ORIGINAL ARTICLE

Socio-demographic Characteristics and Clinical Spectrum of Dengue patients presenting to Aziz Bhatti Shaheed Teaching Hospital, Gujrat

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ABSTRACT

Aim: To determine the socio-demographic and clinical characteristic of the confirmed dengue cases presenting to the Aziz Bhatti Shaheed Teaching Hospital, Gujrat.
Methods: About 200 confirmed cases of dengue presenting to the DHQ hospital Gujrat during November 2011 to January 2012 were enrolled in the study by non-probability consecutive sampling and were followed up during their stay in the hospital.
Results: Mean age of patients was 29.90±11.86 while 179(89.5%) were male, belonging to Gujrat 151(75.5%) and lived in rural locality 108(54%). Majority were students 72(36%) and laborers 71(35.5%) and had an outdoor nature of job 163(81.5%). About 138(69.5%) and 40(20%) had dengue fever and dengue hemorrhagic fever respectively and 22(11%) went into dengue shock syndrome. Predominant symptoms complaint by patients were fever 200(100%), generalized weakness 164 (82%), myalgias and arthralgia 153 (76.5%), GIT symptoms 148(74%) and headache 145(72.5%)..
Conclusion: A wide variation is found in the sociodemographic and clinical spectrum of the dengue patients. Knowledge regarding these risk factors and clinical features can help in better planning and management if such outbreaks or epidemics are encountered again.
Keywords: Dengue, dengue hemorrhagic fever, dengue shock syndrome,

INTRODUCTION

World's population is facing a constant threat by vector borne diseases with dengue evolving as major epidemic over a period of time. A report by World Health Organization showed that dengue is endemic in 100 countries with about 500,000 patients suffering annually, whereas, the mortality due to dengue is about 20,000 per year.[1] The global burden of the dengue is suspected to parallel that of malaria and tuberculosis in the coming years making it a serious public health problem.[2] In Asia, dengue sprouted from Southeast Asian countries and multiple epidemics have been reported from Sri Lanka, Pakistan, India and other Asian countries[3].

At present, urban areas are mainly affected with Dengue fever but reports are providing evidence that it can spread to the rural areas as well if the transmission remain uncontrolled and the environmental and the climatic condition are favorable there[4]. Cases and outbreaks have been reported from all over Pakistan including the northern areas with the largest epidemic faced by Punjab in Lahore during 2011-2012[5-8]. Dengue fever exists in three forms: dengue fever (DF), dengue hemorrhagic fever (DHF) and extended dengue syndrome. Initially DF was the major form seen in majority of the

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patients but the incidence of DHF has risen significantly over a period of time. Moreover, various studies conducted not only in Pakistan but all over world have shown considerable variations in the clinical and laboratory spectrum of the dengue[9-13]. Dengue can present with a variety of presentations and clinical features ranging from fever and generalized arthralgia and myalgias to even neurological manifestation such as cerebral hemorrhage. This diverse range of symptoms and manifestations makes it extremely important to keep a high index of suspicion for dengue in patients having even few signs and symptoms suggestive of dengue especially in endemic areas.

During the last two decades, dengue have been reported in Pakistan from Karachi, Lahore, Rawalpindi, Chakwal, Multan, Hyderabad, Mirpur but none of the study has been published so far regarding the dengue cases in Gujrat. By the end of 2011, many dengue cases were seen in Gujrat as well in Aziz Bhatti Shaheed Teaching Hospital. Thus this study was conducted to determine the sociodemographic and clinical characteristic of these patients to help in developing a better understanding about the spectrum of risk factors, presentation and outcome in dengue patients.

MATERIALS & METHODS

A descriptive case series was conducted among 200 dengue patients above 15 years of age, admitted during the study period in Aziz Bhatti Shaheed

Teaching Hospital Gujrat which is one of the largest hospital in Gujrat. The study was conducted for a period of 3 months i.e., from November 2011 to January 2012.Permission was obtained from the hospital administration before the collection of data. For diagnosis of dengue, standard WHO definitions were used and all confirmed cases who were positive for dengue IgM by Elisa were enrolled in the study by using non-probability consecutive sampling after an informed consent from the patients. Patients were interviewed regarding their socio-demographic and clinical characteristics using a proforma covering all variables. Detailed history was taken for all the clinical features as dengue can present with varied and atypical symptoms. Laboratory investigation for screening, confirmation and base-line blood count at the time of presentation was also done. Patients were managed conservatively and were followed up throughout their period of stay in hospital with daily blood counts till the time of discharge and all information was also noted in the proforma. Data was entered and analyzed using SPSS version 17.0 and mean and standard deviation was calculated for the quantitative variable while frequencies and percentages were calculated for the qualitative variables in the study.

RESULTS

Total 200 patients of dengue who were admitted in Aziz Bhatti Shaheed teaching hospital from November 2011 to January 2012 were included in this study. The socio-demographic characteristics of all the patients are shown in table 1. The mean age of patients was 29.9±11.86 years while majority of the patients were males 179 (89.5%) and belonged to district Gujrat 151(75.5%). About 108(54%) patients were from rural areas and 110 (55%) patients reported that their surroundings had breeding places for the mosquito. As expected, maximum no of patients 163 (81.5 %) reported outdoor nature of their working place while majority patients were students 72(36 %), followed by laborers 71(35.5%) and 22(11%) shopkeepers as shown in table 1.

Table 2 shows the clinical characteristic of the patients admitted with dengue. All patients gave history of fever with80 patients (40%) with majority having either low grade or moderate grade fever with duration less than 1 week. The most common symptom was generalized weakness 164(82%) followed by myalgias & arthralgiain 153(76.5%), GI symptoms in 148(74%), headache in 145(72.5%), retro-orbital pain in 111(55.5%), hemorrhagic symptoms in 39(19.5%) and macula-papular rash in 37(18.5%) patients. About 17(8.5%) of patients were having some other concomitant illness along with

dengue fever. Almost, 136(68%) of patients gave history of recent travel to endemic areas especially Lahore and about 98(49%) patients gave history of mosquito bite before the illness. About 136(68%) of patients admitted that they were given education regarding the use of personal protective measures for prevention of mosquito bite but unfortunately only 40 patients (20%) were practicing it and gave history of using personal protective measures. Duration of hospital stay was less than one week in about 187(93.5%) patients. Although majority of the patients suffered from dengue fever, about 40 (20%) were diagnosed as having dengue hemorrhagic syndrome and about 22(11%) patients went into dengue shock syndrome who were referred to tertiary care hospital for intensive care.

Table 1: Sociodemographi characteristic of dengue patients

Socio-demographic characteristics	Frequency	%age
Gender		
Male	179	89.5
Female	21	10.5
Locality		
Rural	108	54
Urban	92	46
Presence of breeding places of mosquito around house		
Yes	110	55
No	90	45
Residential address		
Gujrat	151	75.5
Lahore	38	19
Others	11	5.5
Nature of job		
Outdoor	163	81.5
Indoor	37	18.5
Profession		
Student	72	36
Laborer	71	35.5
Shopkeeper	22	11
Farmer	8	4
Factory worker	6	3
Professional	6	3
Restaurant worker	4	2
Others	11	5.5

Regarding laboratory investigation it was seen that on screening 148(74%) of patients were found to be positive for dengue. However all 200(100%) patients were IgM positive &about 73(36.5%) were IgG positive on ELISA test. Anemia, leucopenia and thrombocytopenia was present in 30(15%), 105(52.5%) and 102(51%) respectively at the time of presentation. However, these levels returned to normal in majority of the patients at the time of discharge and only 14(7%), 25(12.5%) and 12(6%)

patients were having anemia, leucopenia and thrombocytopenia respectively as shown in table 2

Table 2- Clinical Characteristics of Dengue Patients

Clinical Characteristics	Frequency	%age
Type of dengue Dengue fever Dengue haemorrhgic syndrome Dengue shock syndrome	138 40 22	69 20 11
Intensity of fever Low grade Moderate grade High grade	60 60 80	30 30 40
Duration of fever < 1 week 1-2 week > 2 week	132 61 7	66 30.5 3.5
Generalized weakness	164	82
Myalgia and arthralgia	153	76.5
Nausea, vomiting, GIT symptoms	148	74
Headache	145	72.5
Retro-orbital pain	111	55.5
Haemorrhgic symptoms	39	19.5
Maculopapular rash	37	18.5
Concomitant illness	17	8.5
History of mosquito bite	98	49
History of travel to endemic area (within last 14 days)	136	68
Duration of hospital stay <1 week >1 week	187 13	93.5 6.5
IgM positive on screening test	148	74
IgG positive on screening test	49	24.5
IgG positive on Elisa	73	36.5
Anemia (Hb< 12g/dl) At admission At time of discharge	30 14	15 7
Leucopenia (WBC < 4000) At admission At discharge	105 25	52.5 12.5
Thrombocytopenia (< 50,000) At admission At discharge	102 12	51 6

DISCUSSION

Dengue fever is the most prevalent mosquito-borne viralillness with clinical manifestations ranging from an asymptomatic infection and a mild febrile illness to severe dengue hemorrhagic fever and life threatening shock syndrome. In Pakistan, the first confirmed outbreak occurred in 1994, thereafter, sporadic cases, outbreaks and epidemics have been reported from all over the country during the last two decades especially in Sindh and Punjab[14]. Current study was conducted on about 200 confirmed cases of dengue presenting to Aziz Bhatti Shaheed Teaching Hospital in Gujrat during November 2011 to January 2012 to study the sociodemographic and clinical characteristics of these patients.

Regarding sociodemographic factors, it was seen in this study that majority of the patients belonged to the young age group and males were the predominant group affected. The findings are similar to the results of not only local studies[5,6,15] but also in studies reported from Srilanka, India and Saudi Arabia[9,10,12]. The results of all these studies showed that the main group affected by dengue is the young male adults mainly because this is the major group which is involved in outdoor activities thus more exposed to the vector. These findings are also strengthen by the fact that majority of the patients reported an outdoor nature of their job and were students and laborers. However, more than half of the dengue cases belonged to the rural areas and had potential breeding places of the mosquito in their surroundings. These findings are quite different from the usual concept that dengue is a disease primarily of the urban localities. This fact was also predicted in WHO report which mentioned that dengue can spread to rural areas as well if the environmental conditions are favorable in those areas[4]. These findings are quite alarming as this shifting pattern may result in further increase in the annual incidence of dengue.

As far as clinical spectrum of the dengue is concerned, it was found that majority of the patients suffered from dengue fever while 20% had dengue hemorrhagic fever and 11% went into dengue shock syndrome who were moved to tertiary care hospital for intensive care. Earlier studies conducted in Karachi during 2006 showed that 95% of the patients suffered dengue fever while only 5% had dengue hemorrhagic fever[16]. This shows an increase in ratio of dengue fever to dengue hemorrhagic fever over a period of time. It was also noted in this study that all dengue cases had complaint of fever at the time of presentation. Moreover, almost more than half of the patients suffered from low to moderate grade fever with duration of fever less than one week in majority of the patients. These findings are consistent with studies conducted at Karachi and Jamshoro which also showed that the majority of the patients with dengue presented with low to moderate grade fever and duration of fever was 1 to 10 days[15,17]. The results of this study also showed that the predominant associated symptom was generalized weakness followed by myalgias and arthralgia, GI symptoms such as nausea, vomiting diarrhea, headache, retro-orbital pain, hemorrhagic symptoms such as bleeding from different sites and rash. Almost similar complaints were reported by the dengue patients in other studies as well however the frequency of these symptoms was seen variable in different study. Wasay and colleagues reported increased frequency of headache,

hemorrhagic symptoms and rash and decreased frequency of GI symptoms in patients of dengue as compared to this study[18]. Whereas Butt et al found that maximum patients complaint of rash and GI symptoms and very few complaining of head ache and retro-orbital pain[19]. Similarly, frequency of retro-orbital pain was found to be high in this study as compared to many other studies[6,19-21]. A few studies have also reported neurological symptoms in patients of dengue but fortunately none of the patients in our set-up developed neurological symptoms[22,23]. Thus it can be seen that patients of dengue can present with a wide spectrum of clinical manifestation.

Regarding the laboratory investigation, it was seen that about 26% of the patients who were IgM negative on initial screening came out to be positive on Elisa who raises a question on the accuracy of screening test. Moreover it was seen that almost half of the patients presented with leucopenia and thrombocytopenia at the time of presentation but these condition improved in majority of the patients at the time of discharge. Almost similar results were seen in some other studies[6,12,19,20] but a very high frequency of thrombocytopenia upto 95.58% has also been reported in some studies[7,21]. It is also seen that thrombocytopenia is reported more in patients with dengue hemorrhagic fever as compared to dengue fever.[17] However, further studies should be conducted to determine predictive factors for dengue hemorrhagic fever and dengue shock syndrome which will help the clinicians to anticipate such complications and timely management.

CONCLUSION

The sociodemographic and clinical features of dengue show wide variation. Moreover, considering the proportion of false negative on screening, information regarding the clinical and laboratory spectrum becomes highly important for timely clinical diagnosis of dengue to start early management for an effective secondary prophylaxis against dengue.

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