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A RETROSPECTIVE OBSERVATIONAL STUDY OF CLINICAL PROFILE AND COMPLICATIONS OF DENGUE FEVER

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ABSTRACT

Background: Dengue fever is one of the major public health problems in Tamil Nadu. The present study was conducted with an objective to study the clinical profile and complications of dengue fever. At times platelet count which is one of the major accessory laboratory test to detect the dengue fever. All cases were presented with fever similar studies in and around India have also highlighted fever as a common presenting symptom. In our study other major presenting symptoms were vomiting/abdominal pain, headache, purpura/petechiae, melena, hepatomegaly, bodypain, hypotension, myalgia, hematuria. Hepatic dysfunction and acute renal failure were the major complications observed in our study. A total of 94 cases were subjected to IgM antibodies and NS1 antigen testing method. There is no association between age and complications(p value0.142>0.05).Complications reported in our study has no association with platelet range (p value0.593>0.05) because the complications observed in present study is very less and we concluded that there is an association between bleeding and dengue hemorrhagic fever. In this paper clinical manifestations and management of dengue/dengue hemorrhagic fever/dengue shock syndrome.

KEYWORDS: Dengue fever, dengue hemorrhagic fever, dengue complications, clinical manifestations.

INTRODUCTION

Dengue fever is one of the major public health problems in India. Highest number of cases was reported from Tamil Nadu, Punjab, Delhi, and Andhra Pradesh.[1] Dengue is an infectious disease caused by any of the four dengue virus serotypes: DENVs 1–4. It is a mosquito-borne disease and is primarily transmitted to humans by the female Aedes mosquito. Infection with DENV results in varying degrees of pathological conditions, ranging from mild asymptomatic dengue fever (DF) to severe dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS) which may turn fatal.[2]

Dengue is a mosquito-borne, viral infection. The infection causes flu-like illness, and occasionally develops into a potentially lethal complication called severe dengue. Common name of the disease is 'break-bone fever'. Dengue fever classified as dengue fever, dengue hemorrhagic fever, dengue shock syndrome. The characteristic symptoms of dengue are sudden-onset fever, headache (typically located behind the eyes), muscle and joint pains and rashes hypotension, hematuria.[3] Most people who develop dengue fever recover completely within 2 weeks. Some however may go through several weeks to months of feeling tired and depressed. Others develop severe bleeding problems. This complication leads to shock and (very low BP) and sometimes fatal especially to young children and adults.Other complications include shock, encephalopathy, residual brain damage, seizures, liver damage, renal failure. Both antigen and serological tests are more commonly used to diagnose dengue infections. The tests include antigen detection (NS1) or antibody detection. Usually different patterns of antibody response are seen in primary dengue infection as compared to secondary dengue infection.[26] There is no specific treatment for dengue fever. For severe dengue, medical care by physicians and nurses experienced with the effects and progression of the disease can save lives – decreasing mortality rates from more than 20% to less than 1%. Maintenance of the patient's body fluid volume is critical to severe dengue care.

MATERIALS AND METHODS

Study Period

This study was carried out for a period of seven months (February 2018-August 2018).

Study Design

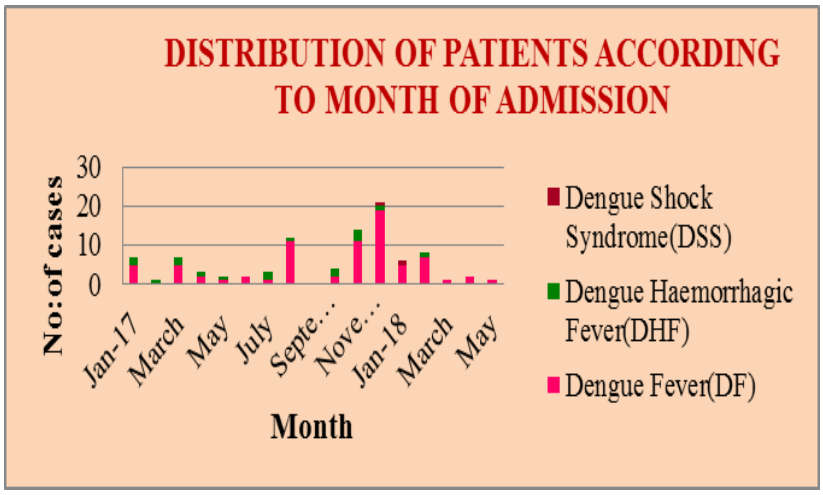
It was a retrospective study carried out in adults with dengue fever.

Study Method

- The study was conducted in Government Headquarter Hospital, Tirupur, Tamil Nadu.
- The study method involved selection of patients data's collected from MRD and the information collected from doctors,nurses.
- Collection of various articles related with dengue fever.
- Designing of performa
- Patients selection – inclusion criteria, exclusion criteria
- Laboratory findings of each patient
- Collection and tabulation of baseline data.
- To collect and analyze the data using appropriate statistical tools.
- To report the data analyzed.

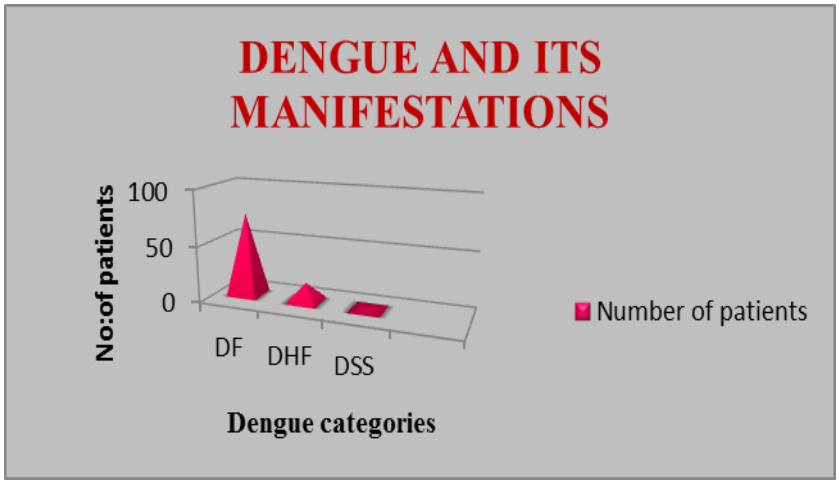
RESULTS AND DISCUSSION

Table. 1 and Figure. 1 shows that among the 94 cases, total of 29.78% cases were noted in the month of December, 13.82 % cases were noted in the month of November respectively. It is clear that majority of the cases occurred during the months of December, November. DF mostly seen in December, DHF in the month of November and DSS in January.



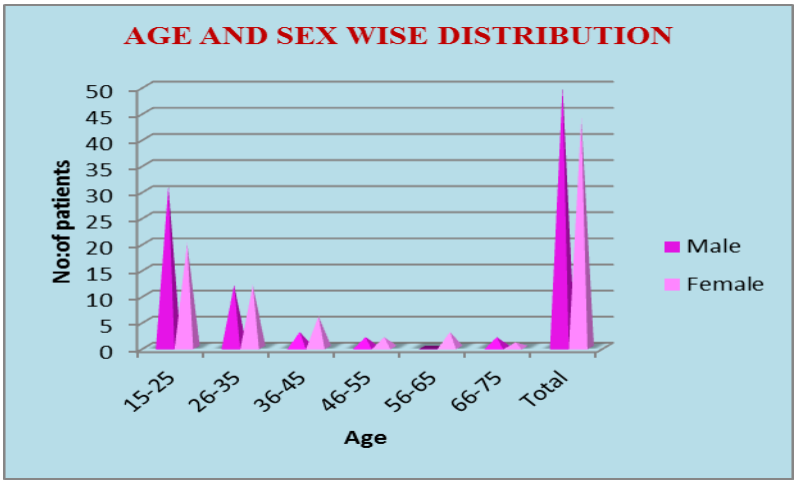
Sl. No.	Month	Dengue Fever(DF)	Dengue Haemorrhagic Fever(DHF)	Dengue Shock Syndrome(DSS)
1.	January-17	5	2	0
2.	February	0	1	0
3.	March	5	2	0
4.	April	2	1	0
5.	May	1	1	0
6.	June	2	0	0
7.	July	1	2	0
8.	August	11	1	0
9.	September	0	0	0
10.	October	2	2	0
11.	November	11	3	0
12.	December	19	1	1
13.	January-18	5	0	1
14.	February	7	1	0
15.	March	1	0	0
16.	April	2	0	0
17.	May	1	0	0

Table. 2 and Figure 2. indicates that there were males 49 (48.936%) and females 45 (51.0%) were observed, which is in concurrent with other studies. In a study done by Vazhayil et al.,[5] male: female ratio was 1.68:1.In the study by Saqib et al.,[6] 70% were male and 30% female subjects. This high prevalence of dengue infection among male subject was observed. The reason for this may be due to more exposure of the males to the bite of vector Aedes aegypti, due to their clothing habits or outdoor activities.



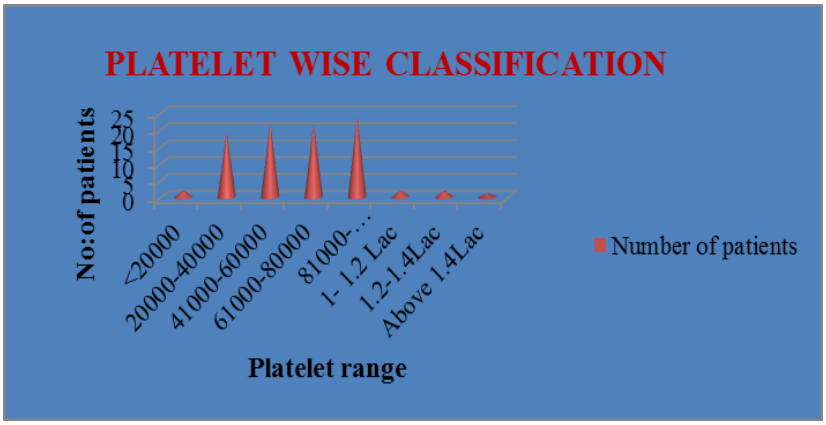
SL. No.	Manifestation	Number of patients	Percentage(%)
1.	Dengue Fever(DF)	75	79.78
2.	Dengue Haemorrhagic Fever(DHF)	17	18
3.	Dengue Shock Syndrome(DSS)	2	2.12

Table. 3 and figure 3 it is clear that majority of cases having dengue infection belong to the age group of 15-25 years, wherein 54.25% belong to 15-25 years age group and 25.53% belong to 26-35 years age group and 9.57 % belong to the age group of 36-45 years.



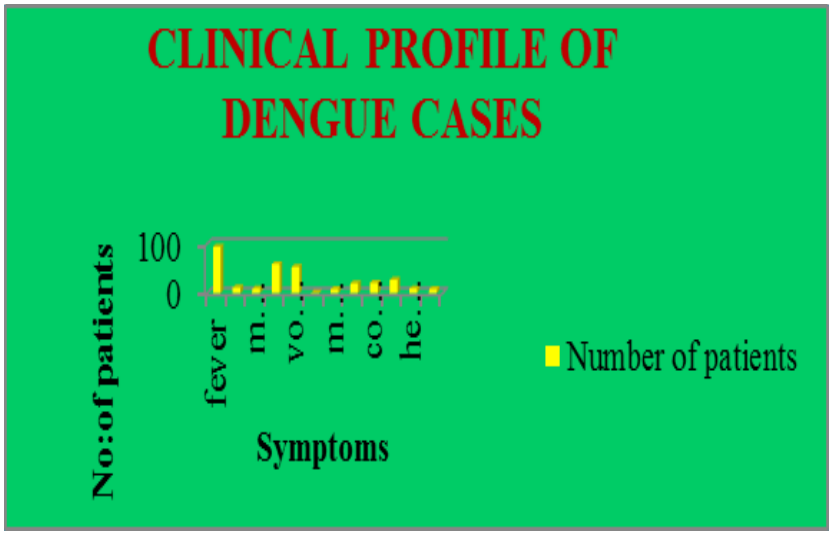
SL.No:	Age group	Male	Female	Total(%)
1.	15-25	31	20	51(54.25)
2.	25-35	12	12	24(25.53)
3.	35-45	3	6	9(9.57)
4.	45-55	2	2	4(4.25)
5.	55-65	0	3	3(3.19)
6.	65-75	1	2	3(3.19)
7.	Total	49	45	94(100)

Table 4 and figure 4 shows that 2 patients (2.12%) had severe thrombocytopenia and platelets in the range of <20000.19 patients (20.21%) showed platelet count between 20000-40000cells/cumm. All of them had DHF.22 patients (23.40%) showed platelet count between 40000-60000 cells/cumm and among them 4 were DHF and 18 were DF. Total 46 patients (%) found platelet count between 60000-100000cells/cumm all of them had DF.5 patients were observed in the platelet count between above 100000 lakh most of them had DF.



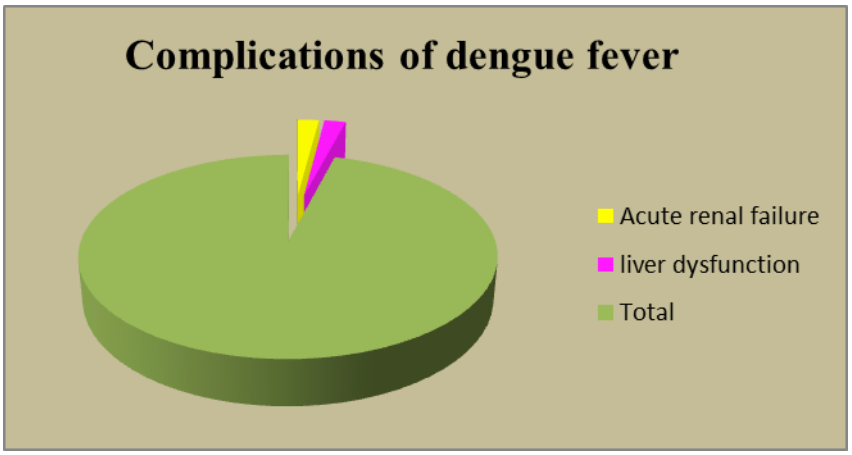
SL. NO.	Platelet Range	Number of patients	Percentage
1	<20000	2	2.12
2	20000-40000	19	20.2
3	41000-60000	22	23.4
4	61000-80000	22	23.4
5	81000-100000	24	25.5
6	1- 1.2 Lac	2	2.12
7	1.2-1.4Lac	2	2.12
8	Above 1.4Lac	1	1.06

Table 5 and figure 5 shows that patients presenting with vomiting/abdominal pain 53(56.3%) patients. In a study by Thaher et al.,[7] vomiting was present in 25% and abdominal pain 27%.In a study done by Vazhayil et al.,[5] vomiting was observed in 64.1% and abdominal pain in 41.02%.This could be the reason for liver damage caused by dengue virus. In our study 59(62.7%) patients showed headache while in the study by Pradnya et al.,[8] headache was a presenting feature among 20% of patients. In this study Purpura/petechiae presenting feature among 27(28.7%) patients. Skin bleeds in the form of petechiae/purpura was the most common hemorrhagic manifestation followed by melena (8.51%).According to Vazhayil et al.,[5]purpura/petechiae was present in 14.10% and melena in 11.53%. Hepatomegaly followed by narrow pulse pressure (8.51%) and hypotension were common clinical findings. In this study 9(9.57%) patients presented with Myalgia, 21(22.3%) patients experienced cough, and body pain 20(20.12%).patients showed hematuria 9(9.57%).In the study by Thaher et al.,[7] patients showed myalgia in 46%and cough in 17%.



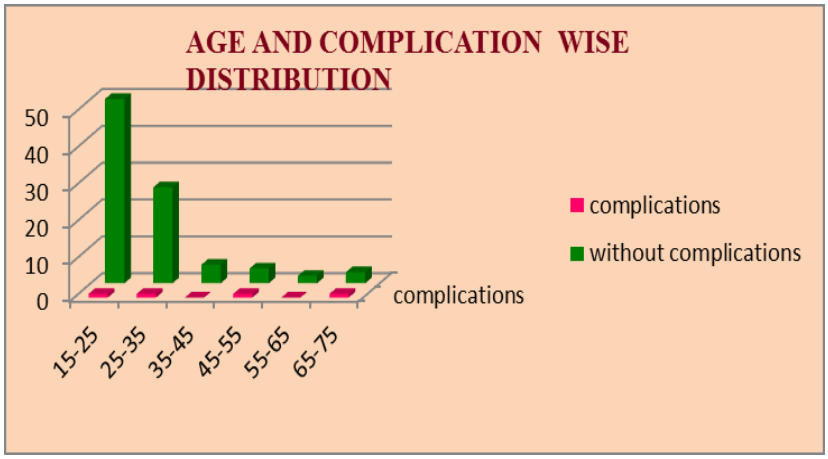
SL.No:	Symptoms	Number of patients	Percentage(%)
1.	Fever	94	100
2.	Chills/Rigors	11	11.7
3.	Myalgia	9	9.57
4.	Headache	59	62.7
5.	Vomiting/Abdominal pain	53	56.3
6.	Arthralgia	1	1.06
7.	Melena	8	8.51
8.	Body pain	20	21.2
9.	Cough	21	22.3
10.	Purpura/petechiae	27	28.7
11.	Hematuria	9	9.57
12.	Low pulse pressure	8	8.51

From the Table 6 and figure 6 only 2 patients had hepatic dysfunction and 2 patients had acute renal failure but none of them survived in spite of possible treatment. There were 2 cases of dengue shock syndrome and all of them died, 17 cases were DHF with 1 death due to acute renal failure, 1 patient with acute renal failure was referred for further treatment.



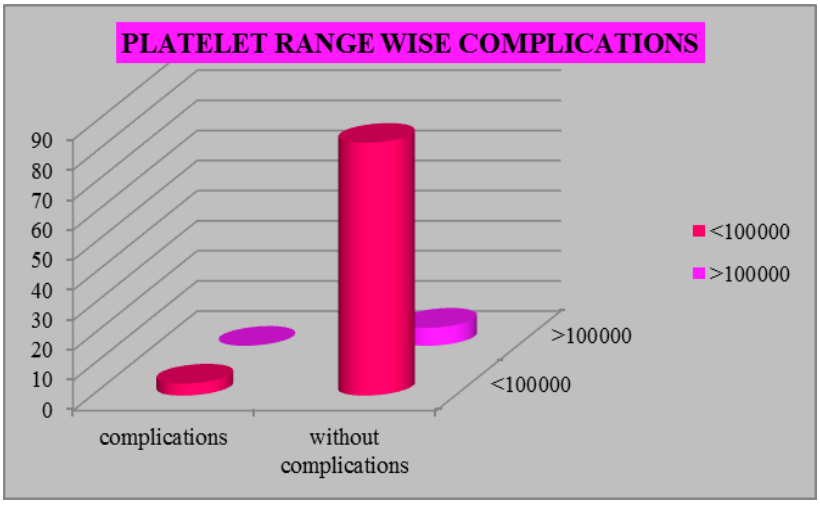
SL. No.	Complications	Number of patients	Percentage(%)
1.	Renal failure	2	2.12
2.	Hepatic dysfunction	2	2.12

From the Table 7 and Figure 7 shows that There is no association between age and complications (p value is 0.142>0.05).



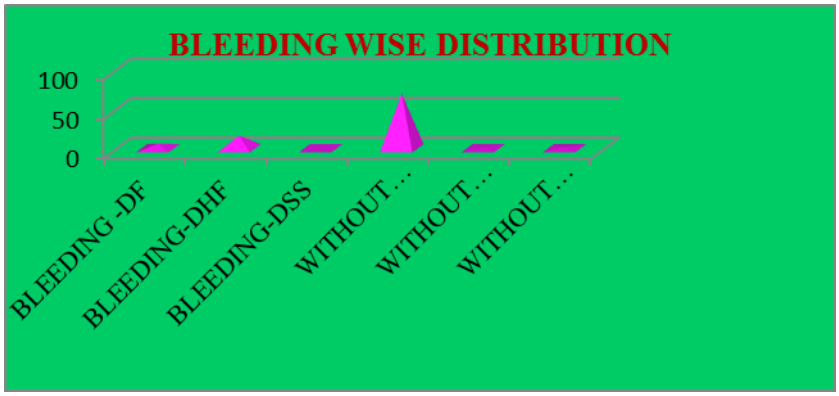
		complications		Total	Pearson Chi-Square	P value
		Without complications	complications			
Age	15-25	50	1	51	8.258	0.142
	25 - 35	26	1	27		
	35 - 45	5	0	5		
	45 - 55	4	1	5		
	55 - 65	2	0	2		
	65 - 75	3	1	4		
Total		90	4	94		

Table. 8 and figure 8 shows that Complications reported in our study has no association with platelet range (p value is 0.593 > 0.05) and we concluded that there is an association between bleeding and DHF (P value <0.025).



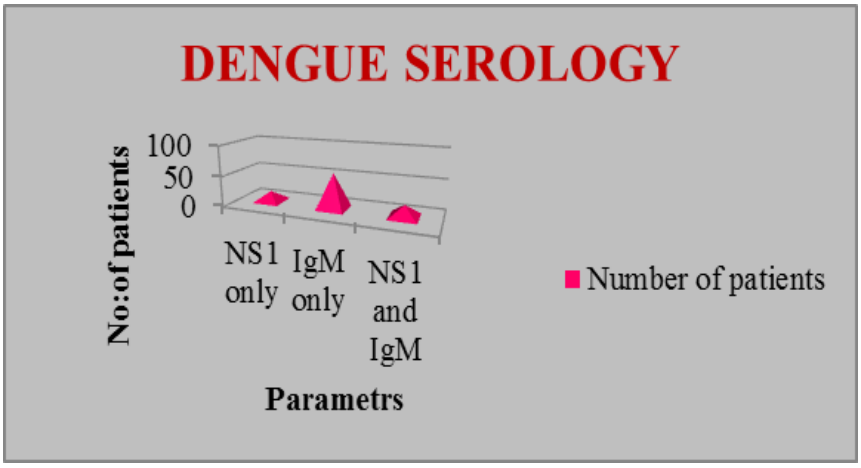
		complications		Total	Pearson Chi-Square	P value
		Without complications	complications			
platelet range	platelet < 100000	84	4	88	0.285	0.593
	platelet > 100000	6	0	6		
Total		90	4	94		

From the table 9 and figure 9 there is an association between bleeding and DHF (P value <0.025).Most of the DHF patient have bleeding problem.



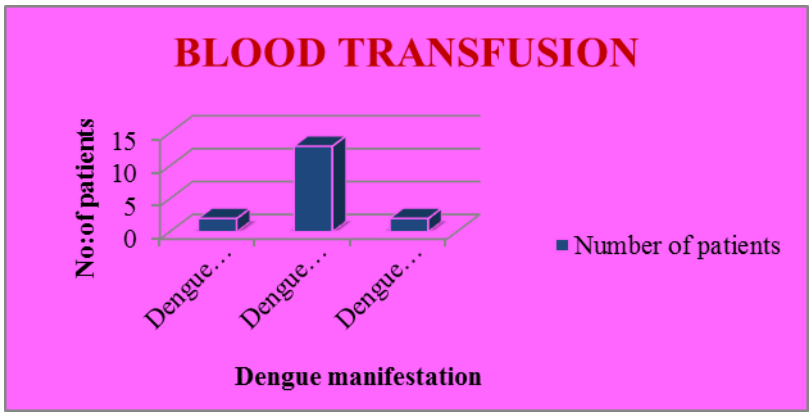
		Dengue manifestation			Total	Pearson Chi-Square	P value
		DF	DHF	DSS			
Bleeding	Bleeding	6	16	0	22	57.958	0.000
	Without bleeding	69	1	2	72		
Total		75	17	2	94		

From the table 10 and figure 10 patients were positive for IgM antibodies and 17(18.085%) patients were positive for Ns1 antigen testing method.19 (20.212%) positive for both Ns1 antigen testing method and IgM antibody.



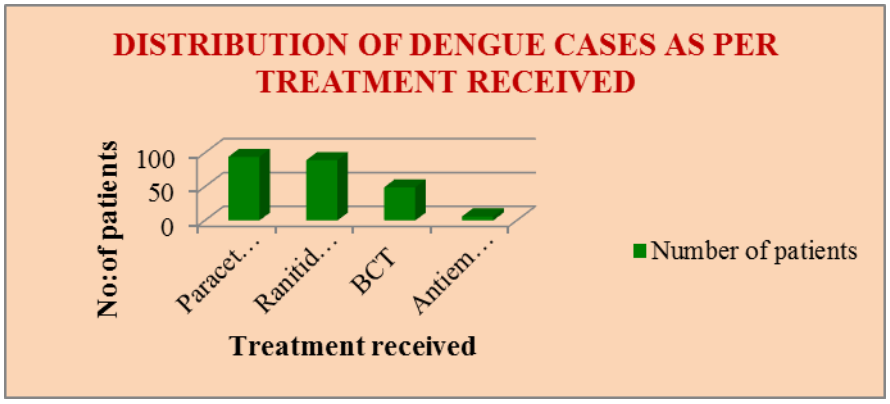
SL:No	Test	Number of patients	Percentage (%)
1	NS1 only	17	18.085
2.	IgM only	58	61.70
3.	NS1 and IgM	19	20.212

From the table 11 and figure 11,whole blood were transfused in total 17 patients (13 DHF,2 DF, 2DSS).About 2 (2.12%)patients received blood transfusion even their platelet count was >50,000.



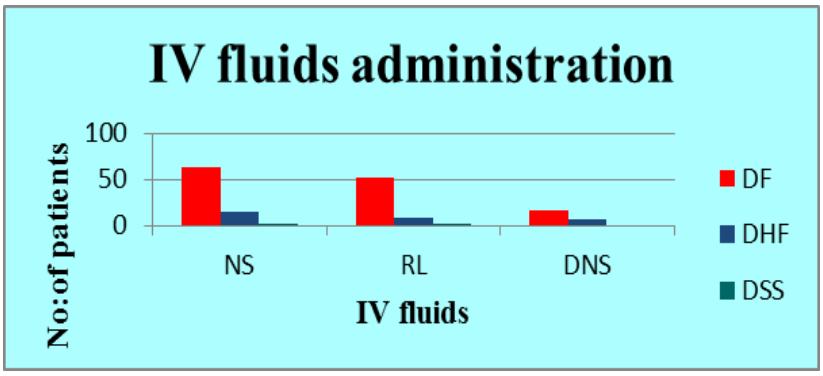
SL.No:	Blood transfusion received	Number of cases	Percentage%
1.	Dengue Fever	2	2.12
2.	Dengue Haemorrhagic Fever	13	13.82
3.	Dengue Shock Syndrome	2	2.12

From the table 12 and figure 12 shows that, all the patients with DF and its manifestation that are DHF, DSS were received paracetamol 94 (100%) ranitidine 89(94.68%) BCT 49(52.12) antiemetic 6(6.38%) and IV fluids.



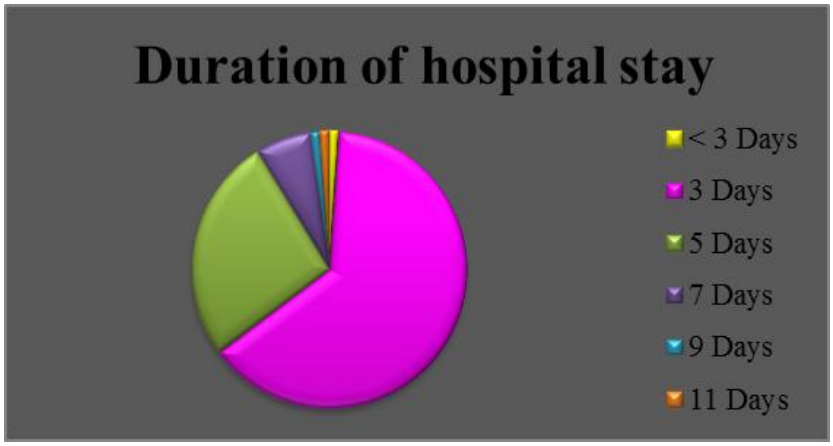
S.No:	Treatment received	Number of patients	Percentage
1.	Paracetamol	94	100
2.	Ranitidine	89	94.68
3.	BCT	49	52.12
4.	Antiemetic's	6	6.38

From the table 13 and figure 13 indicates that fever was managed with paracetamol and fluid management was according to WHO protocol by using NS (79), RL (62), and DNS (23).



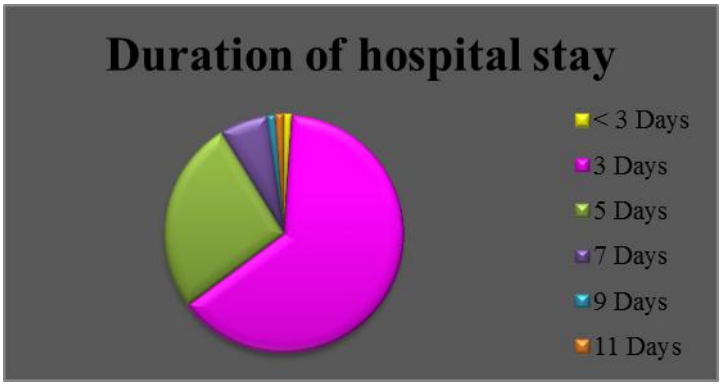
S. No.	Manifestation	NS	RL	DNS
1.	Dengue Fever(DF)	63	52	16
2.	Dengue Hemorrhagic Fever(DHF)	14	9	7
3.	Dengue Shock Syndrome(DSS)	2	1	0
4.	Total	79	62	23

From the table 14 and figure 14 shows that average duration of hospital stay was 7 days the data showed that in DF 46(63%) patients were stayed in hospital for 3 days. DHF 12(70.58%) patients were stayed in hospital for 3 days and all of them are referred to other hospital.



S.N0.	Length of hospital stay	Number of patients	Percentage (%)
1.	< 3 Days	1	1.0638
2	3 Days	58	61.70
3	5 Days	24	25.531
4	7 Days	6	6.38
5	9 Days	1	1.0638
6	11 Days	1	1.0638

From the table 15 and figure 15 observed that among 94 cases of 68 patients were improved and discharged. 26 cases were referred to other hospital for further treatment. In our study period there were 3 death reported with dengue cases in govt.head quarters hospital Tirupur.



S. No.	Length of hospital stay	Number of patients	Percentage (%)
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2	3 Days	58	61.70
3	5 Days	24	25.531
4	7 Days	6	6.38
5	9 Days	1	1.0638
6	11 Days	1	1.0638

CONCLUSION

In our study, the most common age group affected is 15-25 years with male predominance.Fever, headache, vomiting and petechiae/purpura continue to be the common presentation. There is no association with age and complications.Maximum number of patients was observed to have DF, whereas the incidence of DHF and DSS was comparatively less. Complications in dengue fever are very less. There is an association between bleeding and DHF and complications reported in our study has no association with platelet range. This study highlighted the importance of clinical manifestation, complication, and outcome of the disease. All the patients with dengue fever and its manifestation that are DHF and DSS were received paracetamol and intravenous fluids. Till now there is no licensed vaccine available against dengue viral infection. Several trials are ongoing in the

world for the development of tetravalent dengue vaccine. So far phase III trials of a recombinant, live attenuated tetravalent dengue vaccine(CYD-TDV) has completed in five Asian countries in children which may be preventing dengue infection in near future. This study has limitation inherent to a hospital record-based study; hence, entomological information, IEC strategies, and vector control measures were not correlated.

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