

Comparison of Serological and Molecular Diagnosis of Cerebral Toxoplasmosis in Blood and Cerebrospinal Fluid in HIV Infected Patients

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Abstract : Recent acquired or reactivation T.gondii infection is a serious complication in HIV patients. Classical serological diagnosis relies on the detection of anti-Toxoplasma immunoglobulin ; however, serology may be unreliable in HIV immunodeficient patients who fail to produce significant titers of specific antibodies. PCR assays allow a rapid diagnosis of Toxoplasma infection. In this study, we compared the value of the PCR for diagnosing active toxoplasmosis in cerebrospinal fluid and blood samples from HIV patients. Anti-Toxoplasma antibodies IgG and IgM titers were determined by ELISA. In parallel, nested PCR targeting B1 gene and conventional PCR-ELISA targeting P30 gene were used to detect T. gondii DNA in 25 blood samples and 12 cerebrospinal fluid samples from patients in whom toxoplasmic encephalitis was confirmed by clinical investigations. A total of 15 negative controls were used. Serology did not contribute to confirm toxoplasmic infection, as IgG and IgM titers decreased early. Only 8 out 25 blood samples and 5 out 12 cerebrospinal fluid samples PCRs yielded a positive result. 5 patients with confirmed toxoplasmosis had positive PCR results in either blood or cerebrospinal fluid samples. However, conventional nested B1 PCR gave best results than the P30 gene one for the detection of T.gondii DNA in both samples. All samples from control patients were negative. This study demonstrates the unusefulness of the serological tests and the high sensitivity and specificity of PCR in the diagnosis of toxoplasmic encephalitis in HIV patients.

Keywords : cerebrospinal fluid, HIV, Toxoplasmosis, PCR

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