

ORIGINAL ARTICLE

A STUDY ON CLINICAL, LABORATORY PROFILE AND OUTCOME OF DENGUE FEVER

Vanamali D.R¹, L. Venugopal², P. Yeshwanth³, Dilip Rampure⁴

HOW TO CITE THIS ARTICLE:

Vanamali D.R, L. Venugopal, P. Yeshwanth, DilipRampur. "A Study On Clinical, Laboratory Profile And Outcome Of Dengue Fever". Journal of Evolution of Medical And Dental Sciences 2013; Vol2, Issue 50, December 16; Page: 9739-9743.

ABSTRACT: BACKGROUND AND OBJECTIVES: In recent days there is an alarming increase in the incidence of dengue fever and has emerged as a serious international public health threat with almost half of the world's population at risk for infection. Very few studies have been conducted in this part of our country and hence this study was undertaken to study the clinical picture, laboratory profile and outcome of dengue fever in and around khammam. **MATERIALS AND METHODS:**A prospective study was conducted over one year at Mamata General Hospital, during which 190 cases were diagnosed as dengue fever which were taken into study and evaluated for clinical, laboratory profile and their outcome. **RESULTS:** Out of 190 patients taken into study, fever was the most common presentation followed by headache. Thrombocytopenia was seen in 75% of the patients. Bleeding manifestations were seen in patients with platelet counts less than 40000/mm³. 18 patients were diagnosed as DHF, 6 patients were diagnosed as DSS. During our study 10 patients expired. **CONCLUSION:** The clinical and hematological picture of dengue fever is like any other viral fevers and the bleeding manifestations are seen in patients whose platelet counts decreases less than 40000/mm³ only.

INTRODUCTION: Dengue is a fast emerging pandemic viral disease in many parts of the world especially in tropical and subtropical countries. In recent days there has been an alarming increase in the incidence of dengue fever and has emerged as a serious international public health threat with almost half of the world's population at risk for infection. The disease is also endemic in many parts of India, especially the metropolitan cities and towns. Outbreaks are now reported quite frequently from different parts of the country like rural areas of Haryana, Maharashtra, Andhra Pradesh and Karnataka. At present, information on adult dengue infections in South Asia is quite limited. Very few studies have been conducted in this part of our country and hence this study was undertaken to study the clinical picture, laboratory profile and outcome of dengue fever in and around khammam.

METHODS & MATERIALS: A prospective study was conducted at a tertiary care hospital Mamata General Hospital, Khammam over duration of one year i.e. from May 2012 to April 2013. Patients above 18 years of age presenting with an acute febrile illness of 2-7 days duration with 2 or more of the following: headache, retro-orbital pain, myalgia, arthralgia, rash, haemorrhagic manifestations, leucopenia as per WHO IDSP criteria were evaluated for dengue.

Dengue fever was confirmed with Dengue day 1 test (J. Mitra & Co. Pvt. Ltd.), which was a rapid solid phase immune-chromatographic test for the qualitative detection of Dengue NS1 antigen and differential detection of IgM and IgG antibodies to dengue virus in human serum/ plasma. This

ORIGINAL ARTICLE

test has sensitivity of 100% and specificity of 99.94% for NS1Ag and 99.88% for IgM/ IgG antibodies.

Patients diagnosed with dengue fever/DHF / DSS as per IDSP criteria¹ were taken into study and their data collected were clinical, laboratory, hematological, fever profile and mortality rate.

RESULTS: A total of 190 patients fulfilled inclusion and exclusion criteria and included in the study. Out of which 116 were male and 74 were female. The mean duration of fever prior to admission was 4 days. Apart from fever, headache (85%) was the most frequent symptom at admission followed by myalgia (65%). Abdominal pain was noted in 45% patients; vomiting and dizziness were also common but found in less than 50% of the patients. Hepatomegaly was seen in 26 patients (14%). 18 patients were found to have bleeding manifestations.

Symptoms	Percentage
Fever	100
Headache	85
Myalgia	65
Joint pains	58
Abdominal pain	45
Vomiting	42
Dizziness	38
Skin rash	27
Flushing	20

Table 1 showing clinical profile

We categorized the patients into six groups based on the platelets counts as mentioned in figure 1.

In our study thrombocytopenia was seen in 75% of the patients, 30% of patients had a platelet count below 40000 /mm³, while 9% patients were found to have less than 20000/mm³. The lowest platelet count and highest hematocrit were seen on fifth day of illness. Bleeding manifestations were seen in 18 (32%) patients of 56 patients with platelet counts less than 40000/ mm³ and 55% of the patients platelet counts below 20000/mm³. had bleeding manifestations. Bleeding manifestations were more likely with lower platelet counts.

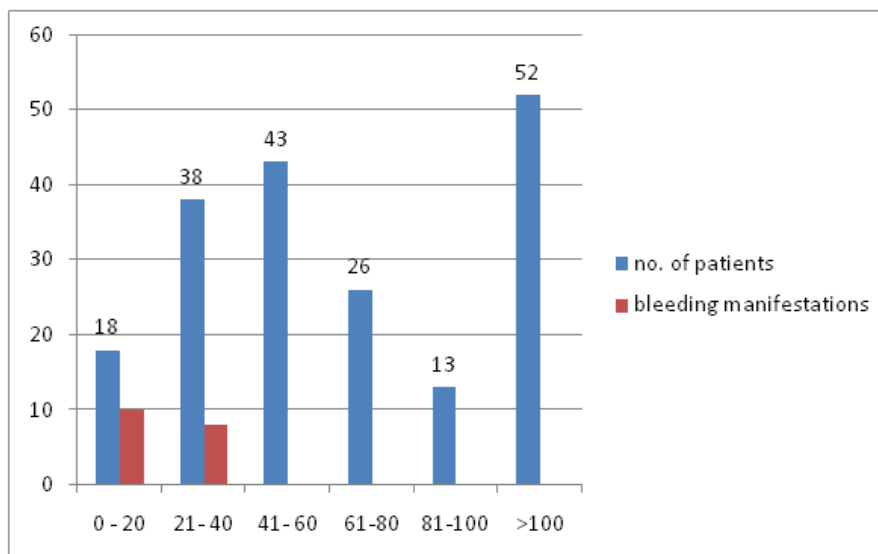


Fig.1: Showing the chart in which patients were categorized into six groups

The WBC count was low in 47% of patients, the lowest recorded was 900 ×10⁹/ L. WBC count was below 4000 × 10⁹ /L in 60% of patients with platelets counts less than 40000/mm³. In

ORIGINAL ARTICLE

this study a low hematocrit value was seen probably due to high prevalence of anemia in this part. During hospitalisation 48(25%) patients showed elevated alanine transaminase levels and 44(23%) patients showed elevated aspartate transaminase levels, 12 patients with elevated liver transaminases had hepatomegaly. DIC detected by clinical parameters and supported by laboratory parameters occurred in 3% of cases, none of whom survived.

Among the 10 patients who died, seven had thrombocytopenia with platelets $<40000/\text{mm}^3$ while six patients were noted to have DIC with platelet $>40\ 000/\text{mm}^3$

Based on clinical/ hematological diagnostic criteria, 18 patients were diagnosed to have dengue hemorrhagic fever, 6 patients were diagnosed as dengue shock syndrome and there were 10 deaths among the cases finally diagnosed as dengue fever during study period.

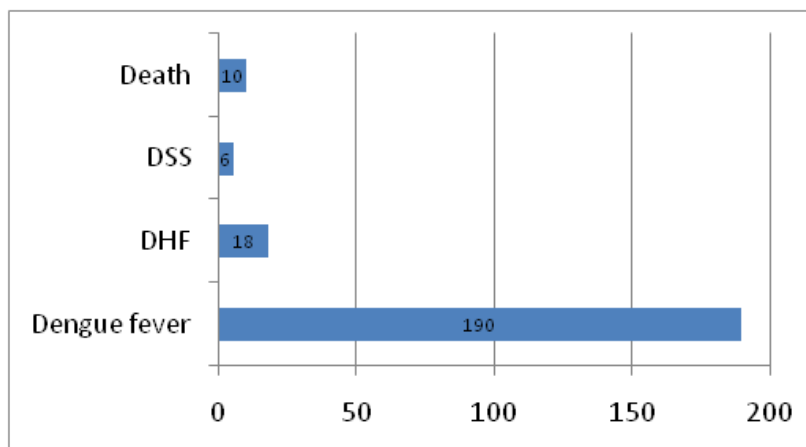


Fig.2: showing mortality due to dengue fever

Platelet rich plasma (PRP) was used in 26 patients, and total number of PRP used ranged from 4 to 15 units, they were more significantly used in patients with platelet counts less than $40000/\text{mm}^3$. The role of platelet transfusion is justified only in patients with active bleeding. At the most, it can be suggested that empirical transfusion may be administered in dengue patients without bleeding with a platelet count of less than $20,000/\text{mm}^3$ and positive tourniquet test. There was no correlation between platelet counts, age, use of intravenous fluids, or length of hospital stay.

DISCUSSION: Due to changing climate, urbanization, poor living conditions and inadequate waste management, vector borne diseases like dengue fever are becoming more common. Although vector Control programmes are launched in endemic countries, yet dengue fever has become a serious problem worldwide. India being a tropical country provides suitable weather for Aedes mosquito to grow and an increase in the disease burden has been noticed in recent years due to the rapid urbanization with unplanned construction activities and poor sanitation facilities contributing fertile breeding grounds for mosquitoes.

This study describes the clinical profile, laboratory features and outcome of DF/DHF/DSS in adult patients. In our study, 87.4% were classified as DF patients while 12.6% were classified as DHF/ DSS, the proportion of DHF is almost similar to the observation of 13.5% from Sharma et al². In our study it is observed that males were more than female as is also reported in other studies³.

ORIGINAL ARTICLE

Headache is one of the most common symptoms next to fever which is similar to that reported by Itoda I et al, headache was present in 90% cases. On the other hand the north Indian study by Seema A et al reported headache in only 9% of cases^{4,5}. In this study 45% patients had abdominal pain in contrast to 38% reported by Sharma et al². In our study rash was present in 27% of patients as documented in a north Indian study by Karoli R et al. On the other hand in a Japanese study by Itoda et al rash was more frequent in about 82% patients^{4,6}. In a study of 62 patients in Japan, by Itoda et al⁵, rash was more frequent of about 82% cases⁴. Hepatomegaly in this series was 14%, compared to 13.5% from Nimmanitya S et al⁷.

We found that only 46% cases had leukocyte count below 4000/mm³. But in study of Mittal et al⁷, Leucopenia was detected in 71% cases whereas Rahim MA et al found in only 4.1%^{8,9}.

In our study bleeding manifestations were seen in 9% of patients only, this is in contrast to the finding of Horvath from Australia⁶ and Sharma from India⁴ who reported 63% and 69% of bleeding episodes respectively^{2,10}.

CONCLUSION: The clinical and hematological profile of dengue fever is non-specific and is similar to other viral fevers. A high index of suspicion is necessary for its diagnosis in the early stage of the disease. Bleeding manifestations are seen in patients with platelet counts less than 40000/mm³ only and chances of bleeding increases as the platelet count decreases further. Every one out of two Patients had bleeding manifestations if the platelet count is less than 20000/mm³.

REFERENCES:

1. Dhillon GPS et al Guidelines for clinical management of dengue fever, Dengue hemorrhagic fever and Dengue shock syndrome. Directorate of NVBDCP, New Delhi, 2008, p.14 <http://nvbdc.gov.in/doc/clinical%20guidelines.pdf> (Accessed on 23-11-2013).
2. Sharma S. Clinical profile of DHF in adults during 1996 outbreak in Delhi, India. Dengue bulletin. 1998; 22: p. 20-27.
3. Tripathi BK, Gupta B. Experience in adult population in dengue outbreak in Delhi. JAPI. 1998; 46(3): p. 273-276.
4. Itoda I, Masuda G, Suganuma A, Imamura A, Ajisawa. Clinical features of 62 imported cases of dengue fever in Japan. American Journal of Tropical Medicine. 2006; 75(3): p. 470-4.
5. Seema A, Singh V, Kumar S, Kumar A, Dutta S. The Changing Clinical Spectrum of Dengue Fever in the 2009 Epidemic in North India: A Tertiary Teaching Hospital Based Study. Journal of Clinical and Diagnostic Research. 2012; 6(6): p. 999-1002.
6. Karoli R, Fatima J, Siddiqi Z, Kazmi KI, Sultania. Clinical profile of dengue infection at a teaching hospital in North India. Journal of Infection in developing Countries. 2012; 6(7): p. 551-4.
7. Nimmanitya S, Kalayanarooj. Guidelines for DHF case management for workshop on case management of DHF. 2002.
8. Mittal H, Faridi MM, Arora SK, Patil R. Clinicohematological profile and platelet trends in children with dengue during 2010 epidemic in north India. Indian J Pediatr. 2012; 79(4): p. 467-71.
9. Rahim MA, Sikder MS. Clinicopathologic manifestations and outcome of dengue fever and dengue haemorrhagic fever. Bangladesh Med Res Counc Bull. 2005; 31(1): p. 36-45.

ORIGINAL ARTICLE

10. Horvath R, McBride WJ, Hanna JN. Clinical features of hospitalized patients during dengue 3 epidemic in Far North Queensland 1997-99. Dengue bulletin. 1999; 23: p. 24-29.

AUTHORS:

1. Vanamali D.R.
2. L. Venugopal
3. P. Yeshwanth
4. DilipRampure

PARTICULARS OF CONTRIBUTORS:

1. Professor, Department of General Medicine, Mamata Medical College, Khammam.
2. Associate Professor, Department of General Medicine, Mamata Medical College, Khammam.
3. Post Graduate Student, Department of General Medicine, Mamata Medical College, Khammam.

4. Professor and HOD, Department of General Medicine, Mamata Medical College, Khammam.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Vanamali Dharma Rao,
Q.No. - 7, Kinnerasani, MGH Campus,
Giriprasad Nagar, Khammam,
Andhra Pradesh, PIN - 507002.
Email -vdrao1@rediffmail.com

Date of Submission: 28/11/2013.

Date of Peer Review: 29/11/2013.

Date of Acceptance: 04/12/2013.

Date of Publishing: 11/12/2013