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DENGUE FEVER – RECENT OUTBREAK 2013 IN BIKANER: A FOLLOW UP STUDY OF 4 WEEKS.

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ABSTRACT

Introduction: Dengue infections result in a disease continuum that includes syndromes varying in severity and prognosis. These include dengue fever (DF), dengue hemorrhagic fever (DHF), and dengue shock syndrome (DSS), the most severe form of DHF. All are caused by dengue viruses that belong to the family Flaviviridae as four serotypes (DEN-1, DEN-2, DEN-3 and DEN-4)[1,2]. The exact clinical profile is important for patient management and thus crucial for saving life. The present study is an attempt to describe the salient clinical as well as laboratory findings of serologically confirmed hospitalized cases of dengue fever during the study period. The study group represented the adult population.

Aim and objectives

1. To study the clinical profile of recent of dengue epidemic cases
2. To evaluate the complications, outcome and follow up of Dengue patients.

MATERIAL AND METHODS:Patients with dengue fever (sero positive) with or without thrombocytopenia admitted to medical wards of S. P. Medical College& Associated Group of P. B. M. Hospitals Bikaner.

Inclusion criteria

- Age more than 16 years
- Proven case of dengue fever by NS1, IgM, or IgG antibody
- A written consent given by patient

Exclusion criteria: Other causes of fever with thrombocytopenia like malaria, brucellosis, leptospira, and enteric fever.
Sample size: 200 cases.

Results: Out of total 200 patients, 173(86.5%) patients had classical dengue fever, 23(11.5%) had dengue haemorrhagic fever while only 4(2%) patients had dengue shock syndrome. A total of 151 (75.5%) patients were male and 49 (24.5%) were females with a male to female ratio of

3:1. All(100%) of the patients presented with fever. All patients were admitted with history of fever, majority of patients had their duration of fever between 2-6 days. The other symptoms observed were arthralgia (80%), backache (87%), headache (94.5%), nausea or vomiting (72.5%) and abdominal pain (72%). The skin rash was present in (8%) cases and pruritus in 25% cases and 69 (34.5%) patients had pleural effusion and out of them 61 and 8 patients had their platelet count <50000/cmm, 50000-1 lakh/cmm respectively and the difference was found statistically highly significant ($p<0.001$) and ascites was present in total 48 patients and out of them 42 patients had their platelet count <50000/cmm and remaining 6 patients had their platelet count 50000-1 lakh/cmm and the difference was found statistically highly significant ($p<0.001$).

Conclusion: In our study 200 serologically confirmed cases of dengue viral infection, majority of the patients were in adult age group. There was male preponderance with male to female ratio of 3:1. Most of the cases belonged to classical dengue fever with 11.5% cases of dengue hemorrhagic fever and only 2% cases of dengue shock syndrome. All the patients had fever and constitutional symptoms like backache, arthralgia, headache, vomiting, abdominal pain etc. Fifteen percent patients had evidence of spontaneous hemorrhagic manifestations with hemoptysis, epistaxis or hematuria. Evidence of plasma leakage in the form of ascites and pleural effusion was present in 34.5% and 24% cases respectively. All the patients improved with symptomatic and conservative treatment and no mortality was noted in the study showing a favourable outcome. Follow up of cases after 4 weeks showed no incidence of readmission or any adverse complications and dropouts were noted due to reluctance of patients for follow up study as they were perfectly healthy and few could not be contacted.

INTRODUCTION

Dengue infections result in a disease continuum that includes syndromes varying in severity and prognosis. These include dengue fever (DF), dengue hemorrhagic fever (DHF), and dengue shock syndrome (DSS), the most severe form of DHF. All are caused by dengue viruses that belong to the family Flaviviridae as four serotypes (DEN-1, DEN-2, DEN-3 and DEN-4)[1,2]. The exact clinical profile is important for patient management and thus crucial for saving life. The present study is an attempt to describe the salient clinical as well as laboratory findings of serologically confirmed hospitalized cases of dengue fever during the study period. The study group represented the adult population.

India is one of the seven countries in the South-East Asia region regularly reporting incidence of DF/DHF outbreaks due to its high incidence which constantly threatens the health care system. The first confirmed report of dengue infection in India dates back to 1940s, and since then more and more new states have been reporting the disease which mostly strikes in epidemic proportions often inflicting heavy morbidity and mortality[7]. Laboratory diagnosis of dengue virus infection depends upon demonstration of specific antibodies in serum samples by haemagglutination inhibition, complement fixation, neutralization test or ELISA. Virus isolation methods are expensive, time consuming and not widely available. Reverse transcriptase PCR and hybridization probes for nucleic acid are other newer tests for diagnosis.

There are very less established guidelines for management of dengue fever. The dilemmas in the treatment of dengue have resulted in increased morbid periods and higher mortality. Management of all patients DHF / DSS includes administration of parenteral fluids like crystalloids initially, colloids, blood and blood products (FFP, platelets) as required.

AIM AND OBJECTIVES

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MATERIAL AND METHODS

Patients with dengue fever (sero positive) with or without thrombocytopenia admitted to medical wards of S. P. Medical College& Associated Group of P. B. M. Hospitals Bikaner.

INCLUSION CRITERIA

- Age more than 16 years
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EXCLUSION CRITERIA:

Other causes of fever with thrombocytopenia like malaria, brucellosis, leptospira, and enteric fever.

Sample size: 200 cases.

RESULTS

Out of total 200 patients, 173(86.5%) patients had classical dengue fever, 23(11.5%) had dengue haemorrhagic fever while only 4(2%) patients had dengue shock syndrome. A total of 151 (75.5%) patients were male and 49 (24.5%) were females with a male to female ratio of 3:1. All(100%) of the patients presented with fever. All patients were admitted with history of fever, majority of patients had their duration of fever between 2-6 days.

The other symptoms observed were arthralgia (80%), backache (87%), headache (94.5%), nausea or vomiting (72.5%) and abdominal pain (72%). The skin rash was present in (8%) cases and pruritus in 25% cases and 69 (34.5%) patients had pleural effusion and out of them 61 and 8 patients had their platelet count <50000/cmm, 50000-1 lakh/cmm respectively and the difference was found statistically highly significant ($p<0.001$) and ascites was present in total 48 patients and out of them 42 patients had their platelet count <50000/cmm and remaining 6 patients had their platelet count 50000-1 lakh/cmm and the difference was found statistically highly significant ($p<0.001$).

DISCUSSION

A total of 200 cases admitted in Medicine ward with serological confirmation were studied. In our study, out of 200 patients, 139 (69.5%) were between the age group of 16-30yrs, 45 (22.5%) were between the age group of 31-45yrs, and 16 (8%) were >45yrs.(Table 1)

In present study, out of total 200 patients, 173(86.5%) patients had classical dengue fever, 23(11.5%) had dengue haemorrhagic fever while only 4(2%) patients had dengue shock syndrome. A study conducted by Sarkar et al[3] showed 84% of the cases in age group of 11 to 30 years. Another study conducted by Fu Xi Qiuet al[4] found 81% of the patients were among more than 20 years. In this study 70% of the cases were between age group of 15 to 35 years. (Table 2)

In the present study out of 200 patients, 151 (75.5%) patients were male and 49 (24.5%) were females with a male to female ratio of 3:1. These findings were comparable with a study

conducted by Sharma et al[5] showed that male to female ratio was 3:1. Another study conducted by Agarwal et al49 in which male to female ratio was 1.9:1.

In the present majority (100%) of the patients presented with fever. All patients were admitted with history of fever in the hospital in this study. In our present study, majority of patients had their duration of fever between 2-6 days.

A study conducted by Ratageriet al[6] majority (100%) of patients had fever as their presenting complaint. Also a study conducted by Sharma et al49 showed that most commonest presenting symptom among the dengue cases was fever (100%).
The other symptoms observed were arthralgia (80%), backache (87%), headache (94.5%), nausea or vomiting (72.5%) and abdominal pain (diffuse, sometimes localized in the epigastrium) (72%). The skin rash in the form of erythematous maculopapular rash, blanching, over trunk and extremities, presented in (8%) cases and pruritus in 25% cases.

A study conducted by Rachel Daniel et al[7] showed fever (96.8%), headache (77.2%), abdominal pain (62.4%), diarrhoea (15.2%), bleeding (15.2%), skin rash (13.2%), and pruritus (10.4%).

In our present study, nine (10%) and 8 (10.1%) had epistaxis in those with platelet count <50000/cmm and those between 50000-1 lakh/cmm respectively, Hematuria noted in 4 (4.4%) and 2(2.5%) cases in those with platelet count <50000/cmm and those between 50000-1 lakh/cmm respectively, Hemoptysis was noted in 3 (3.8%) cases with platelet count between 50000-1 lakh/cmm and also 1 (1.1%) and 1 (1.3%) cases in those with platelet count <50000/cmm and those between 50000-1 lakh/cmm respectively had subconjunctival hemorrhage as the evidence of spontaneous haemorrhage.

A study conducted by Krishnamurthy et al[8] during 1964's epidemic of dengue fever at Visakhapatnam (AP) found hemorrhagic manifestation in 23 (21.5%) case out of 107. vaginal bleeding was observed in 9.34%, hematemesis and melena 4.6%, petechiae, ecchymosis and purpura (skin bleed) in 7.47%, gum bleeding in two, hemoptysis in one and epistaxis in one.

In our study, out of 200 patients 62 (31%) cases had leukocyte count <4,000/ mm3, 134 (67%) cases had leukocyte count 4,000 – 11,000/ mm3 and 4 (2%) had leukocyte count >11,000 mm3. In our study, 103(51.5%) patients had their hematocrit<38 while 97(48.5%) patients had their hematocrit>38. (Table-3 &4)

A study conducted by Daniel et al[7], in which Haematocrit (HCT) was measured in 226 patients, of whom 163 patients (72%) had HCT <45%. The total white cell count was found to be <4000/cmm in 100 patients (40%).

In present study, out of total 200 patients, 90 patients had their platelet count <50000/cmm, 79 patients had their platelet count between 50000-1 lakh/cmm, 26 patients had their platelet count 1-1.5 lakh/cmm and only 5 patients had their platelet count >1.5 lakh/cmm on admission.

In present study, out of total 200 patients, on discharge, no patient had their platelet count <50000/cmm, 42 patients had their platelet count 50000-1 lakh/cmm, 45 patients had their platelet count 1-1.5 lakh/cmm and 113 patients had their platelet count >1.5 lakh/cmm. On follow up after 4 weeks, all the patients had their platelet count >1.5 lakh/cmm.

Out of total 200 patients, 69 (34.5%) patients had pleural effusion and out of them 61 and 8 patients had their platelet count <50000/cmm, 50000-1 lakh/cmm respectively and the difference

was found statistically highly significant (p<0.001) and ascites was present in total 48 patients and out of them 42 patients had their platelet count <50000/cmm and remaining 6 patients had their platelet count 50000-1 lakh/cmm and the difference was found statistically highly significant (p<0.001). Hence both pleural effusion and ascites were more with patients with platelet count <50000/cmm. The diagnosis of pleural effusion was done by X-ray chest and ultrasound of chest and diagnosis of ascites was done by ultrasound of abdomen.A study conducted by Sharma et al[5] showed 10.2% had pleural effusion and 5.10% had ascites. Another study conducted by Daniel et al[9] showed pleural effusion (13.2%) and ascites (12%).

Gall Bladder wall thickening was present in 35 patients and out of them 28 patients had their platelet count <50000/cmm while remaining 7 patients had their platelet count 50000-1 lakh/cmm and the difference was found statistically highly significant (p<0.001) (Table-5). A study conducted by Wu et al[10] showed that sonographic features included a thickened gallbladder wall in 38 patients (59%).

In our study, all the cases (100%) were NS1 positive dengue serology, 35 (17.5%) were IgM positive dengue serology and 36 (18%) were IgG positive dengue serology. Dengue fever has no specific treatment. All the patients received symptomatic and conservative treatment. Necessary patients were given the platelet infusions, fresh frozen plasma and whole blood.

All the patients recovered with symptomatic and conservative treatment and there was no mortality in any group of the patients. So, early recognition of the disease and prevention rather than treatment of complications are most important for the favourable outcome of the disease.

CONCLUSION

In our study 200 serologically confirmed cases of dengue viral infection, majority of the patients were in adult age group. There was male preponderance with male to female ratio of 3:1.

Most of the cases belonged to classical dengue fever with 11.5% cases of dengue hemorrhagic fever and only 2% cases of dengue shock syndrome. All the patients had fever and constitutional symptoms like backache, arthralgia, headache, vomiting, abdominal pain etc. Fifteen percent patients had evidence of spontaneous hemorrhagic manifestations with hemoptysis, epistaxis or hematuria. Evidence of plasma leakage in the form of ascites and pleural effusion was present in 34.5% and 24% cases respectively.

All the patients improved with symptomatic and conservative treatment and no mortality was noted in the study showing a favourable outcome. Follow up of cases after 4 weeks showed no incidence of readmission or any adverse complications and dropouts were noted due to reluctance of patients for follow up study as they were perfectly healthy and few could not be contacted.

Table 1: Distribution of cases according to age group in relation platelet count on admission

Age Group (years)	Platelet Count on admission								Total	
	<50000/cmm		50000-1 lakh/cmm		1-1.5 lakh/cmm		>1.5 lakh/cmm			
	No.	%	No.	%	No.	%	No.	%	No.	%
16-30	64	71.1	54	68.4	18	69.2	3	60.0	139	69.5
31-45	17	18.9	18	22.8	8	30.8	2	40.0	45	22.5
>45	9	10.0	7	8.9	0	-	0	-	16	8.0
Total	90	100	79	100	26	100	5	100	200	100
Mean	29.61		29.05		27.61		32.00			
SD	11.87		12.66		9.47		8.36			
F	0.288									
P	0.834									

Table 2: Frequency of Dengue Fever (WHO Classification)

Dengue Fever (WHO)	**Frequency**	**Percentage**
Classical Dengue Fever	173	86.5
Dengue Haemorrhagic Fever	23	11.5
Dengue Shock Syndrome	4	2.0
Total	200	100

Table 3: Distribution of cases according to TLC in relation platelet count on admission

TLC	Platelet Count on admission								Total	
	<50000/cmm		50000-1 lakh/cmm		1-1.5 lakh/cmm		>1.5 lakh/cmm			
	No.	%	No.	%	No.	%	No.	%	No.	%
<4000	31	34.4	22	27.8	9	34.6	0	-	62	31.0
4000-11000	55	61.1	57	72.2	17	65.4	5	100	134	67.0
>11000	4	4.4	0	-	0	-	0	-	4	2.0
Total	90	100	79	100	26	100	5	100	200	100
Mean	5961.77		5341.13		5753.84		7860.00			
SD	3177.53		2334.65		2908.22		2041.56			
F	1.662									
P	0.177									

Table 4: Distribution of cases according to HCT in relation platelet count on admission

HCT	Platelet Count on admission								Total	
	<50000/cmm		50000-1 lakh/cmm		1-1.5 lakh/cmm		>1.5 lakh/cmm			
	No.	%	No.	%	No.	%	No.	%	No.	%
≤38	32	35.6	42	53.2	24	92.3	5	100.0	103	51.5
>38	58	64.4	37	46.8	2	7.7	0	-	97	48.5
Total	90	100	79	100	26	100	5	100	200	100
Mean	38.88		37.48		32.46		32.92			
SD	5.80		4.82		3.52		0.94			
F	11.874									
P	<0.001									

Table 5: Distribution of cases according to Chest X-ray findings in relation platelet count on admission

Chest X-ray findings	Platelet Count on admission								Total	
	<50000/cmm		50000-1 lakh/cmm		1-1.5 lakh/cmm		>1.5 lakh/cmm			
	No.	%	No.	%	No.	%	No.	%	No.	%
Pleural Effusion	61	67.8	8	10.1	0	-	0	-	69	34.5
Normal	29	32.2	71	89.9	26	100.0	5	100.0	131	85.5
Total	90	100	79	100	26	100	5	100	200	100
χ^2	81.202									
P	<0.001									

Table 6: Distribution of cases according to USG findings in relation platelet count on admission

USG Findings	Platelet Count on admission								χ^2	p
	<50000/cmm		50000-1 lakh/cmm		1-1.5 lakh/cmm		>1.5 lakh/cmm			
	No.	%	No.	%	No.	%	No.	%		
Gall Bladder Thickening	28	31.1	7	8.9	0	-	0	-	22.209	<0.001
Ascites	42	46.7	6	7.6	-	-	-	-	46.797	<0.001

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