

Original Article

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

SJIF Impact Factor: 5.464

ISSN: 2457-0400

Volume: 5. Issue: 1. Page N. 187-189 Year: 2021

www.wjahr.com

CLINICAL PROFILE OF DENGUE FEVER IN A PEDIATRIC POPULATION IN A TERTIARY CARE CENTRE

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Received date: 30 November 2020	Revised date: 20 December 2020	Accepted date: 10 January 2021

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ABSTRACT

Background: Dengue viral infection is a global health threat and it is the most rapidly spreading mosquito-borne viral disease in the world. Symptomatic dengue infection causes a wide range of clinical manifestations, from mild dengue fever (DF) to potentially fatal disease, such as dengue hemorrhagic fever (DHF) or dengue shock syndrome (DSS). **Objective:** To assess the clinical and laboratory profile of the dengue infection in children less than 18 years of age from july 2018 to November 2019 at the Pediatric Department. **Results:** A total of 119 cases were classified into 114 (95.7%) non severe and 5 (4%) severe dengue cases. The mean age of admission was 11.5 years. The most common presenting symptom was fever seen in 100%, rash 100%, vomiting 61%, pain abdomen 37% and hepatomegaly (25%), the most common physical finding. Elevation in aspartate transaminase (SGOT) was found in 66.42% and thrombocytopenia in 28%. **Conclusion:** In children, if symptoms like fever, pain, rashes, and vomiting are associated with hepatomegaly and elevated SGOT in context of low Platelet Count, a strong possibility of dengue fever is present, especially in an epidemic setting. Early suspicion and effective management can reduce the severity.

KEYWORDS: Dengue fever, children, DHF, DS.

INTRODUCTION

Dengue is a serious mosquito-borne viral disease which in recent years has become a major international public health concern. The dengue virus is a RNA virus and consists of 4 serotypes (DEN 1 - 4).

Dengue is a fast emerging and rapidly spreading systemic viral infection with global estimates of 390 million infections per year, of which 96 million are apparent infections and 3.97 billion people in 128 countries are at risk of dengue infection.^[1] In India, epidemics are becoming more frequent.^[2,3] Involvement of younger age group and increase in the frequency of epidemics are indicators of higher incidence of infection.^[2] If untreated, mortality from complications of DF is as high as 20%, whereas if recognized early and managed properly, mortality is less than 1%.^[3] Dengue fever presents as common viral fever which causes dangerous complications. Dengue reinfection is observed to be more severe in children due to immunological phenomenon.^[4] The objective of this study was to assess the clinical profile of the dengue infection in children less than 18 years of age.

METHODS

It was a prospective observational study. All probable cases that had high grade fever, lymphadenopathy, hepatomegaly, features of shock or haemorrhage, were admitted with provisional diagnosis of dengue fever. All children aged up to 18 years with positive dengue tests, either NS1 antigen, IgM, IgG antibody rapid serological test kit, or ELISA, were taken into the study group. Patient with any identified specific infection or febrile illness more than two weeks were excluded from the study. The whole number of patients included in our study was 119 (n = 119). Laboratory investigations carried out in these patients included hemoglobin, total and differential leukocyte count, hematocrit, platelet count, liver function tests, serum amylase and lipase. Platelet counts including hematocrit were repeated daily during the acute phase of the illness. Chest X-ray and ultrasonography of whole abdomen were done in selected patients where clinical findings were suggestive.

RESULTS

The total number of cases was 119, out of which 114 were cases of non severe dengue (undifferentiated fever, dengue fever with warning signs, and dengue fever

without warning signs) and 5 were cases of severe dengue (DHF and DSS) according to WHO guidelines. Most of the cases was observed between the month of July and November. There were 73 (61.3%) males and 46 (38.6%) females in our study. The mean age of hospitalized patients was 11.5 yrs. Fever was present in 100% of the cases, vomiting (61%), myalgia (49.5%) and abdominal pain (31%) were common. Rash (100%) was the most common physical finding followed by hepatomegaly (25%). The most common bleeding manifestations in both severe and non severe dengue were petechiae (22.1%) while tourniquet test was positive in 30%. Gastrointestinal bleeding was significantly seen in one patient with severe dengue case. Among the liver enzymes, SGOT was elevated in a larger proportion (37.2%) of patients when compared to alanine aminotransferase (SGPT) which was 30.92%. Pancreatitis was present in 4 patients. All 119 patients had fever and they were treated with antipyretics (paracetamol) in appropriate doses. 4% of patient presented with shock treated according to WHO guidelines. In our study all 119 of cases recovered and there was no mortality.

DISCUSSION

Dengue is an important arboviral infection in tropical countries. Global incidence of dengue fever has increased dramatically in the recent decades.^[5] The mean age of hospitalized patients was 11.5 yrs. More involvement in adolescent children can be explained by diurnal adaptation of Aedes mosquito in stored water. These children work or play in open field. There was a difference in male: female ratio in our study (1.5: 1) similar to other studies.^[6] Fever and vomiting were the most frequent symptoms and hepatomegaly was the most frequent sign in these children, as observed in earlier studies.^[7,8,9] In our study fever was present in all cases. Abdominal pain, vomiting, retroorbital pain, and abdominal distension were seen commonly. This goes with previous study.^[10] In our study all patients were have erythematous blanchable rash. A haemorrhagic tendency could be elicited by tourniquet test. In the present study, about 30% of the patients had positive tourniquet test. The most consistent finding was hepatomegaly, which was similar to many other studies.^[10,15]

There is a low proportion of children with evidence for hemoconcentration in our study group.

The overall mean hematocrit value was 39% in our study. There were a low proportion of children with evidence of haemoconcentration in our study group. The percentage increase in haematocrit is an accurate indicator of vascular permeability and plasma leakage. But it was also reported in previous studies that in some cases the fluid leakage does not achieve a high degree haemoconcentration even if the patient is in shock; this explains our findings. In some DF patients the rise of PCV could have been due to dehydration as a result of poor intake and vomiting.^[11] Leukopenia was seen, average TLC count was 5000/cumm which was similar to two other studies.^[12] The earliest haematological abnormality is a progressive decline in total WBC count in patients of dengue.^[13] In our study thrombocytopenia was seen (28%) and average platelet count was 140000/cumm. In ou study SGOT was elevated in a larger proportion (37.2%) of patients when compared to alanine aminotransferase (SGPT). Very high levels of SGOT and SGPT indicate severity of the disease along with morbidity and mortality. This differs from the pattern seen in viral hepatitis.^[14]

Ascites and pleural effusion were common presentations, whereas chest X-ray revealed pleural effusion in 4%. In USG of the abdomen right sided effusion (4%) was most commonly seen which was similar to the previous study.^[15]

CONCLUSION

In conclusion, we report a high incidence of dengue in among children with dengue transmission happening all year round with a peak post monsoon incidence between July and November, and the majority of patients being around 11 years of age presenting with fever, myalgia, vomiting, headache and rash. Flushed appearance with itchy skin rash and subconjunctival haemorrhage were striking features. In our study we have enlisted all the typical and atypical presentations, epidemiological data, and investigations. Severe dengue is very dangerous for children. Early diagnosis and improved case management of dengue fever are required. Lab parameter like raised SGOT is very significant. This study will elaborate knowledge about the disease and will improve the outcome.

Table-I: Demographic variables (n=119).

Age	N (percentage)	
< 5	10	
5-10	25	
11-15	42.8	
>16	22.2	
Sex		
Male	73	
Female	46	

Symptoms	N (percentage value)
Fever	3.8
Headache	28
Vomiting	61
Pain abdomen	37
Myalgia	59
Rash	100
Bleeding	11
Tourniquet test	30
Hepatomegaly	30
Pleural effusion	3
Pancreatitis	3.3

Investigation	Value (mean)
TLC	5000
SGOT	120
SGPT	88
Hematocrit	39.1
Platelet count	140000
Dengue serology	Positive

Table-III: Distribution of patients by investigations(n=119).

REFERENCES

- 1. Bhatt S, Gething PW, Brady OJ, Messina JP, Farlow AW, Moyes CL, et al. The global distribution and burden of dengue. Nature, 2013; 496(7446): 504–7.
- World Health Organization. Dengue Hemorrhagic Fever: Diagnosis, Treatment, Prevention and Control. 2nd edition. Geneva, World Health Organization, 1997.
- World Health Organization. WHO report on global surveillance of Epidemic prone infectious diseases. http://www/who.int/emcdocuments/surveillance/docs/whocdscsrisr 2001.html.
- O.Wichmann,S.Hongsiriwon,C.Bowonwatanuwong, "Riskfactors and clinical features associated with severe dengue infection in adults and children during the 2001 epidemic in Chonburi, Thailand," Tropical Medicine & International Health, 2004; 9(9): 1022–1029.
- World Health Organization, "WHO report on global surveillance of Epidemic prone infectious diseases," http://apps.who .int/iris/bitstream/10665/66485/1/WHO CDS CSR ISR 2000.1 .pdf.
- P. S. Basuki, Budiyanto, D. Puspitasari et al., "Application of revised dengue classification criteria as a severity marker of dengue viral infection in Indonesia," Southeast Asian Journal of Tropical Medicine and Public Health, 2010; 41(5): 1088– 1094.
- Srivastava VK, Suri S, Bhasin A, Srivastava L, Bharadwaj M. An epidemic of dengue hemorrhagic fever and dengue shock syndrome in Delhi: a clinical study. Ann Trop Pediatr, 1990; 10: 329-334.
- Bethell DB, Gamble J, Loc PP, Dung NM, Chau TTH, Loan HT, *et al.* Non-invasive measurement of microvascular leakage in patients with dengue hemorrhagic fever. Clin Infect Dis., 2001; 32: 243-253.
- 9. Aggarwal A, Chandra J, Aneja S, Patwari AK, Dutta AK. An epidemic of dengue hemorrhagic fever and dengue shock syndrome in children in Delhi. Indian Pediatr, 1998; 35: 727-732.
- S. Ahmed, F. Arif, Y. Yahya et al., "Dengue fever outbreak in Karachi2006-a study of profile and outcome of children under 15 years of age,"Journal of the Pakistan Medical Association, 2008; 58(1): 4–8.

- 11. I. Shah and B. Katira, "Clinical and laboratory abnormalities due to dengue in hospitalized children in Mumbai in 2004," DengueBulletin, 2005; 29: 90–96.
- S. Kalayanarooj, D. W. Vaughn, S. Nimmannitya et al., "Early clinical and laboratory indicators of acute dengue illness," JournalofInfectiousDiseases, 1997; 176(2): 313–321.
- 13. Special Programme for Research, Training in Tropical Diseases, and World Health Organization, Dengue: Guidelines for Diagnosis, Treatment, Prevention and Control, World Health Organization, Geneva, Switzerland, 2009.
- K.Wanigasuriya, P.Gurugama, A.Wijewickrama, S.L. Seneviratne, and S.B.Gunatilake, "UsefulnessofWorld HealthOrganization (WHO) dengue case classifications in a Sri Lankan clinical setting, "Journal of the Ceylon College of Physicians, 2012; 42(1-2): 21–27.
- 15. R. Joshi and V. Baid, "Profile of dengue patients admitted to a tertiary care hospital in Mumbai," The Turkish Journal of Pediatrics, 2011; 53(6): 626–631.