# Multiple opportunistic central nervous system coinfections in HIV: Diagnostic and therapeutic difficulties

Sir,

Even though, in the era of highly active antiretroviral therapy (HAART), the incidence of central nervous system (CNS) manifestations has decreased, it continues to be the presenting symptom for HIV infection in over 16% of the cases in the Indian scenario.<sup>[1]</sup> Documented simultaneous or sequential infection of the CNS by more than a single organism, even in immunocompromised patients, is rare.<sup>[2]</sup> Proper diagnosis of CNS coinfection is a difficult proposition, and successful management is undoubtedly a therapeutic challenge.

A 45-year-old male, newly diagnosed with HIV 1 infection (CD4 count  $35/\mu l$ ), presented with a history of difficulty in walking for 4 days, headache for 7 days, and fever for 1 month. On examination, Glasgow coma scale was 15 with axillary temperature of 101°F, mild pallor, neck rigidity, and hepatomegaly. Magnetic resonance imaging brain showed conglomerate enhancing lesion in the left frontoparietal region with surrounding edema. Small nodular enhancing lesion was seen in the right periventricular region, in both frontal area and cerebellum [Figure 1]. India Ink preparation of the cerebrospinal fluid documented cryptococcal species. Based on the clinical features and laboratory findings, the patient was diagnosed as a HIV 1-positive case presenting with hyponatremia due to syndrome of inappropriate antidiuretic hormone secretion having sputum positive pulmonary tuberculosis along with right-sided pleural effusion, neurotoxoplasmosis, and cryptococcal meningitis.

Hyponatremia was first managed with 3% sodium chloride and fluid restriction. Cryptococcal meningitis was treated with amphotericin B (1 mg/kg body weight) and fluconazole (800 mg for 2 weeks followed by 400 for 2 months) and toxoplasmosis with pyrimethamine (200 mg loading followed by 50 mg daily for 4 weeks), sulfadiazine (2 g oral loading followed by 1 g oral 4 times daily for 4 weeks), and folinic acid. WHO Category II



Figure 1: T1 postcontrast magnetic resonance imaging brain showing multiple ring enhancing lesions

antitubercular drug (isoniazid - 5 mg/kg body weight, rifampicin - 10 mg/kg body weight, ethambutol -15 mg/kg body weight, pyrazinamide - 25 mg/kg body weight, streptomycin - 15 mg/kg body weight) was initiated for pleural effusion. Unfortunately, the patient developed hepatotoxicity manifested by jaundice and elevation of liver enzymes after 10 days of initiation of treatment. All the potential hepatotoxic drugs were withdrawn, and the patient was put on streptomycin, levofloxacin, and ethambutol. After normalization of liver functions, isoniazid was restarted followed by rifampicin in gradually increasing doses to maximal dose. When the patient could tolerate the drugs after rechallenge, he was reinitiated with therapy for cryptococcosis and toxoplasmosis over next 4 days. Initiation of antiretroviral therapy with tenofovir (300 mg) - lamivudine (300 mg) - efavirenz (600 mg) was initiated 4 weeks after the treatment for the opportunistic infections. The patient was discharged in hemodynamically stable state.

CNS involvement may be closely associated with HIV infection *per se*, as in the AIDS dementia complex, but is frequently caused by opportunistic pathogens such as *Toxoplasma gondii* and *Cryptococcus neoformans* or malignancies such as primary lymphoma of the CNS. The clinical presentations of CNS involvement are

remarkably nonspecific and overlapping, yet a correct diagnosis is critical for successful intervention.<sup>[3]</sup> The management was again a challenge as treatment of all the opportunistic infections along with HAART may lead to drug interactions and life-threatening complications. Algorithmic approach in a HIV-infected patient contracting multiple opportunistic infections is crucial.

#### **Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/ her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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## **Conflicts of interest**

There are no conflicts of interest.

Mandira Chakraborty, Manoj Kumar Gupta<sup>1</sup>, Sukalyan Saha Roy<sup>2</sup>, Partha Pratim Chakraborty<sup>3</sup> Departments of Microbiology, <sup>1</sup>Gastroenterology and <sup>3</sup>Endocrinology and Metabolism, Medical College Kolkata, <sup>2</sup>Department of Pharmacology, Calcutta School of Tropical Medicine, Kolkata, West Bengal, India

> Address for correspondence: Dr. Mandira Chakraborty,

Department of Microbiology, Medical College, 88, College Street, Kolkata - 700 073, West Bengal, India. E-mail: drmchak@gmail.com

#### REFERENCES

- Koshy JM, Deodhar D, Brar I, Pandian J, John M, Oberoi A, *et al.* Central nervous system manifestations in human immunodeficiency virus patients in the antiretroviral therapy era-Scenario from a developing country. CHRISMED J Health Res 2015;2:245-50.
- Bahls F, Sumi SM. Cryptococcal meningitis and cerebral toxoplasmosis in a patient with acquired immune deficiency syndrome. J Neurol Neurosurg Psychiatry 1986;49:328-30.
- Luft BJ, Remington JS. Toxoplasmic encephalitis in AIDS. Clin Infect Dis 1992;15:211-22.

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