

Is Dengue Virus Becoming Neurotropic? - A study on Neurological Manifestations in Dengue Fever

Elly Varma

Army College of Medical Sciences

E-mail: ellyv123@gmail.com

Introduction

Last decade has seen a tremendous surge of dengue fever in India, with published literature on neurological manifestations. Some workers feel that neurological involvement in dengue is increasing and suggest that the virus is turning neurotropic.

Aim

To study all in-patient confirmed dengue cases for neurological manifestations in our hospital.

Materials and Methods

All cases above 12 years age, admitted to our hospital with confirmed dengue fever during 2009, 2010 and 2011 were the subjects. Diagnosis of dengue was made by positive IgM serology in a suggestive clinical setting. NS1 Antigen testing was done for controversial situations. Neurological manifestations, if any, were recorded in all subjects. Routine and relevant investigations were done for all cases. Neuro-diagnostic tests (CSF study, Imaging, NCS and EEG) were done wherever indicated. Only objective evidence of neurological involvement (sensory-motor deficit, seizures and CSF/neuro-imaging abnormalities) was considered. Patients without objective evidence (only headache, myalgia and vomiting) were excluded from

the study. Finally, the proportion of cases with neurological manifestations to total number of confirmed adult dengue cases in each year i.e. 2009, 2010 and 2011 were compared to look for a statistically significant rising trend.

Results

In 2009, 2010 and 2011; there were 487, 1481 and 367 dengue admissions respectively. In year 2009, 13 (2.6%), in 2010, 41 (2.7%) and in 2011, only 2 cases (0.005%) showed neurological manifestations. The neurological manifestations recorded were: Dengue associated hyperventilation syndrome, transverse myelitis, encephalitis, polymyositis, intracranial bleeds and hypokalemic periodic paralysis. We isolated IgM antibody in one fatal encephalitis case.

Conclusion

Our study shows that incidence of neurological manifestations amongst hospitalized adult dengue patients in the year 2009, 2010 and 2011 is 2.6, 2.7 and 0.005% respectively ($p > 0.05$ at 95% CI). As far as neurological manifestations are concerned, our data for 2009 and 2010 is in congruence with published data. However, it does not point towards a significant increase (in these 3 years) or viral transformation towards increasing neurotropism. Larger longitudinal studies over several successive years are required. These studies should include viral isolation from nerve tissue or CSF wherever possible.