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The clinical presentation of Dengue in North India: Tertiary care study.

Nidhi Sharma[1], Anurag Varshmey[2], Aarush Varshney[3], Arshiv Kumar[4]

[1]Assistant Professor, Department of Paediatrics, Indu Medical College & Research Centre, U.P., India.
[2]Junior Resident, Department of Paediatrics, Indu Medical College & Research Centre, U.P., India.
[3]Senior Resident, Department of Paediatrics, Indu Medical College & Research Centre, U.P., India
[4]Tutor, Department of Paediatrics, Indu Medical College & Research Centre, U.P., India

Abstract

Background: Dengue could be a common arboviral mosquito-transmitted sickness. infectious disease is characterised by high fever of abrupt onset, generally with biphasic fever, severe headache, nausea, vomiting, ocular pain, connective tissue rash, muscles & joint pain **Methods:** The patients were selected from attending in the Indu Medical College, U.P., India. We included patients suffering from dengue fever & found positive NS1, IgM, IgG from August-2015 to October-2015. **Results:** Test analyzed by fast card take a look at & machine-driven analyser. twelve patients were NS1, IgM, immune globulin positive & changes their medicine & organic chemistry values. **Conclusion:** We should management the arboviral transmitted mosquitoes (Aedes aegypti) that helps to stop from dandy fever infection.

Keywords: Dengue, Biphasic fever, Arbovirus & Mosquito.

INTRODUCTION

Dengue or "break bone fever" is a common arboviral mosquito-transmitted disease, causes of febrile illness in the tropical & subtropical region. Around 2.5 billion people are equally significant in tropical & subtropical region.[1,2]

The name derived from the Swahili word for "the walk of a Dandie" in Spanish. The first case of the dengue fever was recorded during the Jin Dynasty (265-420 AD) I China. After the naming & identification of the disease in 1779 by Benjamin, first epidemic recognized simultaneously in Asia, Africa & North America in the 1780.[3]

Dengue virus is a member of the Flavivirus family. There are four serotypes (antigenically) which are designated as DENV-1, DENV-2, DENV-3 & DENV-4.[4] Arbovirus transmitted by Aedes aegypti & Aedes albopictus mosquitoes. Between 2006 & 2012 the National Vector Borne Disease Control Program reported an annual average 20,474 dengue cases & 132 deaths from dengue infection.[5] In which include dengue fever, dengue haemorrhagic fever (DHF) &dengue shock syndrome (DSS).[6-10]

In India, an initial epidemic of dengue fever was reported in 1963-1964 on the Eastern region than reaching Delhi in 1967 & Kanpur in 1968. Simultaneously involved the southern part & gradually the whole country were involved with widespread epidemics of all the four serotypes of dengue virus co-circulating in India.[11-21] In 1968, the epidemic in Kanpur due to DV-4 & 1969 during both DV-4 & DV-2. In 1966, Vellore DV-3 were isolated. In outbreaks of dengue occurred in Rajasthan by DV-1 & dv-3. DV-2 was the predominant serotype circulating in Northen India, Lucknow, Delhi & Gwalior while in 1997 DV-1 was isolated during the epidemic in Delhi.[22-27] Traditionally dengue fever characterized by high fever of abrupt onset, sometimes with biphasic fever, severe headache, nausea, vomiting, ocular pain, cutaneous rash, muscle & joint pain. In dengue haemorrhagic fever haemorrhagic signs, hemo-concentration, vascular leakage such as pleural effusion, ascites & hypoalbuminaemia which can progress to shock & death. Sign & symptoms of DHF with tachycardia or low pulse pressure (< 20 mm Hg) or hypotension (systolic blood pressure< 90 mm Hg), cold clammy skin & restlessness show in dengue shock syndrome.[28] According to WHO (2009) dengue categorized in dengue with or without warning signs or severe dengue. Dengue: fever & to these nausea, skin rash, vomiting, body ache, leucopenia, or any warning sign include abdominal pain, tenderness, persistent vomiting, fluid accumulation like effusions & ascites, bleeding, liver enlargement or rise in hematocrit with the rapid decrease platelet count. In severe dengue: plasma leakage, bleeding & organ impairment include hepatic transaminases elevated beyond 1000 IU/L & central nervous system manifestations like alteration in sensorium or cardiac or other organ involvement.[29]

Liver enlargement, abdominal pain & anorexia are more common in dengue fever, but present in both dengue fever & dengue haemorrhagic fever. In the adult dengue patients the frequency of hepatomegaly & clinical jaundice ranges from 4%-52% range & 1.7%-17% simultaneously.[30-33]

MATERIAL AND METHODS

The patients were selected from attending in the Department of Paediatrics, Indu Medical College & Research Centre, U.P., IndiaO.P.D./admitted to showing fever less than 2 weeks with or without body rashes, abdominal pain, vomiting & anorexia. All the patients were not suffering from dengue. We included 12 patients suffering from dengue fever & found positive NS1, IgM, IgG from August-2015 to October & remaining patients suffering from other diseases such as Malaria, Typhoid, So we excluded from this study. Patients were not graded according to WHO criteria. Blood samples collected in vaccutainers for Hb, Haematocrit, Platelets, leukocyte count, AST, ALT & dengue viral specific antigen (NS1) & IgM, IgG antibody.

Address for correspondence*

Arshiv Kumar
Tutor, Department of Paediatrics,
Indu Medical College & Research Centre, U.P., India

Hb, Haematocrit, platelets count, leukocytes count done manually method/automated hematological-analyzer & AST, ALT values determined by the automated biochemistry - Analyzer. NS1, IgM, IgG done by Rapid Card Test (manufactured by j. Mitra & Co. pvt, okhla ind. area, ph-1, New Delhi, India). The performance of the test was evaluated & compared with ELISA test (According to manufacturing laboratory manual).

RESULTS

We study on 110 patients which show clinical sign & symptoms as dengue but only 12 Patients shows NS1, 1Gg & IgM antibody positive. All the patients show body rash, vomiting, abdominal pain, back pain & spleenomegaly. In hematological finding, the average of haemoglobin 12.0 gm/dl, haematocrit 38.29%, total leukocyte count 5.4 Lac. cells per cubic mm, thrombocyte count 1.11 lacks where mild decreases of platelet count. In biochemical finding, moderate decrease AST (191.33 IU/L) & ALT (232.25 IU/L) value in dengue patient's serum.

Table 1: showing haematological & biochemical parameters.

Investigation	Normal lab value	Range	Mean	Remarks
Haemoglobin (gm/dl)	M:13.0-18.0 F:12.0-15.0	9.0-14.6	12.00	<12.0 n=05 (41.66%)
Hamatocrit (%)	M:38.8-46.4 F:35.4-44.4	28.5-40.6	38.29	<39.0 n=05 (41.66%)
TLC /cubic mm	4000-11000	1800-16500	5.4	<4.0 n=04 (33.33%)
Platelet count (cells/cubic mm)	1.5-5.0 Lac.	30000-160000	1.11	<1.0 n=08 (66.66%)
ALT (IU/L)	08-45	31.0-1294	191.33	>45 n=12 (100%)

DISCUSSION

We have found various clinical presentations as fever, rash, headache, abdominal pain & few neurological manifestations. Rashes developed due to immunological mechanism- when the dengue virus intracts with host cells, the release of cytokines & stimulation of the immunological mechanism by which vascular endothelial changes, infiltration of mono-nuclear cells & perivascular edema occurs. Retro-orbital pain & headache mostly from systemic inflammatory mediators & fever is non-specific immunological mechanism. Some neurological manifestations have also noted. Involvement of neurological manifestation in dengue due to neurotropism of dengue virus & immunological mechanisms.

Dengue virus usually transmission during the rainy season when the temperature is conducive for build-up of the vector population breeding in secondary habitats as well as for longer mosquito survival. This season is breeding season for mosquitoes & they needed protein for egg production. So small-size female mosquitoes are forced to take more blood meals to obtain protein.

In our study, average platelet counts 1.11 Lac. cells per cubic mm & 66.66% cases show below than 100000 cells/cubic mm observed. The causes include dengue antigen binds to platelets & antibody mediated immunological destruction of platelets. A drop in platelet count may be occasionally observed in dengue haemorrhagic fever. Increase haematocrit value (in the same patient, age & sex) indicators the definitive evidence of increased vascular permeability & plasma leakage & fall in haematocrit was noticed during hospitalized patients were a febrile & rehydrated adequately. Decreases leukocyte count in below 4000/cub mm in dengue infection may due to virus induced inhibition/destruction of myeloid progenitor cells, but in our study average leukocyte count 5.4 /cub mm observed.

Arise in serum transaminases (AST/ALT) observed in our study, which is more than normal ranges. The values of serum transaminase increased due to hepatic inflammation or liver involvement in dengue infection. Heparan sulphate plays a pivotal role for the intrusion of the dengue virus into the liver (Hep G2) cells. AST is more than ALT because the sources of AST are more such as heart, striated muscles, erythrocytes etc.

CONCLUSION

The dengue infection is major problems in India. The exact data are not available because many of the smaller outbreaks go unreported. So governments have to collect data properly, which helps to know the current status of dengue infection. The destruction of mosquito is necessary, which transmitted dengue virus. We should spray anti-mosquito pesticides for the destruction of the larval stage of A. aegypty, which helps to prevent from dengue infection.

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