

ANALYSIS OF CLINICAL PROFILE OF DENGUE FEVER IN CHILDREN

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ABSTRACT

Background: The main objective of the present study is to assess the clinical profile of dengue fever among children. **Material & Methods:** The present study was an observational cross-sectional study. A total of four hundred children of the age group of 0 to 18 years were included in the study after undertaking written informed consent. Study participants admitted with signs and symptoms of dengue fever based on WHO criteria and also NS1 antigen and IgM dengue antibody positive patients by ELISA technique. **Results:** Majority of study participants were in the age group of 10 - 18 years 159 (39.75%) and males were more common 213 (53.25%). Fever was seen in 362 patients (90.5%) followed by myalgia in 354 (88.5%), retro-orbital pain in 338 (84.5%), vomiting 336 (84%) and the least common symptoms presented were convulsions 3 (0.8%) and altered sensorium in 4 subjects (1%). Skin rash 262 (65.5%) and followed by ascites 126 (31.5%) and hepatic dysfunction in 124 (31%) patients. **Conclusion:** The common presenting symptoms were fever, myalgia, headache, retro-orbital pain, vomiting and decreased appetite. The commonest signs present were skin rash and ascites and hepatomegaly. The most common complication presented was hepatic dysfunction.

Keywords: Dengue fever, Clinical profile, Complications.

INTRODUCTION

Dengue virus disease is an emerging epidemic disease and becoming the major pandemic concern and is a major public health problem in India (1). Worldwide the prevalence of dengue virus diseases has tended to rise in the recent decades (2). The WHO reported that in the current scenario about forty percent of the world's population is at risk for dengue viral infection (3). Benjamin Rush first documented dengue infection in the eighteenth century as

“break-bone fever.” It is an Aedes mosquito-borne viral disease with four different serotypes causing dengue fever without alarming signs and symptoms and dengue fever with signs and symptoms and severe dengue (4). It is reported that globally near about 2.5 billion of the population continue to pursue their lives at risk of acquiring the disease while cases are around 50 million and approximately 24,000 deaths reported in a hundred endemic countries and

estimated to be approximately 1 million annually from tropical and subtropical regions around the globe(5). Reported risk of total mortality in diagnosed cases of dengue is less than one percent while mortality rate in untreated patients is higher up to 20% (6).

India is among top seven countries in WHO classified the South-East Asia region, which had regularly reported of the high prevalence of dengue epidemics (7). Due to its high prevalence, dengue constant surveillance and monitoring conducted by the public health care system (8). The first index case of dengue infection in India was reported back in the 1940s, and after that large number new patients have been diagnosed which were mainly present at the time of outbreaks, which ultimately results in high morbidity and mortality rates (9).

The fatal form of the dengue infection, severe dengue disease had been reported all over India from time to time in all districts.5-8 All the serotypes (four) of the dengue virus have been in the environment and reported all over India during outbreaks(10). During all these outbreaks dengue infection encountered in all the age groups population and more common among adults in the age group of 15 -60 years (9).

The presenting signs and symptoms were fever, myalgia, headache, arthralgia and bleeding manifestations and shock have been presented. The exact clinical picture among children is far significant for treatment protocol and therefore also for saving the patient's life (11). The main objective of the present study is to assess the clinical profile of dengue fever among children.

MATERIALS & METHODS

The present study was a hospital-based observational and prospective study carried out at the S.K. hospital, Sikar, Rajasthan, during the

period of July 2015 to June 2016. Ethical clearance from hospital ethical committee was taken. A total of four hundred children of the age group of 0 to 18 years were included in the study after undertaking written informed consent. Study participants admitted with signs and symptoms of dengue fever based on WHO criteria and NS1 antigen and IgM dengue antibody positive patients by ELISA technique. Children had IgG dengue antibody positive results and children with positive lab results for enteric fever and malaria were excluded from the study. All the study participants with dengue fever were included in a predefined study protocol, which included signs and symptoms, complications diagnosis, all the relevant investigations, treatment given, duration of hospital stay and outcome. All the collected data was entered into a predesigned and pretested perform and analyzed. The diagnosis of dengue fever was done based on WHO criteria (7). All the findings were entered into an Excel spreadsheet on Microsoft Excel 2010. The statistical analysis was done using, the Statistical software package SPSS v22 and Epi Info v7. A p-value <0.05 with 95% confidence intervals were considered statistically significant.

RESULTS

In the present study, a total of 400 children with presenting signs and symptoms of dengue fever were included. Based on the age, the majority of study participants were in the age group of 10 - 18 years 159 (39.75%) followed by in the 6-10 years age group 138 (34.5%). In the present study, males were 213(53.25%) that are more common. Table 1

Based on the symptoms, the most common presenting symptom was fever is seen in 362 patients (90.5%) followed by Myalgia in 354 (88.5%), retro-orbital pain in 338 (84.5%),

vomiting 336 (84%) and the least common symptoms presented were convulsions 3 (0.8%) and altered sensorium in 4 subjects (1%). Table 2

Table 1: Distribution of study subjects according to the age and gender.

Age in years	Male	Female	Total
0 - 1	9	5	14
1 - 3	12	13	25
3 - 6	35	29	64
6 - 10	71	67	138
10 - 18	86	73	159
Total	213	187	400

Table 2: symptoms wise distribution of study subjects

Symptoms	No. of patients
Fever	362 (90.5%)
Myalgia	354 (88.5%)
Retro-orbital pain	338 (84.5%)
Vomiting	336 (84%)
Headache	332 (83%)
Pain abdomen	314 (78.5%)
Bleeding tendencies	152 (38%)
Petechiae/Purpura	68 (17%)
Oliguria	10 (2.5%)
Altered sensorium	4 (1%)
Convulsions	3 (0.8%)

Table 3: signs wise distribution of study subjects

Signs	Number of Patients
Skin rash	262 (65.5%)
Ascites	126 (31.5%)
Hepatomegaly	98 (24.5%)
Tourniquet test (positive)	36 (9%)
Splenomegaly	34 (8.5%)

Based on the signs, the most common presenting sign was skin rash 262 (65.5%) and followed by ascites 126 (31.5%) and the least common presenting sign was splenomegaly 34 (8.5%)

shown in table 3. Based on the complications of dengue, the most common presented complication was hepatic dysfunction 124 (31%) followed by shock 72 (18%) and pleural effusion 62 (15.5%). The least complication presented was encephalitis 3 (0.75%). Death was nil in the present study. The average duration of stay recorded in the hospital was 8 - 12 days. Table 4

Table 4: Complications of dengue fever

Complications	Number of patients
Hepatic dysfunction	124 (31%)
Shock	72 (18%)
Pleural effusion	62 (15.5%)
Renal failure	38 (9.5%)
Severe haemorrhage	14 (3.5%)
Encephalitis	3 (0.75%)

DISCUSSION

Dengue virus disease is an emerging epidemic disease and becoming a major pandemic concern and is a major public health problem in India. Worldwide the prevalence of dengue virus diseases has tended to rise in the recent decades. The present study was a hospital-based observational and prospective study. All the serotypes (four) of the dengue virus have been in the environment and reported all over India during outbreaks (12). During all these outbreaks dengue infection encountered in all the age groups population and more common among adults in the age group of 15 -60 years(13).

There is a continuous increase in the epidemics of dengue infection over the past decades and it among children. This is maybe because of vast and intense urbanization with highly crowded construction activities without planning and very poor sanitation utilities providing potential breeding surroundings for mosquitoes. Due to an increase in the knowledge and awareness among ground level public healthcare workers following the initial outbreaks and the availability of rapid

diagnostic kits have contributed to the increased treatment and improves patient outcome (10).

An epidemic of dengue infection during rainy and monsoon season increased due to stagnant water breeding sites for Aedes mosquito, after amounts of rainfall which indirectly facilitate breeding of vector. This is the primary and major preventive measures against dengue disease should be undertaken during monsoon periods after the initialization rainfall and likewise at the end of monsoon season (14).

Based on the age, a majority of study participants were in the age group of 10 - 18 years 159 (39.75%) followed by in the 6-10 years age group 138 (34.5%). In the present study, males were 213(53.25%) that are more common. A similar pattern was observed in the retrospective study in the year 2006 for North Indian Dengue outbreak. This may be because of similar patterns of outdoor activities of these children, where the chances of getting the disease by biting of mosquitoes are more (15).

Based on the symptoms, the most common presenting symptom was fever is seen in 362 patients (90.5%) followed by myalgia in 354 (88.5%), retro-orbital pain in 338 (84.5%), vomiting 336 (84%) and the least common symptoms presented were convulsions 3 (0.8%) and altered sensorium in 4 subjects (1%). Study results were nearly similar to studies conducted by other researchers (16).

In the present study the most common presenting sign was skin rash 262 (65.5%) and followed by ascites 126 (31.5%) and the least common presenting sign was splenomegaly 34 (8.5%) shown in table 3. Based on the complications of dengue, the most common presented complication was hepatic dysfunction 124 (31%) followed by shock 72 (18%) and pleural effusion 62 (15.5%). The least complication presented

was encephalitis 3 (0.75%). Studies conducted by Horwarth from Australia (17) and Sharma from India reported the skin rash among subjects was 63% and 69% respectively (18). With reference to the mortality, none of the mortality occurred in the present study.

CONCLUSION

We concluded from the present study that the common presenting symptoms were fever, myalgia, headache, retro-orbital pain, vomiting and decreased appetite. The commonest signs present were skin rash, ascites, and hepatomegaly. The most common complication presented was hepatic dysfunction.

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