Neurological Manifestations of Chikungunya in Children

Chikungunya disease re-emerged in India in October 2005 after nearly 32 years of quiescence, and has shown cyclical trend since then [1]. The city of Delhi experienced an outbreak of chikungunya fever from August to October 2016. Chikungunya virus is considered to cause a self-limiting benign illness characterized by fever, rash and arthralgia in children. However, unusual neurological manifestations, including seizures, altered level of consciousness, blindness due to retrobulbar neuritis and acute flaccid paralysis are known to occur [2]. As with other epidemics, the unusual manifestation of disease are better recognized during the outbreaks.

We observed five children of Chikungunya with neurological involvement (out of total 48 admitted patients) in the present epidemic. The diagnosis of chikungunya was confirmed by real-time PCR assay in four children, and by IgM ELISA in one child. All children had abrupt onset of high-grade fever, followed by neurological signs and symptoms. One child succumbed to meningoencephalitis within 6 hours of presentation, and had concomitant hepatic involvement. Two children aged 6 and 8 years presented with fever, seizure and altered sensorium with thrombocytopenia. CSF examination was suggestive of viral meningoencephalitis and attempts to isolate chikungunya from CSF was negative. Both showed complete recovery within 3-4 days of admission. Two children (aged 6 and 10 years) presented with neuro-psychiatric behavioral disturbances in form of hyperactivity, insomnia, aggressive behavior, hallucination, disorientation, and loss of social inhibitions, with onset within first week of fever. One of them presented on day 4 of illness and showed complete recovery within 3-4 days of presentation. The second child (IgM ELISA positive) presented late and had persistent behavioral problem. Work-up for other etiologies like dengue and autoimmune encephalitis (Anti-NMDAR antibody) were normal. Neuroimaging and EEG were also non-contributory. He received low dose risperidone following which his sleep and aggressive behavior improved but other psychotic symptoms persisted during follow-up at four weeks.

Neurotropic nature of chikungunya resulting in neurological complication is infrequently reported during outbreaks [3]. There is no clear evidence to suggest whether these manifestations are due to persistence of virus in central nervous system or due to abnormal immune response [3]. We tried to isolate Chikungunya virus from CSF in two patients but results were negative.

Chikungunya infection should be considered as a differential diagnosis in children presenting with fever and neurological symptoms during epidemics. The outcome is guarded as mortality can occur in acute phase and neuro-psychiatric morbidity may persist.

AMITABH SINGH AND *RAHUL JAIN

Department of Pediatrics, Chacha Nehru Bal Chikitsalaya, New Delhi, India.

**drrahuljain1980@gmail.com*

REFERENCES

1. Mohan A, Kiran D, Manohar IC, Kumar DP. Epidemiology, clinical manifestations, and diagnosis of chikungunya fever: lessons learned from the re-emerging epidemic. Indian J Dermatol. 2010;*55*:54-63.
2. Sebastian MR, Lodha R, Kabra SK. Chikungunya infection in children. Indian J Pediatr. 2009;76:185-9.
3. Lewthwaite P, Vasanthapuram R, Osborne JC, Begum A, Plank JL, Shankar MV, *et al*. Chikungunya virus and central nervous system infections in children, India. Emerg Infect Dis. 2009;15:329-31.