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Original Research

Assessment of clinical profile of children with dengue fever

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ABSTRACT:

Background: Dengue fever is a mosquito-borne viral infectious disease contributing significantly to morbidity and mortality in south east Asian endemic regions. The present study was conducted to assess clinical profile of children with dengue fever. **Materials & Methods:** 75 children with confirmed dengue cases of both genders were included. Nutritional status was assessed by World Health Organization (WHO) guidelines and patients were classified as severe malnutrition and moderate malnutrition. Patients were classified as dengue without warning signs, dengue with warning signs or severe dengue according to the WHO classification 2009. **Results:** Age group <1 year had 5 boys and 3 girls, 1-5 years had 15 boys and 12 girls and 6-12 years had 25 boys and 20 girls. The difference found to be significant (P< 0.05). 38 had severe dengue, 24 had dengue with warning signs and 13 had dengue without warning signs. Common clinical features were malaise, abdominal pain, hepatomegaly, splenomegaly, positive torniquet test and petechiae. The difference found to be significant (P< 0.05). **Conclusion:** Maximum cases of dengue was seen in age group 6-12 years and patients were moderately malnourished and had severe dengue symptoms.

Key words: Children, Dengue, Nutritional status

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INTRODUCTION

Dengue fever is a mosquito-borne viral infectious disease contributing significantly to morbidity and mortality in south east Asian endemic regions.[1] The pathogenesis of severe disease such as dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS) is attributed to antibody dependent enhancement, massive T cell activation, cytokine storm, capillary leak, and coagulopathy. Severe dengue is associated with various complications such as encephalopathy, liver dysfunction, myocardial dysfunction, and acute renal failure.[2]

Dengue infection is frequently confounded with other febrile illnesses (OFI), presenting with non-specific clinical symptoms and clinical features analogous to OFI. During the early stages of dengue, the presence of nonspecific febrile illness makes precise diagnosis strikingly difficult, resulting in inefficient treatment and possible increases in morbidity and mortality.[3] Severe dengue fever, if not appropriately managed, may lead to rapid death, particularly in children. In addition, the lack of necessary laboratory facilities, particularly in remote, rural areas, may cause difficultly in discriminating dengue infection from OFI. Dengue is one of the most common vector-borne diseases and one of the most important mosquito-borne viral diseases with an epidemic potential in the world.[4]

Severe disease is more common in infants and young children and in contrast to many other infections, it is more common in well-nourished children. According to World Health Organization (WHO) criteria 2009, patients are classified as severe dengue if they have manifestations of severe plasma leakage, severe hemorrhage or severe organ impairment. Dengue may be diagnosed by microbiological laboratory testing for viral antigen detection or specific antibodies (serology), nucleic acid detection by PCR.[5] The present study was conducted to assess clinical profile of children with dengue fever.

MATERIALS & METHODS

The present study comprised of 75 children with confirmed dengue cases of both genders. Parental consent was obtained before starting the study.

Details such as name, age, gender etc. was noted. Clinical manifestation, laboratory investigations and treatment details were recorded. Nutritional status was assessed by World Health Organization (WHO) guidelines and patients were classified as severe malnutrition and moderate malnutrition. Tourniquet test was considered as positive if there were more than 20 petechiae per 2.5cm square. Tachycardia and hypotension was recorded. Patients were classified as dengue without warning signs, dengue with warning signs or severe dengue according to the WHO classification 2009. Factors associated with severe dengue were assessed. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Age group	Boys	Girls	P value
<1 year	5	3	0.01
1-5 years	15	12	
6-12 years	25	20	

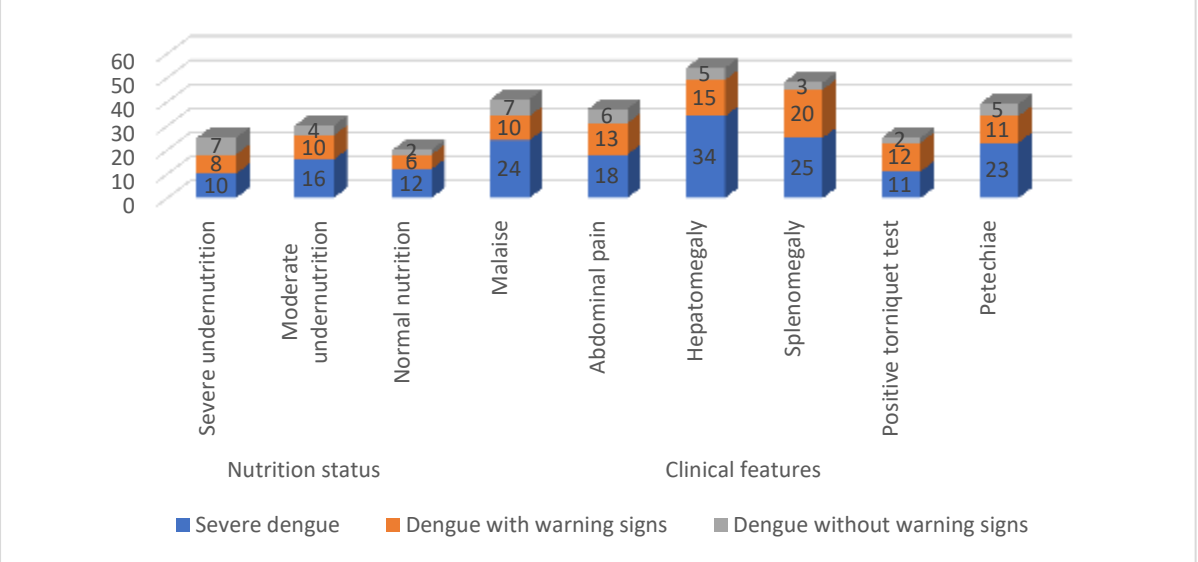
Table I shows that age group <1 year had 5 boys and 3 girls, 1-5 years had 15 boys and 12 girls and 6-12 years had 25 boys and 20 girls. The difference found to be significant (P< 0.05).

Table II Clinical profile of patients

Parameters	Variables	Severe dengue	Dengue with warning signs	Dengue without warning signs	P value
Nutrition status	Severe undernutrition	10	8	7	0.04
	Moderate undernutrition	16	10	4	
	Normal nutrition	12	6	2	
Clinical features	Malaise	24	10	7	0.01
	Abdominal pain	18	13	6	
	Hepatomegaly	34	15	5	
	Splenomegaly	25	20	3	
	Positive torniquet test	11	12	2	
	Petechiae	23	11	5	

Table II, graph I shows that 38 had severe dengue, 24 had dengue with warning signs and 13 had dengue without warning signs. Common clinical features were malaise, abdominal pain, hepatomegaly, splenomegaly, positive torniquet test and petechiae. The difference found to be significant (P< 0.05).

Graph I Table II Clinical profile of patients



DISCUSSION

Dengue Fever is one of the arthropod borne diseases that are on the rise in India. Dengue fever (DF) and dengue hemorrhagic fever (DHF) have emerged as a global public health problem.[6] Dengue is hyper endemic in many urban, periurban and rural areas with frequent epidemics. Dengue infection is frequently confounded with other febrile illnesses (OFI), presenting with non-specific clinical symptoms and clinical features analogous to OFI.[7] During the early stages of dengue, the presence of non-specific febrile illness makes precise diagnosis strikingly difficult, resulting in inefficient treatment and possible increases in morbidity and mortality. Severe dengue fever, if not appropriately managed, may lead to rapid death, particularly in children.[8] In addition, the lack of necessary laboratory facilities, particularly in remote, rural areas, may cause difficultly in discriminating dengue infection from OFI. Dengue is one of the most common vector-borne diseases in Southeast Asia, and one of the most important mosquito-borne viral diseases with an epidemic potential in the world.[9] The present study was conducted to assess clinical profile of children with dengue fever.

In present study, age group <1 year had 5 boys and 3 girls, 1-5 years had 15 boys and 12 girls and 6-12 years had 25 boys and 20 girls. Rathod et al[10] determined the clinical profile of children with dengue. Out of 100 patients enrolled, mean age of presentation was 5.82 years. Forty-five children had dengue without warning signs, 44 had dengue with warning signs and 11 had severe dengue. Fifty-three children were in the age group of 6 to 12 years. Male: Female ratio was 1.43: 1. Common clinical presentations were fever (100%), vomiting (57%), rash (50%), malaise (49%), hepatomegaly (46%), abdominal pain (44%), positive tourniquet test (45%), headache (45%), petechiae (37%) and bleeding manifestation (26%). Abdominal pain (79.5%), petechiae (62.2%), bleeding manifestations (65.4%), hepatomegaly (76.1%) and splenomegaly (60%) were more common with dengue with warning signs. Altered sensorium, convulsion, circulatory failure and hypotension were seen in children with severe dengue.

We found that 38 had severe dengue, 24 had dengue with warning signs and 13 had dengue without warning signs. Common clinical features were malaise, abdominal pain, hepatomegaly, splenomegaly, positive torniquet test and petechiae. Phakhounthong et al[11] found that there were 3225 patient admissions during the study year, of which 1361 (42.2%) met the inclusion criteria. 1144 children having a single episode, 31 children having two episodes, one child having three episodes, and four children having four episodes. The patients were mainly had lower respiratory tract infection (38.3%), undifferentiated fever (25.5%), or diarrhoeal disease (19.5%). Out of 1180 enrolled children, there were 69 deaths, the causes of which were: clinical pneumonia with no organism/virus identified (12 cases, 27.5%), dengue virus infection (11 cases, including one with co-existent melioidosis, 2 with co-existent scrub typhus, and four with co-existent clinical pneumonia, 15.9%), and melioidosis (4 cases, 5.8%). 941 non-dengue cases.

Tamibmaniam et al[12] used simple logistic regression and identified three parameters, including vomiting, pleural effusion, and low systolic blood pressure, to predict severe dengue based on the 2009 WHO criteria. Sensitivity and specificity achieved in its decision algorithm were 81% and 54%, respectively. Of the three parameters they identified, vomiting was the only parameter available in our study, and although it initially appeared to be significant in the severe group, it was not selected for the final tree.

CONCLUSION

Authors found that maximum cases of dengue was seen in age group 6-12 years and patients were moderately malnourished and had severe dengue symptoms.

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