

Neurological manifestations in dengue infection: The need to be vigilant

Mahnoor Islam

Madam, dengue infection, an acute mosquito-borne illness, is a leading cause of morbidity and mortality in the tropical and subtropical regions of the world. While neurological involvement in dengue infection was previously considered a rare complication, recent literature provides evidence of its increasing frequency in the Indian subcontinent.

The most common neurological manifestation appears to be encephalopathy/encephalitis, reaching an incidence as high as 51%¹ and typically presenting with seizures, headache and altered consciousness. However, this is far from the only neurological complication to arise in the setting of dengue fever — in fact, the pathophysiology of neurological/neuromuscular involvement is strikingly diverse. Complications such as Guillain-Barré syndrome and acute disseminated encephalomyelitis represent an immune-mediated mechanism of neuropathy, while direct viral invasion has been thought to play a role in myositis. Metabolic derangements may manifest as hypokalemic paralysis, and even rarer complications (such as opsoclonus-myoclonus syndrome and brachial neuritis) have been recorded in which the pathophysiology is unclear. Although heterogeneous, many of these complications are likely to present with muscle paralysis; indeed, it has been suggested that residents of endemic areas presenting with flaccid quadriparesis during an outbreak should always be investigated for dengue fever.²

Not only do neurological complications occur more frequently during epidemics, but the neuro-virulence of serotypes DEN-2 and DEN-3 in particular is also an alarming indication to be vigilant of such complications during an outbreak, given that DEN-2 and DEN-3 are the predominant serotypes in Pakistan.³ Another challenge

may be that only 50% of patients with dengue encephalitis reportedly present with the typical symptoms of dengue fever on admission.⁴ Moreover, even abnormal findings on computed tomography/magnetic resonance imaging are likely to be non-specific and, indeed, even absent in some cases. Similarly, cerebrospinal fluid analysis may also show normal cell counts in a considerable proportion of patients.⁵ Thus, the diagnosis of dengue infection in the setting of neurological findings cannot be safely discarded due to normal laboratory parameters.

Considering that neurological sequelae may persist even after full recovery from the infection and impair patients' quality of life, it is vital that dengue fever be suspected and investigated early in patients with neurological symptoms without obvious etiology. Healthcare professionals are advised to hold a low threshold of suspicion in face of atypical presentations, as early diagnosis and prognostication of these patients is necessary to prevent death and long-term disability.

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Dow University of Health Sciences, Karachi, Pakistan.

Correspondence: Mahnoor Islam. Email: mahnoorislam95@gmail.com