

Dengue haemorrhagic fever in a neonate: red alert for neonatal care-givers

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Introduction

Incidence of dengue infection in Sri Lanka in 2013 was 32, 063¹. Reported cases of dengue fever (DF) or dengue haemorrhagic fever (DHF) are rare in neonates. We report a case of DHF in a neonate which is the second documented case presented to this unit within two years.

Case Report

A four day old baby boy was admitted to the special care baby unit as mother was hospitalized for management of fever. Subsequently, the mother was managed as DHF complicated by myocarditis.

Baby was born vaginally at 38 weeks of period of amenorrhoea with a birth weight of 2680g. Antenatal and intrapartum periods were uncomplicated.

One day after admission, he developed fever. Hepatomegaly or rashes were not noted on examination. Intravenous (IV) crystalline penicillin and amikacin were started after taking blood for culture. As mother was treated as DHF, NS 1 antigen was done on day 2 of illness and it was positive. Dengue IgM and IgG were negative on day one of fever. Results of serial full blood counts are shown in Table 1.

Table 1: Results of serial full blood counts

	2 nd day	3 rd day	4 th day	5 th day	6 th day
White cells (mm ⁻³)	7,850	10,360	11,130	21,000	20,940
Neutrophils (%)	52	37	23	34	46
Lymphocytes (%)	19	58	65	50	49
Platelets (10 ³ /mm ³)	115	26	7	23	30
Haemoglobin (g/dl)	16.8	17.5	16	15.5	15.2
Haematocrit (%)	48	49.7	45	43	43

Ultrasound scans of the abdomen and chest, done on the fourth day of illness, showed fluid around the gall bladder and ascites. Pleural effusion or splenomegaly was not detected. With the evidence of leakage, baby was managed as DHF.

Critical phase of DHF occurred on 3rd and 4th days of illness and he was managed accordingly. Baby was lethargic during this period. He did not develop any bleeding manifestations. Alanine transaminase (ALT) and aspartate transaminase (AST) were 18U/L and 54 U/L on Day 4 of illness. He was given a platelet transfusion on 4th day of illness. Intravenous vitamin K 1mg was also given. During the recovery phase on

6th day of illness, he developed a fever spike. C reactive protein was 42 mg/L. Throughout the clinical course of the illness, he was haemodynamically stable. He was treated as sepsis with IV antibiotics. He was discharged on 10th day of illness Dengue Ig M done on 9th day of illness was positive and Dengue Ig G was negative.

Discussion

DHF/DSS is very rare in the neonate and reported cases are few². Mother was previously infected by dengue virus and hence has already developed antibody against that virus; the neonate or the infant may have placentally transmitted antibodies and may develop DHF after the first infection by dengue virus of antigenically different type².

Baby did not have leucopenia at any stage of the course of illness. DHF in infancy may not have leukopenia³. Positive NS 1 antigen on day 2 of fever

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helped in diagnosis of current dengue infection in our patient. Diagnostic sensitivity of NS1 detection in the febrile phase can exceed 90%⁴. Baby might have got the infection by vertical transmission or acquired by a mosquito bite. Incubation period of dengue virus (DV) infection is 3 -7 days⁵. DENV -1 and DENV - 3 are known to cause DHF in primary infection⁵. Due to lack of facilities for virus isolation, serotype of the virus could not be determined.

Sudden marked increase in white blood cell count (WBC) occurred on the 5th day of illness. Bleeding and infections are known causes of marked WBC rise in DHF. With elevated CRP, WBC rise was thought to be due to sepsis. Platelet transfusions neither prevent development of severe bleeding nor shorten the time to cessation of bleeding in adults⁶. Transfusion of platelets was given on 4th day when platelet count was 7,000/ mm³ as neonates have a high risk of bleeding with platelet counts with platelet counts <50,000 irrespective of the underlying aetiology⁷.

Clinical manifestations of DHF/DSS are more significantly associated with death in infants compared with older children. Vertical transmission of DV and anti-DV IgG has been well reported and is responsible for the pathogenesis of dengue and its manifestations in infants⁸. Neonatal DHF is rare. Only a few cases of DHF are reported worldwide. Complex pathogenesis of DHF/DSS during primary dengue in infants/neonates, scarcity of clinical experience and unavailability of management guidelines for dengue infection in neonates makes the management of neonatal DHF a daring clinical encounter.

It is timely that all grades of medical staff handling paediatric patients be alert about dengue in neonates/young infants presenting with febrile illness and unexplained ill health.

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