

Toxoplasmosis In HIV-Seropositive Patients In Ilorin, Kwara State, Nigeria

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Abstract

A study was carried out to determine the seroprevalence of *Toxoplasma gondii* among HIV infected and non-HIV infected patients attending University of Ilorin Teaching Hospital, Ilorin, Nigeria. Serum agglutination method using Toxolatest test kit was used to detect and titrate antibody to *Toxoplasma gondii* in both HIV-seropositive and HIV-seronegative patients. Thirty-seven (41.1%) of the 90 HIV-seropositive subjects had antibody to the parasite, while 29 (32.2%) of the control patients had the antibody. The highest titre of 1:128 occurred in two HIV-seropositive patients, while it occurred in one HIV-seronegative patient. The public health implication of seroprevalence of *Toxoplasma gondii* in HIV infected patients was discussed.

Key words: *Toxoplasma gondii*, Seroprevalence, HIV-seropositive, Blood, Ilorin

Introduction

Toxoplasma gondii is an animal coccidian parasite that causes toxoplasmosis, with congenital toxoplasmosis being the most serious form of the human infection. Although the parasite infects a large proportion of the world populations, it is an uncommon cause of disease¹. Certain individuals however are at high risk for severe or life-threatening disease due to this parasite. These include congenitally infected fetuses and newborns, and in immunologically deficient individuals.

There are several reports of toxoplasmosis in immunodeficient patients mostly in persons with defects in T-cell mediated immunity such as those with haematologic malignancies, bone marrow transplants and HIV/AIDS patients².

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Very few reports are available on HIV-toxoplasma co-infections. It has been reported that infection with human immunodeficiency virus (HIV) leads to important alterations in the clinical course of toxoplasmosis^{3,4}.

Seroprevalence rates greater than 50% have been reported in women of child bearing age in much of Western Europe, Africa and South and Central America⁵. In addition, Locus *et al.*⁶ found *Toxoplasma* encephalitis from biopsy and autopsy specimens in 21 per cent of AIDS patients examined in Ivory Coast. With the emergence of HIV-AIDS, toxoplasmosis became the most common cause of encephalitis in the United States⁸. Until then toxoplasmosis was only sporadically observed in patients with neoplasia or transplant recipients under immunosuppressive therapy².

This study therefore investigates antibody prevalence to *Toxoplasma gondii* in Ilorin because of its great clinical importance as opportunistic infections of high mortality in immunodeficient individuals.

Materials and Methods

The study was carried out at the University of Ilorin Teaching Hospital (UITH), a tertiary and referral Hospital in Ilorin, the Kwara State Capital, Nigeria. Patients for this study were recruited from two hospital sources, the medical Output department and the blood bank unit of Haematology department. The HIV status of the subjects was confirmed with double sequential ELISA method at the Haematology department.

Consecutive patients that reported at these clinics for either a follow up visit or newly registered patients were recruited into the study. An informed consent was sought and obtained from the patients before samples were collected. Sex and age matched patients were recruited as control subjects from the GOPD-MOPD and were all HIV-1 and HIV-2 seronegative using ImmunoComb® 11 HIV 1&2 BiSpot kit (organics Ltd, Yarne P.O.B 360, 70650 Israel).

Approximately 3.0ml of blood was collected into plastic tube from both the study and control groups. Serum obtained was used to

change significantly with time¹¹:

The 41.1% HIV-seropositive patients who were seropositive for *Toxoplasma gondii* are at risk of recrudescence of chronic infection and dissemination, leading to the occurrence of fulminating disease among those with very low CD4 T-cells, implying that this group of patients must be carefully managed and given appropriate treatment as soon as any clinical manifestation of encephalitis or other neurological symptom is observed^{12,13}.

The variety of immune system defects in HIV/AIDS patients such as CD4+ T-lymphocyte deficiency, reduced activity of cytotoxic and natural killer (NK) cells, and low production of immunoregulatory lymphokines such as interferon- γ (IFN- γ) may explain the high frequency of reactivated *Toxoplasma gondii* infection^{1,14}. Of equal importance are the 55.6% seronegative patients to *Toxoplasma gondii* who had HIV infection. These patients should avoid any risk factors to the acquisition of *Toxoplasma* infection such as rearing domesticated cats, eating improperly cooked meat, since they may have impaired/poorly activated macrophages, NK and LAK cells that are crucially important for the immune response against *Toxoplasma gondii* during the acute phase of the disease^{15,16}.

Conclusion

Toxoplasmosis represents an important public health problem, considering that the prevalence of *Toxoplasma gondii* induced encephalitis can reach up to 40% in patients with AIDS⁸. Antibody to this parasite is prevalent in this community. The 37 (41.1%) patients who were seropositive to *Toxoplasma gondii* may be at risk of developing toxoplasmic encephalitis if the CD4 T-cell counts drop to ≤ 200 cells /l. The 53 (59%) HIV-seropositive patients who were seronegative to *Toxoplasma gondii* need to avoid the risk factors to acquisition of toxoplasmosis.

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