Diagnosis of neurological infections in AIDS patients: possibilities for Zimbabwe

Routine cerebrospinal fluid (CSF) examination and culture was performed on CSF obtained from 23 HIV infected adults presenting with neurological symptoms at Parirenyatwa Hospital. Bacterial growth was obtained in CSF from two patients. Cryptococcal meningitis (CM) was the predominant cause of adult meningitis with 10 patients being diagnosed with CM based on the detection of *C. neoformans* (positive culture or India ink stain) or a positive CSF cryptococcal antigen test. In three of the 10 patients (33%) *C. neoformans* had been missed on India ink staining and culture. The cryptococcal antigen latex test offers a rapid and reliable test and its use must be advocated in the routine laboratory.

The diagnosis of tuberculous meningitis (TBM) in the Harare tertiary referral hospitals is made on patients fulfilling specific clinical criteria and laboratory evidence of a raised CSF protein concentration, low glucose and CSF pleocytosis with mononuclear cells as the predominant cell type. Four patients fulfilled the criteria for probable TBM. In AIDS patients atypical clinical and laboratory features can make the diagnosis difficult[1] and thus it becomes vital to demonstrate the presence of micro-organisms to make a definitive diagnosis.

Opportunistic diseases associated with viral infections account for about half of neurological complications in AIDS.[2] They include infections caused by cytomegalovirus (CMV), *Herpes simplex* viruses 1 and 2 (HSV-1 and 2), *Varicella zoster* virus (VZV), Epstein-Barr virus (EBV) associated lymphomas and progressive multifocal leucoencephalopathy associated with JC virus (JCV). We investigated whether these viruses were possible causes of neurological symptoms in 10 patients in whom neither bacterial nor fungal growth had been obtained. CMV DNA was detected in the CSF of one patient with advanced AIDS. DNA for HSV-1, HSV-2, VZV and EBV was not detected in any of the CSF from the 10 patients.

The diagnosis of toxoplasmic encephalitis relies on a high index of suspicion in patients with signs and symptoms of neurologic dysfunction in whom the CAT scan shows abnormality. Toxoplasmosis was strongly suspected in one patient. Detection of DNA for *Toxoplasma gondii* has been used in the diagnosis of toxoplasmic encephalitis.[3] DNA for *Toxoplasma gondii* was negative in the CSF of this patient thus excluding the diagnosis.

Over the last few years, DNA amplification-based techniques primarily polymerase chain reaction (PCR) have been found to be reliable for diagnosis of several CNS infections.[4] PCR with suggested clinical criteria offers a rapid and accurate diagnosis of tuberculous meningitis. The aetiologic diagnosis of CNS syndromes due to viral infections is infrequent in Zimbabwe due to the difficulty in culturing viruses from CSF. A rapid accurate diagnosis of these complications as offered by PCR is important as specific treatment may be possible.[5] When treatment is not available or practicable, supportive care can alleviate the effects of the disease and avoid further useless diagnostic procedures and treatments.

In conclusion, introducing PCR in the diagnostic laboratory for diagnosis of these CNS infections will revolutionise the ability to assist physicians in the diagnosis and management of patients with neurological disorders.

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