Clinical and Laboratory Pattern of Dengue Fever: A Retrospective Study from Rural Hospital

Kachigere Siddegowda Siddeshwara Anand[1], Shruthi Bettegowda[2]

[1]Associate Professor, Department of Physiology, Adichunchanagiri Institute of Medical Sciences, Balagangadharanatha Nagar, Nagamangala, Mandya - 571448, India.
[2]Associate Professor, Department of Medicine, Adichunchanagiri Institute of Medical Sciences, Balagangadharanatha Nagar, Nagamangala, Mandya - 571448, India.

Corresponding Author: Shruthi Bettegowda

ABSTRACT

Background: Today's world dengue fever an arbovirus mediated infection is emerging as one of the most important arthropod borne viral diseases in humans in terms of morbidity and mortality. The objective of this study was to assess the clinical and laboratory pattern of dengue fever patients.

Method: This retrospective hospital based study was done in rural tertiary care hospital from May 2017 to May 2019. One hundred fifty six patients, who were NS1 antigen/IgM dengue positive considered for this study. Clinical features and laboratory parameters were studied and analysed.

Result: Among 156 patients studied, majority were males (67.95%).Fever was present in all patients. Among other symptoms myalgia was the major symptom (89.10%) followed by headache (81.41%). Significant changes in platelet count (platelet count less than 50 thousand, 66.02%), white blood cell counts (50%) and serum transaminases (41.02%) were observed. Mortality rate in present study was zero.

Conclusion: Early diagnosis and supportive treatment is corner stone for good recovery in dengue fever. More prospective population based studies with large sample size needed in future; various geographical areas and populations should be considered.

Key words: Dengue fever, Dengue hemorrhagic fever, Myalgia, Platelet counts.

INTRODUCTION

In recent decades dengue fever (DF) epidemics are becoming more frequent. Younger age group involvement and increase in number of epidemics denotes higher incidence of infection. [1] In 1780 Benjamin Rush first described DF as break bone fever. DF virus belongs to Flaviviridae family, one of the four serotypes of dengue virus causes dengue fever. [2] Aedes aegypti mosquito belonging to genus Aedes is principle vector for DF. [3] Dengue infections can manifest as spectrum of diseases from a classic dengue fever to the life threatening dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS), which are associated with high mortality (20%) if left untreated. [4] Clinical suspicion is based on the frequency of symptoms in the population, is essential for early diagnosis and prompt supportive treatment which are corner stone of successful DF management. [5] Previously from various part of India many studies were done on dengue fever. [5-8] Although DF is very common in south India, studies on DF from rural Karnataka are lacking. With this background, the present study was undertaken, to assess the clinical and laboratory profile of serologically confirmed cases of dengue fever in our hospital.

MATERIALS AND METHODS

This is a descriptive, observational, record-based retrospective study. Hospital records of all DF patients, who were hospitalized in medicine department of Adichunchanagiri institute of medical sciences, Balagangadharanatha Nagar, Karnataka from May 2017 to May 2019 was reviewed. We retrospectively analyzed the

case records of adults > 18 years diagnosed to have DF both clinical and lab confirmed - either by non structural protein 1 (NS1) antigen positive or anti-dengue immunoglobulin M (IgM) antibody positive during this study period. DF patients complete blood count, renal function test, liver function test, dengue NS1antigen and IgM dengue antibody, chest radiograph and ultrasound scan of abdomen reports were recorded.

Data Analysis: Data were compiled and tabulated by using standard appropriate statistical technique, which includes numbers and percentages.

RESULTS

In our study maximum number of patients 45(28.85%) with dengue fever (DF) belonged to fourth decade, majority of patients were males106 (67.95%) (Table1).

Table 1: Age and sex distribution of dengue patients

Age (years)	Male	Female	Total
18-20	2	1	3
21-30	12	9	21
31-40	24	18	42
41-50	35	10	45
51-60	30	10	40
>60	3	2	5
Total	106	50	156

Table 2: Clinical features of dengue fever patients

Clinical Features	Number of patients(percentage)
Fever	156(100%)
Headache	127(81.41%)
Myalgia	139(89.10%)
Retro-orbital pain	90(57.69%)
Nausea/Vomiting	58(37.17%)
Abdominal pain	30(19.23%)
Diarrhoea	10(6.41%)
Conjunctival congestion	68(43.58%)
Abdominal pain	28(17.95%)
Skin Rashes	30(19.23%)
Itching	45(28.85%)
Bradycardia	37(23.72%)
Bleeding	36(23.07%)
Positive tourniquet test	47(30.12%)
Pleural effusion	32(20.51%)
Ascites	28(17.95%)
Breathlessness	12(7.69%)
Hepatomegaly	14(8.97%)
Splenomegaly	7(4.48%)

Fever was present in all patients. Among other symptoms myalgia was the major symptom (89.10%) followed by headache (81.41%) (Table2). Platelet count less than 50 thousand were observed in 103

(66.02%) patients. Significant changes in white blood cell counts (50%) and serum transaminases (41.02%) were observed (Table3).

Table 3: Lab parameters of dengue fever patients

Laboratory Parameters	No of Patients (%)
Haematocrit > 45%	56(35.89%)
Leukopenia <4000/cmm	78(50%)
Platelet Count <20000/cmm 20000-50000/cmm 50000-1 lakh/cmm 1-1.5Lakh/cmm	58(37.17%) 45(28.85%) 33(21.15%) 20(12.82%)
Serum Bilirubin >2mg%	12(7.69%)
SGOT(>45IU/L)	64(41.02%)
SGPT(>45 IU/L)	58(37.17%)

DISCUSSION

In tropical and sub-tropical regions, DF is emerging as an important disease. [1] Classic DF is marked by rapid onset of high fever, headache, retro-orbital pain, diffuse body pain. DHF characterized by bleeding and endothelial leak occurs in persons who have previously been infected by one dengue serotype upon infection with another dengue serotype. [5] In this study maximum number of cases, 45 (28.85%),belonged to the age group between 30 to 40years.Pawar A et al study also found maximum number of cases in similar age group. [8] In present study majority of patients were males (67.95%). Similar results were observed in previous studies. [5-8] In this study fever was present in all 156 (100%) cases; followed by myalgia in 139 (89.10%) and head ache in 127(81.41%) cases. Similar findings were observed by previous studies. [6,8-10] One of the main laboratory parameter in DF is thrombocytopenia. It occurs due to decreased production and increased destruction of platelets by dengue virus. [8] In present study platelet count less than 50 thousand were observed in 103(66.02%) patients which is in accordance with other studies like Deshwal Ret al [9] and Pawar A et al. [8] The results of present study revealed that there was an increase in the level of SGOT (41.02%) and SGPT (37.17%) in dengue confirmed patients. Pawar A et al study showed increase in the level of SGOT (46.4%) and SGPT (51.1%) in dengue confirmed patients. [8] Itha et al study

showed an elevation of SGOT and SGPT in 96 % of the study population. [11] Studies have proved the multiplication of virus in liver cells causes liver injury in dengue fever. [8] Increased haematocrit was found in 56(35.89%) patients. Yung et al study reported a raised haematocrit dengue confirmed cases. [12]

CONCLUSION

DF is more common in young male. DF is emerging as major cause of morbidity in rural areas. Early diagnosis and supportive treatment is corner stone for good recovery in dengue fever. The limitations of our study included small sample size as well as retrospective nature. More prospective population based studies with large sample size needed in future; various geographical areas and populations should be considered.

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