Neonatal Dengue Fever
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Abstract
Dengue fever (DF) is an acute infectious disease, caused by 4 serotypes of dengue virus, resulting in acute febrile illness. It is the most prevalent mosquito-borne viral disease that occurs in humans, and > 2.5 billion people in tropical and subtropical countries of the world are at risk of infection. It is one of the major public health problems in India also. DF is characterized by biphasic fever, myalgia, arthralgia, rashes, leukopenia, thrombocytopenia, and deranged hematocrit. DF is most commonly seen in children in the age group of 4 to 6 years. In a recent epidemic in Delhi, only 9% of the cases were infants and the youngest child was 3 months old. Very few cases have been reported in infants aged below 3 months. Here is a case report of a 17-day-old neonate infected with DF.

Key Words: Dengue fever, shock, rash, thrombocytopenia, leukopenia, Aedes aegypti

Introduction
Dengue fever (DF) is a mosquito-borne tropical disease caused by the dengue virus (Family: Flaviviridae). Four serotypes that are related yet antigenically distinct cause this fever. Among these 4, infection with 1 dengue serotype gives long-lasting immunity to that particular virus, but other serotypes have no cross protective immunity.1 Humans and mosquitoes are the principal reservoirs of dengue virus. Dengue is an arthropod-
Borne virus and mosquitoes act as vectors. Although *Aedes albopictus* can carry dengue virus, *Aedes aegypti* is considered as the most efficient carrier. This virus replicates in vectors. This mosquito, also known as Tiger mosquito, usually bites during day time.

**Classification**

The WHO classifies DF into Dengue Fever Without Warning Sign, Dengue Fever With Warning Sign, and Severe Dengue.

**Phases**

Three phases of DF are febrile phase, critical phase, and recovery phase. Each phase lasts for about 1 week.

**Symptoms**

Plasma leakage and intrinsic coagulopathy are considered as the primary pathophysiology of DF. The variable clinical symptoms of DF are fever, headache, rash, myalgia, joint pain, and lymphadenopathy. Whereas severe cases of dengue usually present with abdominal pain, hypotension, shock, third space loss, dengue encephalopathy, and bleeding diathesis. Hepatomegaly with deranged hematocrit, thrombocytopenia, and leukopenia are also observed. Treatment for DF is based on symptoms. Children who cannot take fluids orally are given intravenous fluids. Early diagnosis of dengue virus infection helps manage the condition appropriately.

**Case Description**

A 17-day-old male neonate with fever since 3 days and poor feeding and colic since 1 day was admitted to our hospital (MVJ Medical College and Research Hospital, Bengaluru, Karnataka, India). At presentation, the neonate was lethargic and febrile with feeble pulse and narrow pulse pressure. On general examination, the neonate was observed to be fully flushed along with petechiae all over his face and trunk (Figure). Systemic examination revealed enlarged liver; other test results—complete blood count, C-reactive protein, blood culture, serum calcium, dengue serology, and Widal test—were normal. The neonate was immediately admitted to the neonatal intensive care unit. Laboratory investigations revealed increased hematocrit value, thrombocytopenia, leukopenia; positive NS1Ag; and negative IgG and IgM (positive dengue serology) and C-reactive protein. As the sepsis workup was negative, sepsis was ruled out.

Initially, it was important to stabilize the neonate hemodynamically. The neonate was given 10 mL/kg NS bolus to treat shock, following which 7 mL/kg NS for 2 hours, 5 mL/kg for 4 hours, and then 3 mL/kg NS was continued till the neonate started showing recovery in the form of decreasing hematocrit and increasing platelet count. The neonate was under continuous hemodynamic monitoring. Empirical antibiotics were administered for 5 days; antipyretics were administered 6 hourly and continued till the neonate was afebrile, following which antipyretics were given only if there was recorded fever. Direct breastfeeding followed by burping was continued for every 2 hours till 72 hours. Hematocrit and platelet counts were monitored continuously till the pattern started showing increasing trends. The neonate responded very well to the treatment. The neonate did not develop any complications during the stay in the hospital. The neonate was discharged with an advice to continue exclusive breastfeeding followed by burping and regular immunization. The neonate was reviewed after 1 week for a routine checkup and was found to be in good health.
Discussion

Dengue is an important arboviral infection observed in tropical countries. The global incidence of DF has increased dramatically in the recent decades. Very few studies are available based on the revised new dengue classification. The number of cases reported may not be the actual number of individuals affected because of asymptomatic infection, milder form of fever, lack of knowledge, and inadequate tests for early laboratory confirmation of acute dengue. Clinical presentation of DF is similar to other dengue infections and its management is mostly similar to that of the management of DF in adults. It is important to differentiate between coinfection and cross reactive serology.

However, management of neonatal DF requires special attention. Thus, adequate knowledge and early diagnosis of acute DF using laboratory tests to detect dengue nonstructural (NS) 1 protein will contribute to appropriate management and significant reduction of infant mortality.

Conclusion

Monitoring DF is a challenge because of its growing magnitude and growing population. It also presents a broad range of clinical manifestations. In dengue-endemic areas, clinicians should be alert to DF, irrespective of the age of the patient.

References


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