 1/122). This study shows that parasitic infections are important clinical complications in AIDS patients in Surabaya Indonesia.

Keywords: *HIV-infected patients, AIDS, chronic diarrhea, intestinal parasites*

INTRODUCTION

Human immunodeficiency virus (HIV) infection is an extremely serious worldwide problem to day. As of 2006, about 169–216 thousands Indonesian were estimated to be infected with HIV by Departement of Health, Republic of Indonesia. East Java holds the rank of provinces with high prevalence of HIV/AIDS cases after Papua and DKI Jakarta, followed by West Java, Bali and Riau. Total number of HIV/AIDS patients in Surabaya is the highest among other 37 districts in East Java, comprising 50% of total HIV/AIDS patients in East Java.[1]

Since the beginning of HIV epidemic in the world, opportunistic infection have been recoqnized as an important clinical complication. In particular, opportunistic intestinal parasites plays a mayor role as etiologic agent of chronic diarrhea in HIV patient.[2] Chronic diarrhea in such patients can profoundly compromise the absorptive function of the small intestine, and cause significant mortality. Several species of protozoan parasites, *Cryptosporidium parvum, Isospora belli, Cyclospora cayetanensis, Entamoeba histolytica*, and *Giardia lamblia* are the most common opportunistic infection associated with acquired immunodeficiency syndrome (AIDS) in developing countries.[3]

Diarrhea is a common complication of HIV patients, it occurs in almost 90% of AIDS patients in developing countries.[4] However, no studies have focused specifically on opportunistic intestinal parasitic infections among HIV infected patients in the Republic of Indonesia. Thus, the present study was undertaken to determine the prevalence of intestinal parasitic infections among AIDS patients in Surabaya.

MATERIALS AND METHODS

Patients

AIDS patients with chronic diarrhea who were treated the Dr. Soetomo General Hospital Surabaya, during the periode from June 2007 to May 2008, were enrolled in this study. Fecal samples were obtained from 122 patients. Chronic diarrhea was defined as three or more loose stool passed or watery bowel movements daily, for more than two weeks.[5]

Examination of parasitic infections

Fecal samples were immediately fixed in 10% formalin, and processed using sedimentation technique. The sediment examined as iodine wet mounts, and observed under a light microscope to detect ova, larva and cyst. In addition,

air dried smears from fresh fecal samples were stained by modified acid fast (Ziehl-Neelsen) procedure to detect *Cryptosporidium, Isospora*, and other coccidian protozoa under a light microscope (×600).[5,6]

RESULT

Ninety seven of 122 fecal samples (79.5%) were found to have intestinal parasitic infection. Opportunistic protozoans predominant, *Entamoeba histolytica* (61.5%; 75/122), *Cryptosporidium parvum* (52.5%; 64/122), *Giardia lamblia* (5.73%; 7/122), and *Trichuris trichiura* (0.8%; 1/122).

DISCUSSION

HIV is retrovirus infecting CD4-positive cells causing profound immunosupression, and clinically manifest as AIDS. The cells principally infected by HIV are T4 lymphocytes (helper) and macrophages. The eventual loss of helper cell function is the mian reason for immunodeficiency in the individual susceptible to opportunistic infections.[7]

Virtually every organ system in the body can be affected clinically during the course of HIV infection. The gastrointestinal tract is a mayor target, and the physiological sequelae are an important cause of morbidity and mortality. Two main mechanisms have been postulated. The first is reduced intestinal immunity resulting in chronic opportunistic infections, which themselves cause altered intestinal function. The second is that HIV itself affects the intestinal mucosa, causing malfunction.[7]

The clinical stage of HIV infection at which intestinal mucosal immunity fails is by definition when opportunistic infection occur (that is, clinical progression to stage IV disease), namely AIDS. Diarrhea is a significant problem in HIV infected patients in developing countries.[7] It occurs in almost 90% of AIDS patients in developing countries.[4]

In this cross sectional study of AIDS patients, the overall prevalence of intestinal parasites in fecal samples was 79.5%. This prevalence is higher than those previously reported in other studies conducted in Africa. Various intestinal parasites were found in the fecals of the patients. Pathogenic helminthe was found in one patient or 0.8% of the patients, a prevalence lower to that reported in other studies of HIV-infected patients. Seventy five (61.5%) patients had Entamoeba histolytica, a prevalence that was higher than the prevalence rate of reported in patients with diarrhea. The finding of this study shows that prevalence of Cryptosporidium parvum pathogenic and opportunistic intestinal parasite is high among Dr. Soetomo General Hospital AIDS patients with chronic diarrhea. The prevalence is higher than those previously reported in other studies conducted in Africa,[5,8] India,[4,9] and in United States and Western Europe.[10] In patients with AIDS cryptosporidiosis, commonly, a permanent diarrhea illness that leads to chronic malabsorption of fluids, nutrients, vitamins, and electrolytes-with resulting wasting. In patients who fail to respond to therapy, death usually occurs in three to six months.[10] For this reason, cryptosporidiosis is a secondary infection should be suspected in any AIDS patients with chronic diarrhea.

The result of the present study demonstrate that opportunistic protozoan infections are prevalent among Indonesian AIDS patients and they represent an important source of clinical complications among these patients with chronic diarrhea, and the results of our study should therefore prompt physicians caring for HIV infected patients to request fecal examination and specific test for *Cryptosporidium*.

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