Journal of Cardiovascular Disease Research

ISSN:0975 -3583,0976-2833 VOL13, ISSUE 08, 2022

Original research article

Clinical profile of dengue fever cases admitted to tertiary care hospital

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Abstract

Today, dengue ranks as the most important mosquito borne viral disease in the world. Currently, at least, 112 countries are endemic for dengue and about 40% of the world population (2.5-3 billion people) is at risk in tropical and sub-tropical countries. Annually, 100 million cases of DF and half a million cases of DHF occur worldwide. All the cases which meet Inclusion criteria were included, after taking written informed consent from patients. Structured questionnaire was used to collect data. Initial data: age, sex, place, occupation, Income and address were taken. Later detailed history and clinical examination was done followed by lab investigations like CBC, Platelet count, NS1 Antigen test, IgM/IgG test, Immature platelet fraction. In the study 8% had pallor, 4% had icterus, 22% had Rashes / Petechiae, 3% had edema, 6% had Sinus Bradycardia and 13% had Hypotension. In the study mean Platelet Count at Time of Admission was 73070.00±33138.29, at <24 hrs was 148110.00±41825.007, at >24hrs and <48hrs was 152391.30±26600.990 and at >48hrs, and <72hrs was 160200.00±5118.594 hrs. There was significant increase in Platelet count at <24hrs, >24hrs and <48hrs and >48hrs, and <72hrs compared to admission values.

Keywords: Dengue fever cases, Clinical profile, Platelet count

Introduction

Dengue is a mosquito borne acute viral illness caused by infection with one of the 4 serotypes of Dengue virus (DENV), an arthropod borne single stranded RNA virus of genus Flavivirus. Dengue is transmitted by mosquitoes of the genus Aedes, mainly Aedesaegypti with an incubation period of 4-7 days which may range from 3-14 days. The seasonally of transmission of dengue are more in monsoon and post-monsoon. Dengue is primarily an urban disease. The incidence of dengue in developing nations, like India, has increased due to deficient water management, unplanned urbanization and migration of population from rural to urban areas with complete lack of proper sanitation facilities. DF and DHF are also now spreading to rural areas worldwide [1, 2].

Today, dengue ranks as the most important mosquito borne viral disease in the world. Currently, at least, 112 countries are endemic for dengue and about 40% of the world population (2.5-3 billion people) is at risk in tropical and sub-tropical countries. Annually, 100 million cases of DF and half a million cases of DHF occur worldwide. In the past 50 years, incidence of Dengue has increased 30-fold with significant outbreaks occurring in five of six World Health Organization (WHO) regions. South East Asia is one of the regions with highest risk of DF/DHF accounting for 52% of the global risk [3, 4].

The first virologically proved epidemic of DF in India occurred in Calcutta and Eastern Coast of India in 1963-1964. Outbreaks are now reported quite frequently from different parts of our country. Incidence of dengue is rising in India from 6.34 per million population between 1998 and 2009 to 34.81 per million population between 2010 and 2014. The incidence of DF has increased many folds in the last four decades. Initially, Dengue infection may be asymptomatic (50-90%), may result in a non-specific febrile illness or may produce symptom complex of classic Dengue fever (DF) to Dengue Shock syndrome (DSS) and multi organ dysfunction as a part of severe illness. A small percentage of people who have previously been infected by one dengue serotype develop bleeding and endothelial leak upon infection with another dengue serotype. This syndrome is termed as Dengue Hemorrhagic fever (DHF) [5, 6].

Methodology

Study Population: Dengue Fever cases admitted Hospital.

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Inclusion Criteria
1. Dengue fever cases confirmed by NS1Ag test or both NS1Ag and IgM MAC ELISA.
2. Platelet count less than 1.5 lakhs/ Cumm.

Exclusion Criteria
1. Dengue cases platelet more than 1.5 lakhs / Cumm.
2. Igg Positive Cases.
3. Those who doesn't give consent forstudy.

Study Design: Prospective Observational Study

Sampling technique: Universal sampling [All cases during the study period were Included]

Sample size: 100 cases of Dengue fever

Method of Data Collection: All the cases which meet Inclusion criteria were included, after taking written informed consent from patients. Structured questionnaire was used to collect data. Initial data: age, sex, place, occupation, Income and address were taken. Later detailed history and clinical examination was done followed by lab investigations like CBC, Platelet count, NS1 Antigen test, IgM/IgG test, Immature platelet fraction.

Results

Table 1: Age distribution of subjects

Age	Count	%
<20 years	22	22.0%
21 to 30 years	53	53.0%
31 to 40 years	11	11.0%
41 to 50 years	11	11.0%
>50 years	3	3.0%
Total	100	100.0%

Mean age of subjects was 28.02±10.009 years. Majority of subjects were in the age group 21 to 30 years (53%).

Table 2: Sex distribution of subjects

Sex	Count	%
Female	37	37.0%
Male	63	63.0%

In the study 63% were males and 37% were females.

Table 3: Clinical features among subjects

	No		Yes	
	Count	%	Count	%
Fever	0	0%	100	100%
Headache/ROP	32	32%	68	68%
Joint Pain	58	58%	42	42%
Bleeding Manifestations	84	84%	16	16%
Myalgia	22	22%	78	78%
Abdominal Pain	59	59%	41	41%
Vomiting	75	75%	25	25%
Oliguria	99	99%	1	1%
Seizures/Alt Sensorium	95	95%	5	5%

In the study 100% had fever, 68% had Headache, 42% had joint pain, 16% had bleeding manifestations, 78% had myalgia, 41% had abdominal pain, 25% had vomiting, 1% had oliguria and 5% had Seizures/Alt Sensorium.

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Table 4: Signs distribution among subjects

	Yes		No	
	Count	**%**	**Count**	**%**
Pallor	8	8%	92	92%
Icterus	4	4%	96	96%
Rashes / Petechiae	22	22%	78	78%
Edema	3	3%	97	97%
Sinus Bradycardia	6	6%	94	94%
Hypotension	13	13%	87	87%

In the study 8% had pallor, 4% had icterus, 22% had Rashes/Petechiae, 3% had edema, 6% had Sinus Bradycardia and 13% had Hypotension.

Table 5: Platelet count at various intervals

	N	Mean	SD	P value
Platelet Count at Time of Admission	100	73070.00	33138.295	
Platelet Count <24hrs	100	148110.00	41825.007	<0.001*
Platelet Count >24hrs and <48hrs	23	152391.30	26600.990	<0.001*
Platelet Count >48hrs, and <72hrs	5	160200.00	5118.594	<0.001*

In the study mean Platelet Count at Time of Admission was 73070.00±33138.29, at<24 hrs was 148110.00±41825.007, at >24hrs and <48hrs was 152391.30±26600.990 and at >48hrs, and <72hrs was 160200.00±5118.594 hrs. There was significant increase in Platelet count at <24hrs, >24hrs and <48hrs and >48hrs, and <72hrs compared to admission values.

Discussion

In the present study, Majority of subjects were in the age group 21 to 30 years (53%), Mean age of subjects was 28.02±10.009 years and 63% were males and 37% were females. In the study by Wayez A7, out of 106 subjects, majority were in the age group of 15-30 years, which was similar to the studies by Ukey, *et al*., and Cecilia, *et al*., in which maximum cases were noted in 15-30 years & 21-30 years respectively 8,9. From the table given below in the study by Renuka B.G *et al.* [10] and Wayez A *et al.* [7] similar findings were observed as that in the present study. This suggests that dengue is a disease of middle age subjects and also it is common among males, indicating that males are exposure to dengue due to outdoor behaviours among males such as Work, Shopping and other activities.

In the present study 100% had fever, 68% had Headache, 42% had joint pain, 16% had bleeding manifestations, 78% had myalgia, 41% had abdominal pain, 25% had vomiting, 1% had oliguria and 5% had Seizures/Alt Sensorium. Similar findings was observed in symptomatology by Ahmad Wayez *et al.* [7].

In the present study, 30% had platelet count <50000 and 70% had >50000 platelet count at admission. There was significant increase in Platelet count at <24hrs, >24hrs and <48hrs and >48hrs, and <72hrs compared to admission values. In the study Platelet count returned to normal <24 hrs in 77%, >24 hrs to <48 hrs in 18% and >48 hrs to <72 hrs in 5%.Were as in the study by Wayez A *et al*, contrastly majority of the patients 98.11% had their platelet counts less than 50000/ cu.mm and 1.88% presented with platelet counts above 50000/cu.mm.

From the study by Wayez A *et al*, [7] mean Platelet Count at 48 hrs was 54157.3±18317.21 and at 48 to 72 hrs was 71078.65±23390.56. In the study by Renuka *et al*, mean platelet count at admission was 24.7±23.4 x 103, at 24 hrs was 29.7±16.7 x 103 and at 48 hrs was 44.9±25.8 x 103. The platelet count findings was different from the present study. This could be attributed to the selection of patients.

In the study by T Dadu *et al*., [11] 84.3% showed recovery within 24 h after attaining the peak IPF, 93.75% of the patients showed recovery within 24-48 h of the rise of the IPF compared with the previous day's value, and 100% patients showed a recovery within 24 h of the fall of the IPF compared with the previous days. It was also observed that 93.75% of the patients show platelet recovery within 24-48 h if the IPF was more than 10%. The complex mechanism of thrombocytopenia remains controversial. Various mechanisms have been proposed like direct bone marrow suppression by the virus; anti-dengue antibody-mediated platelet destruction, peripheral consumption of platelets and isolated replication of virus in the platelet. The release of high levels of platelet activating factor may induce platelet consumption and enhance adhesiveness of endothelial cells resulting in thrombocytopenia. Thrombocytopenia can also be due to increased peripheral destruction, inadequate production or abnormal pooling [12].

Conclusion

- Majority of subjects were in the age group 21 to 30 years.
- Majority of subjects were males.

ISSN:0975 -3583,0976-2833 VOL13, ISSUE 08, 2022

- There is significant rise in platelet count less than 72 hours as compared to values at the time of
- Admission. Hence suggesting that platelet count increased after admission.
- In the study Platelet count majority of the subjects returned to normal with in <24 hrs.

References

1. Nisalak A, Endy TP, Nimmannitya S, Kalayanarooj S, Thisayakorn U, Scott RM, *et al*. Serotype specific Dengue Virus Circulation and Dengue disease in Bangkok, Thailand from 1973 - 1999. Am J Trop Med Hy. 2003;68:191-202.
2. 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.
3. Zainab G, Anuradha HV, Shivamurthy MC. Pattern of management and outcome of dengue fever in pediatric in-patients in a tertiary care hospital: A prospective observation study. Int J Basic Clin Pharmacol. 2014;3(3):534-538.
4. World Health Organization, editor. Comprehensive guidelines for prevention and control of dengue and dengue haemorrhagic fever. Rev and expanded. ed. New Delhi, India: World health organization Regional Office for South-East Asia; c2011, 196.
5. Gupta N, Srivastava S, Jain A, Chaturvedi UC. Dengue in India. Indian J Med Res. 2012;136(3):373-7.
6. Malavige GN, Fernando S, Fernando DJ, Seneviratne SL. Dengue viral infections. Postgrad Med J. 2004;80(948):588-601.
7. Wayez A, Zafar L, Aijaz M, Afroz N. Study of platelet indices in dengue fever with thrombocytopenia and correlation of immature platelet fraction (IPF) with platelet recovery. Arch Hematol Case Rep Rev. 2020;5(1):001-005.
8. Ukey PM, Bondade SA, Paunipagar PV, Powar RM, Akulwar SL. Study of Seroprevalence of Dengue Fever in Central India. Indian J Community Med. 2010;35:517-519.
9. Cecilia D. Current status of dengue and chikungunya in India. WHO South-East Asia. Public Health. 2014;3:22-26.
10. Renuka BG, Upadhya PS. Immature platelet fraction (IPF) as an indicator of platelet recovery in dengue fever. International Journal of Biomedical Research. 2019;10(11):e5305.
11. Gupta E, Dar L, Kapoor G, Broor S. The changing epidemiology of dengue in Delhi, India. Virol J. 2006;3:92.
12. Dongre T, Karmarkar P. Hematological Parameters and Its Utility in Dengue-A Prospective Study. JDMS. 2015;14: 31-34.