Dengue encephalitis suspicion during epidemic: A letter to the editor

Dear Editor,

Encephalitis is a rare central nervous system (CNS) complication of dengue fever, the pathophysiology being metabolic derangement, direct neural invasion, and autoimmune response.[1] Initially considered to be a non-neurotropic virus, dengue virus as well as the associated antibody have been detected in cerebral spinal fluid (CSF) which is indicative of the neurotropic nature of the virus. Recently the isolation and complete genomic analysis of DENV-2 strain was done from the CSF samples of three encephalitis patients from Sri Lanka.[2]

Recently, six cases of dengue were admitted to our adult intensive care unit (AICU), probably having dengue encephalitis, as presented in Table 1. CSF study could not be performed because either the patients were hemodynamically unstable with recurrent seizure or because of severe thrombocytopenia or (in one case) because the patient was diagnosed as brain dead on admission.

In only one patient could CSF study be carried out, which showed pleocytosis; but dengue virus was not demonstrated. Moreover the dengue IgM in CSF has very low sensitivity (0%–73%)[3] and magnetic resonance imaging (MRI) changes like hyperintense lesions involving the basal ganglia, thalami, cortical gray matter, and subcortical and deep white matter in dengue encephalitis are non-specific.[4]

There are no definitive diagnostic criteria for dengue encephalitis and the following criteria has been suggested: (1) fever; (2) acute signs of cerebral involvement such as altered consciousness or personality and/or seizures and/or focal neurological signs; (3) reactive IgM dengue antibody, NS1

Table 1: Detail of patient with suspected dengue encephalitis

Age (years)/ Sex	Initial Presentation	CNS Symptoms	IL-6 (pg/ml)/ Ferritin (ng/ml)	Dengue Serology	Radiological finding	Treatment	Outcome
30/F	Fever, altered sensorium, convulsion, and later hypotension	Altered sensorium, convulsion	Il-6:248 pg/ml serum ferritin: 3050 ng/ml	NS1 positive	CT scan: Normal; MRI: could not be performed	Methylprednisolone pulse dose, doxycycline, supportive	Did not survive
24/F	Fever, body ache, malaise, vomiting	Drowsy, hypertonia of joints	32.2/>3000	NS1 (−) IgM (+) IgG (−)	Bilateral symmetrical hypodensity in thalami and cerebellar hemisphere with effacement of fourth ventricles	Doxycycline Methylprednisolone, supportive management	Survived with no neurological deficit
18/F	Fever, body ache, Seizures	Seizure, altered sensorium	NA/>3000	Ns1 (+) IgM (−) IgG (−)	Cerebral edema	Supportive	Did not survive
38/M	Fever, Body ache	Seizure, altered sensorium	15.7/ 15080	Ns1 (+) IgM (−) IgG (−)	WNL	Doxycycline, supportive	Survived with no neurological deficit
23/F	Fever, body ache,	Seizure, altered sensorium	>5500/454.4	Ns1 (+) IgM (−) IgG (−)	WNL	Doxycycline supportive	Did not survive
18/F	Fever, headache	Seizure	NA	Ns1 (+) IgM (−) IgG (−)	Diffuse cerebral edema with few tinny hemorrhagic foci in the mild brain with edema in the midbrain with the mass effect seen in the form of effacement of adjacent perimesenc hencephalic cisterns and fourth ventricle	Supportive	Did not survive

antigen or positive dengue PCR on serum and/or cerebrospinal fluid, (4) exclusion of other causes of viral encephalitis and encephalopathy.[5] This approach of diagnosis reduces the probability of under-diagnosis of dengue encephalitis cases. All of our patients met most of the criteria and there was no metabolic cause of encephalopathy in any of our patients.

However, one major limitation of our observation was that we did not rule out the infection of other neurotropic viruses like Japanese encephalitis virus, polio, mumps, influenza, rabies, etc. There was a huge surge in number of dengue cases in our region when dengue encephalitis was suspected. Hence, we can safely assume that it was not merely a coincidence. The was no residual neurological deficit in the recovered patients. We should aim to find a diagnostic technique for early detection of dengue encephalitis as well as prognostic markers for poor outcomes.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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Quick Response Code:

Website: https://journals.lww.com/joacp

DOI: 10.4103/joacp.joacp_54_22

How to cite this article: Das AK, Yadav S, Kothari N, Meshram TM, Bhatia PK. Dengue encephalitis suspicion during epidemic: A letter to the editor. J Anaesthesiol Clin Pharmacol 2023;39:667-8.

Submitted: 08-Feb-2022 **Revised:** 24-Aug-2022
Accepted: 01-Sep-2022 **Published:** 07-Jul-2023