Dengue presenting as Guillain Barre Syndrome

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Dengue fever (DF) has been increasingly reported among children in Mumbai. The common clinical and laboratory features seen in dengue-infected children are: fever, thrombocytopenia, elevated serum transaminases, elevated partial thromboplastin time (PTT), hypotension, vomiting, haemoconcentration, leukopenia and hepatomegaly.[1] Though dengue virus (DENV) is a member of the Flaviviridae group of viruses which include a number of neutropic viruses,[2] immune-mediated central nervous system’s (CNS) involvement following dengue infection has been rarely reported. Reports of only four children of Guillain Barre Syndrome (GBS) due to DENV have been published.[3-6] We report a 2-year-old boy who presented with GBS due to dengue infection.

Case report

A 2-year-old boy born of non-consanguineous marriage presented in the monsoons with weakness of lower limbs since day 1. The weakness was progressive and now had even involved the upper limb. He had fever with diarrhoea four days back. There was no history of any immunization or injections taken in the recent past. He had been immunized till age. On examination, he was conscious and oriented. He had hypotonia with reduced power in all four limbs (lower limb involved more as compared to the upper limb). He had diaphragmatic weakness though respiration was not laboured. Superficial and deep tendon reflexes were absent though gag reflex was present. There was no cranial nerve involvement or sensory involvement. Other systemic examination was normal. Thus, he was diagnosed as a case of ascending progressive motor polyneuropathy, most likely Guillain Barre Syndrome. His haemogram revealed thrombocytopenia [Platelet = 1 04 000/cumm] and normal haemoglobin and WBC count. His serum electrolytes liver function tests and renal function tests were normal. HIV ELISA and HBsAg were negative. Nerve conduction velocity showed absent ‘F’ waves in lower limbs suggestive of axonal radiculopathy. Dengue IgM by Panbio Kit was positive. [1.33 Al (Positive = > 0.9 Al)]. The child was given intravenous immunoglobulin (IVlg) (2 gm/kg) following which his weakness improved and he had regained full power in upper limb and power of grade 3 in lower limbs after 15 days of IVlg. His thrombocytopenia resolved within seven days of presentation. Thus, this child had dengue polyneuropathy.

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Discussion

Dengue is a common arboviral infection affecting patients in South-East Asia, including India, and South America. CNS involvement is known with this viral infection though its actual frequency is unknown. The common CNS manifestations are altered sensorium and seizures and thought to be due to prolonged dengue haemorrhagic fever (DHF) with fluid extravasation, cerebral oedema, hyponatraemia, liver failure, renal failure and direct neurotropic effect of dengue virus. Immune-mediated nervous system involvement has been described in the form of GBS and post-infectious-disseminated encephalitis rarely. GBS is a post-infectious polyradiculopathy known to occur post-gastrointestinal infection with Campylobacter jejuni and other infective agents, like Mycoplasma, human cytomegalovirus (CMV), Ebstein-Barr virus and herpes virus. It rarely occurs due to demyelination post-dengue infection. The nerve injury in GBS is mediated by immunological mechanisms. DHF and dengue shock syndrome (DSS) occur due to immunopathological mechanisms whereby secondary exposure to dengue viruses lead to a more severe disease. Immune enhancement is thought to play a major role in the pathogenesis of enhanced dengue infection, leading to cross-reacting antibodies and demyelination. GBS, in the form of polyradiculopathy of a primarily demyelinating nature with an associated axonal component, has been found as was seen in our patient who had absent “F” waves in lower limbs suggestive of axonal radiculopathy.

DHF and DSS are characterized by thrombocytopenia. We found that 92.3% of patients infected with DF have thrombocytopenia. Similarly, our patient had fever prior to the episode of GBS and thrombocytopenia at the time of presentation in the monsoon season (a time when dengue tends to peak in Mumbai), which made us suspect dengue-associated GBS which was confirmed by positive dengue IgM test.

Previous reports have found complete recovery of dengue-associated GBS with intravenous immunoglobulin (IVIg) as was also found in our patient, suggesting that cross-reacting antibodies from a previous dengue infection may be responsible for the illness.

Thus, in conclusion, one should rule out dengue-associated GBS in areas endemic for dengue whether, or not they have other features of the disease.

References


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