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Original Research Article

A study of clinical profile of dengue fever in children

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ABSTRACT

Background: Dengue is a major international health concern and is a major health problem in India which constantly threatens the health care system. The objective of the present study was to study the clinical profile of dengue fever in children.
Methods: Prospective and descriptive study was conducted on all the laboratory confirmed cases of dengue fever in children admitted at SIMS and RC over a period of 1 year from December 2015 to November 2016.
Results: Among 568 children studied, majority of them were males 63.3% and in the age group of 10-18 years 39.4%. The most common symptoms noticed were fever 90.1% followed by myalgia 88.3%,decreased appetite 88.2%, retroorbital pain in 84.5%, vomiting 84.1% and the least common symptoms noticed were convulsions 0.8% and altered sensorium 1%. The most common signs were skin rash 65.4% and ascites 31.6% and least common sign was spleenomegaly 8.4%. The most common complications seen were hepatic dysfunction 30.6% followed by shock 18.6% and pleural effusion 15.8%. The least complication noticed was encephalitis 0.7%. Death was nil in our study.
Conclusions: This study concludes male children in the age group of 10 - 18 years were more affected. The common symptoms observed were fever, myalgia, decreased appetite and headache and commonest signs were skin rash and ascites. The common complications presented were hepatic dysfunction and shock with no mortality indicating the presence of less virulent organisms.

Keywords: Clinical profile, Complications, Dengue fever, Hepatic dysfunction, Shock

INTRODUCTION

Dengue infection is a emerging disease,major international concern and is a major health problem in India. Globally the incidence of dengue has increased in the recent years. The WHO estimates that presently about two fifths of the world population is at risk for this viral infection.[1] Dengue fever was first reported by Benjamin Rush in 1780 as “break bone fever.” It is a mosquito borne viral infection with four serotypes causing dengue without warning signs, and dengue with warning signs and severe dengue.[2] It is estimated that worldwide nearly 2.5 billion people continue to live at risk of contracting the infection while 50 million cases and 24,000 deaths tend to occur in 100 endemic countries and reported to be around 1 million annually from tropical and subtropical countries. Risk of mortality in treated cases of is less than 1% while mortality rate among untreated cases escalates to 20%.[3]

India is one of the seven countries in the South-East Asia region regularly reporting incidence of dengue outbreaks due to its high incidence which constantly threatens the health care system. The first confirmed case of dengue fever in India dates back to 1940s, and since then more and more new cases have been reported which mostly occurs in epidemics often resulting in high morbidity and mortality.[4]

Fatal form of the disease, severe dengue fever have been reported in India from time to time in Kolkata, Delhi, and Chennai.[5-8] All the four serotypes of the virus have been in circulation and reported in Tamil Nadu.[9] During all these epidemics infection occurred in all the age groups and more so in adults in the age group of 16 -60 years.[10,11]

The common symptoms and signs observed were fever, headache, myalgia, arthralgia, bleeding manifestations and shock have also been observed. The exact clinical presentations in children is important for patient management and thereby saving the life. The objective of the present study is to study the clinical presentations of dengue fever in children.

METHODS

This is a hospital based descriptive and prospective study carried out at the General hospital, Sapthagiri Institute of Medical Sciences and Research Centre, Bangalore, Karnataka, India on all the laboratory confirmed cases of children with dengue fever admitted for a period of 1 year from December 2015 to November 2016. All the admitted dengue fever patients were enrolled on a structural protocol which included symptoms, signs, diagnosis, complications, relevant investigations, treatment, duration of stay and outcome. Relevant data was entered in a proforma and analyzed. The diagnosis of dengue fever was based on the WHO criteria.[3]

Inclusion criteria

- Children with age group of 0-18 years.
- Admitted with symptoms of dengue fever based on WHO criteria.
- NS1 antigen and IgM dengue antibody positive cases by ELISA technique.

Exclusion criteria

- Children with IgG dengue antibody positive.
- Children with enteric fever and malaria.

RESULTS

A total of 568 cases admitted to the General hospital, SIMS and RC, Bangalore, Karnataka, India from December 2015 to November 2016 were statistically analyzed. Based on the age, majority were in the age group of 10 - 18 years 39.4% (224/568) followed by 6-10 years age group in 34.5% (196/568), among gender males were more common in 63.3% (360/568). Based on the symptoms, the most common symptoms noticed were fever 90.1% (512/568) followed by myalgia 88.3% (502/568), decreased appetite 88.2% (501/568), retroorbital pain in 84.5% (480/568), vomiting 84.1% (478/568) and the least common symptoms noticed were convulsions 0.8% (5/568) and altered sensorium 1% (6/568).

Table 1: Age and gender.

Age in years	Male	Female	Total
0 - 1	8	12	**20**
1 - 3	16	20	**36**
3 - 6	56	36	**92**
6 - 10	108	88	**196**
10 - 18	172	52	**224**

Table 2: Symptoms.

Symptoms	No. of patients
Fever	512 (90.1%)
Myalgia	502 (88.3%)
Decreased appetite	501 (88.2%)
Retroorbital pain	480 (84.5%)
Vomiting	478 (84.1%)
Headache	473 (83.2%)
Pain abdomen	450 (79.2%)
Vomiting	193 (64.3%)
Abdominal distension	386 (67.9%)
Skin rash	372 (65.4%)
Leg pain	313 (55.1%)
Bleeding tendencies	214 (37.3%)
Petechiae/Purpura	136 (1.6%)
Epistaxis	32 (5.6%)
Malaena	13 (2.2%)
Subconjunctival haemorrhage	11 (1.9%)
Combination	22 (3.8%)
Breathlessness	60 (10.5%)
Diarrhoea	40 (7%)
Palpitation	33 (5.8%)
Oliguria	15 (2.6%)
Altered sensorium	6 (1%)
Convulsions	5 (0.8%)

Table 3: Signs of dengue fever.

Signs	Number of Patients
Skin rash	372 (65.4%)
Ascites	180 (31.6%)
Hepatomegaly	138 (24.2%)
Torniquet test (positive)	50 (8.8%)
Spleenomegaly	48 (8.4%)

Table 4: Complications of dengue fever.

Complications	Number of patients
Hepatic dysfunction	174 (30.6%)
Shock	106 (18.6%)
Pleural effusion	90 (15.8%)
Renal failure	53 (9.3%)
Severe haemorrhage	20 (3.5%)
Encephalitis	4 (0.7%)

Based on the signs, the most common signs were skin rash 65.4% (372/568) and ascites 31.6% (180/568) and least common sign was spleenomegaly 8.4% (48/568). Based on the complications, the most common complications seen were hepatic dysfunction 30.6% (174/568) followed by shock 18.6% (106/568) and pleural effusion 15.8% (90/568). The least complication noticed was encephalitis 0.7% (4/568). Death was nil in our study. Average duration of stay in hospital was 8 - 12 days

DISCUSSION

Dengue is a major international health concern that is prevalent in tropical and sub-tropical countries. This study describes the clinical profile of dengue fever in children admitted to general hospital SIMS and RC, Bangalore, Karnataka, India. Since the first confirmed case of dengue in India, during the 1940s, intermittent reports from Delhi, Ludhiana, Mangalore, Vellore and from other states have been published. The diagnosis is by clinical profile but they can present with varied manifestation.[11-16]

There is a steady increase in the outbreak of dengue fever over the years and so among children. This is due to the rapid urbanization with unplanned construction activities and poor sanitation facilities contributing fertile breeding grounds for mosquitoes. Due to an increase in the awareness among health care professionals following the initial epidemic and the availability of diagnostic tests have contributed to the increased diagnosis.[17]

A outbreak of dengue fever during pre-monsoon and monsoon season reported due to stagnation of water, after a bouts of rainfall which facilitate vector breeding. This highlight the preventive measures against dengue fever should be taken during water stagnation periods after the initial bouts of rainfall and at the end of monsoon.

Among the age and sex majority of the cases were in the age group of 10-18 years with 39.4% followed by 6-10 years with 34.5%, and male to female ratio was 1.7:1 and similar pattern was seen in the retrospective analysis of the 2006 North Indian Dengue outbreak.[18] This may be due to out-door activities of these children, where chances of getting bitten with mosquitoes are more.

Among the symptoms and signs, fever 90.1%, myalgia 88.23% and decreased appetite 88.2% were common symptoms and skin rash 65.4% and ascites 31.6% were common signs as with other studies.

Among the complications, present study reveals 30.6% with hepatic dysfunction in 30.6%, and shock in 18.6% of cases which is less when compared to other studies of Horwarth from Australia and Sharma from India.20 who reported 63% and 69% respectively.[19] With reference to the mortality, none of them died in this study, indicating less severity of dengue infection. This may be due to presence of less virulent organisms.

CONCLUSION

This study concludes male children in the age group of 10-18 years were more affected. The common symptoms observed were fever, myalgia, decreased appetite and headache and commonest signs were skin rash and ascites. The common complications presented were hepatic dysfunction and shock with no mortality indicating the presence of less virulent organisms.

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