

CLINICAL SPECTRUMS OF DENGUE FEVER IN A TERTIARY CARE CENTRE WITH PARTICULAR REFERENCES TO ATYPICAL PRESENTATION IN THE 2011 OUTBREAK AT BATHINDA, PUNJAB, INDIA

*¹DR. VIPPAN GOYAL, ²DR. GURPREET SINGH GILL, ³DR. JAGJIT SINGH, ⁴DR. GOBIND PRATAP SINGH, ⁵YADWINDER SINGH, ⁵SEHMEET SINGH, ⁵AMISHA CHAWLA

¹Department of Skin & V.D, ²Department of Surgery, ³Department of Medicine, Adesh Institute for Medical Sciences & Research (AIMSR), Barnala Road, Bathinda, Punjab 151001, ⁴JR, Department of Medicine, ⁵Intern, Department of Medicine, AIMSR, Barnala Road Bathinda, Punjab, India. Email: vippangoyal@rediffmail.com

Received: 06 Sep 2013, Revised and Accepted: 07 Oct 2013

ABSTRACT

Objective: During the summer of 2011, Dengue fever epidemic emerged in Bathinda, Punjab, India. During the epidemic period, wide spectrum of atypical presentations of dengue fever had been observed. Our objective is to study the clinical Spectrums of Dengue Fever in a Tertiary Care Centre with particular references to atypical presentation.

Methods: In this study the spectrum of dengue was analyzed in 568 patients of dengue like fever. All patients were investigated thoroughly for cause of fever & we found 426 patients of dengue serology positive NS1 (IgM & IgG) by card method. The study was done in the department of medicine, Adesh Institute of Medical Sciences & Research, Bathinda. The patients were classified according to age, gender, duration of symptoms on admission, associated co-morbidities and co infections, complication that developed after admission, the final outcome and duration till recovery after symptoms developed.

Results: As observed in the study dengue fever cases started to appear from September and attained its peak in October. All ages were affected but the brunt was borne maximally by those between 21-30 years. Males were affected more and urban patients were more affected compared to their rural counterparts. Out of the total patients, 45% developed hepatitis, 42% developed thrombocytopenia (platelets less than 1 lac) & other hemorrhagic features, 7% developed pancreatitis, and 6% developed pleural effusion. More number of patients were having multiple & atypical complications and required hospitalization. No Mortality had reported in spite of co-morbidities and co-infection. Awareness, early treatment with aggressive fluid replacement therapy with close monitoring, supportive management, and patient education showed promising results & zero mortality.

Conclusion: It was concluded from the study that 30% had no complications and 70% developed complications and 4% cases had underlying co-morbidities and co-infections.

Keywords: Dengue fever, Clinical spectrum, Atypical presentation.

INTRODUCTION

Dengue is the most common arthropod-borne viral (Arboviral) illness in humans. Globally, 2.5-3 billion individuals live in approximately 112 countries that experience dengue transmission. Annually, approximately 50-100 million individuals are infected. It is caused by infection with 1 of the 4 serotypes of dengue virus, which is a Flavivirus (a genus of single-stranded non-segmented RNA viruses). Infection with one dengue serotype confers lifelong homotypic immunity to that serotype and a very brief period of partial heterotypic immunity to other serotypes, but a person can eventually be infected by all 4 serotypes. Several serotypes can be in circulation during an epidemic [1,2]. Dengue is transmitted by mosquitoes of the genus *Aedes* [3], which are widely distributed in subtropical and tropical areas of the world. Globally, *Aedes aegypti* is the predominant highly efficient mosquito vector for dengue infection, but the Asian tiger mosquito, *Aedes albopictus*, and other *Aedes* species can also transmit dengue with varying degrees of efficiency. Humans serve as the primary reservoir for dengue. Persons with dengue viruses in their blood can transmit the viruses to the mosquito 1 day before the onset of the febrile period. The patient can remain infectious for the next 6-7 days. The mosquito can transmit dengue if it immediately bites another host. In addition, transmission occurs after 8-12 days of viral replication in the mosquito's salivary glands (extrinsic incubation period). The virus does not adversely affect the mosquito. The mosquito remains infected for the remainder of its life. The life span of *A. aegypti* is usually 21 days but ranges from 15 to 65 days. Vertical transmission of dengue virus in mosquitoes has been documented [4]. It causes a wide spectrum of illness from mild asymptomatic illness to severe fatal dengue hemorrhagic fever/dengue shock syndrome (DHF/DSS) [5]. Approximately 2.5

billion people live in dengue-risk regions with about 100 million new cases each year worldwide. Dengue fever (DF) is a mosquito borne viral illness caused by types 1 to 4 closely related but antigenetically distinct serotypes of dengue virus (DENV 1-4) [6]. Infection with one serotype confers lifelong homo-typic immunity and a brief period of heterotypic immunity, but each individual can eventually be infected by all 4 serotypes [7]. The epidemic in 2010 was mainly due to DENV 2, few by DENV 3 and very few by DENV 1 while dengue hemorrhagic fever was infected by multiple serotypes [8]. Multiple endemic has occurred during last decade in Delhi. Serotypes detected are the same as all serotypes were identified in 2003 while data from 2004, 2005 and 2006 showed predominance of DENV3, DENV2 in 2007 and DENV1 in 2008 [9,10].

The first epidemic of DF was reported in 1635 in West-Indies. Thereafter in 1779-1780 confirmed epidemics simultaneously in Asia, North America and Africa were reported. The first epidemic of dengue hemorrhagic fever (DHF) and Dengue Shock Syndrome (DSS) was described in 1953 in Manila, thereafter frequent epidemics spread all over the world including in India [11,12]. In India, DENV was first isolated in 1946 and many outbreaks have been reported [13-20]. In Kolkata it was first documented in 1824 and several epidemics took place in years 1836, 1906, 1911, 1972, 2005 and 2010 [21]. The frequency of DF outbreak is increasing worldwide. DF presents with wide spectrum of presentations like classical DF, DHF and DSS (current WHO classification). During the last few decades, frequent DF outbreaks has occurred with increasing number of severe and atypical illness requiring hospitalization including myositis, serositis, bleeding manifestations, pancreatitis, cranial nervous system involvement, myocarditis, hepatitis, acalculous cholecystitis, and even death

[23-29]. With this background the present study was undertaken among 426 (Dengue serology positive) patients in the department of medicine, Adesh Institute of Medical Sciences and Research, Bathinda to assess the incidence of increasing number of atypical presentations of DF. Dengue is transmitted by several species of mosquito within the genus *Aedes*, principally *Aedes Aegypti*. The virus has four different types; infection with one type usually gives lifelong immunity to that type, but only short-term immunity to the others. Subsequent infection with a different type increases the risk of severe complications. As there is no commercially available vaccine, prevention is sought by reducing the habitat and limiting exposure.

MATERIALS AND METHODS

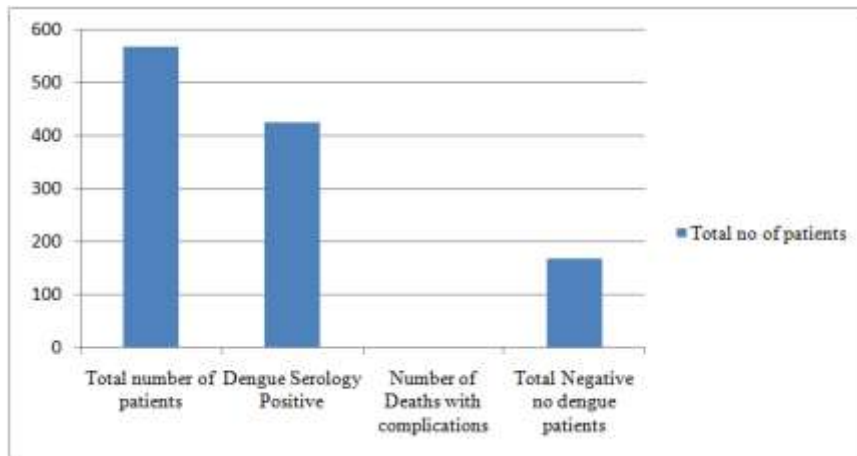
We selected 568 patients of dengue like fever symptoms visiting the OPD block and emergency department of Adesh Medical College and Research, Bathinda, Punjab, India. Past history and other health problems were also noted. All the cases of fever with rashes of 18 to 90 years age group were included and the patients of other cause of fever were excluded. All the patients were examined clinically and thoroughly investigated to a certain cause of fever.

Physical Examination- Detailed general physical examination with emphasis on pallor, jaundice, pedal edema and lymph-adenopathy was done with detailed muco-cutaneous, CNS, CVS, abdominal, and chest examination.

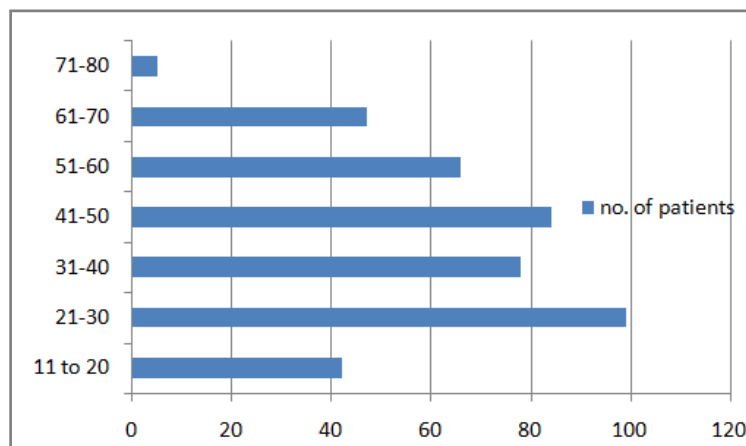
Investigation- Complete blood count, Peripheral blood film, Platelet count, blood grouping, blood sugar, serum amylase/lipase X-ray chest, CT Scan abdomen, ECG, liver function test, ultrasound abdomen, creatinine, blood sugar, malarial antigen, dengue serology NS1 (IgM & IgG) was done.

RESULTS

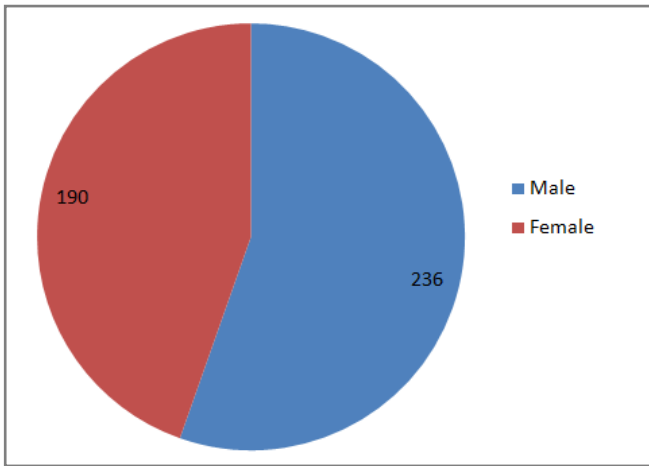
An observational study was undertaken among 568 patients of dengue like illness & 426 dengue serology positive patients who had attended the Medicine & Skin outpatient department, fever clinic and emergency department of Adesh Institute of Medical Sciences and Research, Bathinda, Punjab, India as shown in Graph 1, of clinical spectrum with particular reference to atypical presentation of DF. Patients of both sexes and age more than 12 years, were included in the study as shown in Graph 2. The patients who were not serologically negative were not included. In the present study, 426 patients were observed in inpatient and outpatient department. It is evident from the study that DF was prevalent throughout the spring and summer of 2011 but maximum cases were detected during September & October as shown in Graph 6. Patients of all age groups were affected, but patients of 21-30 years age group were mostly affected. Males as well as females were affected but number of males exceeded number of females as shown in Graph 3. Population of urban areas was more affected than rural areas as shown in Graph 4. As per data collected during the study, 70% of patients had developed complications while 30% of patients had no complications. The investigations that were done during hospital visits and hospital stay of the patients revealed that 177(42%) had thrombocytopenia (as shown in Graph 7) and bleeding manifestations (petechiae, purpura, positive tourniquet spasm, haemorrhagic gastritis, haemoptysis, meleana, hematochezia, subconjunctival haemorrhage, epistaxis and haematomas), 37 (7%) had pancreatitis (serum lipase and amylase > 3 times normal), 190 (45%) had hepatitis (confirmed by USG and LFT), 22 (6%) had pleural effusion (confirmed by USG & chest X-ray) as shown in Graph 5. Skin manifestations occur in more than 30% of patients as shown in Graph 8. No case of death was reported.



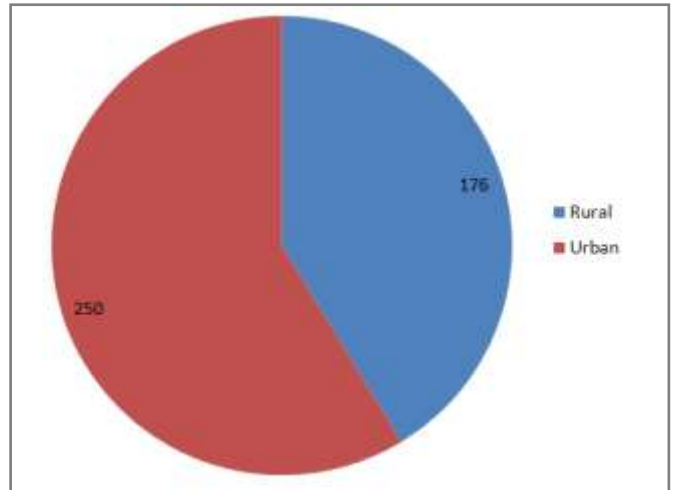
Graph 1: Total Number of patients of Dengue like illness, Dengue Fever & Deaths



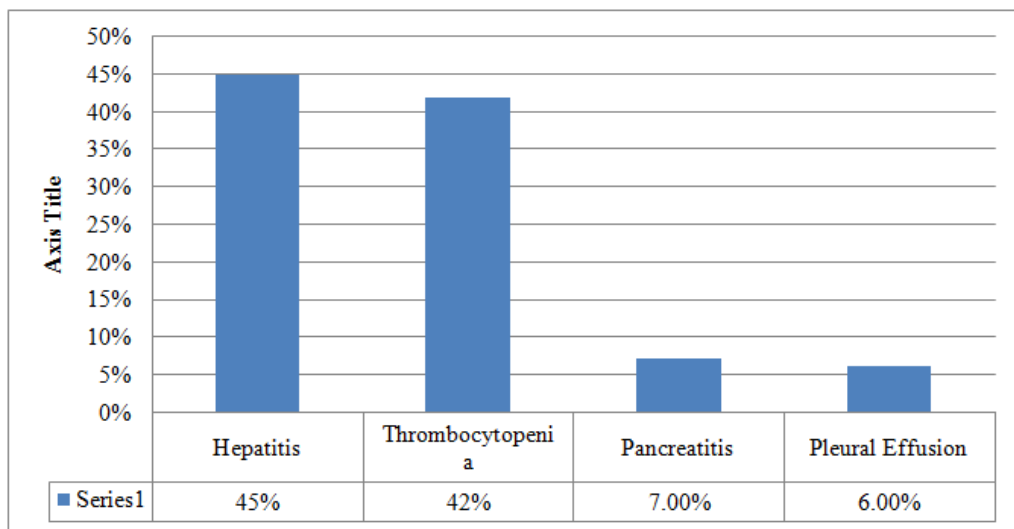
Graph 2: No. of patients according to age



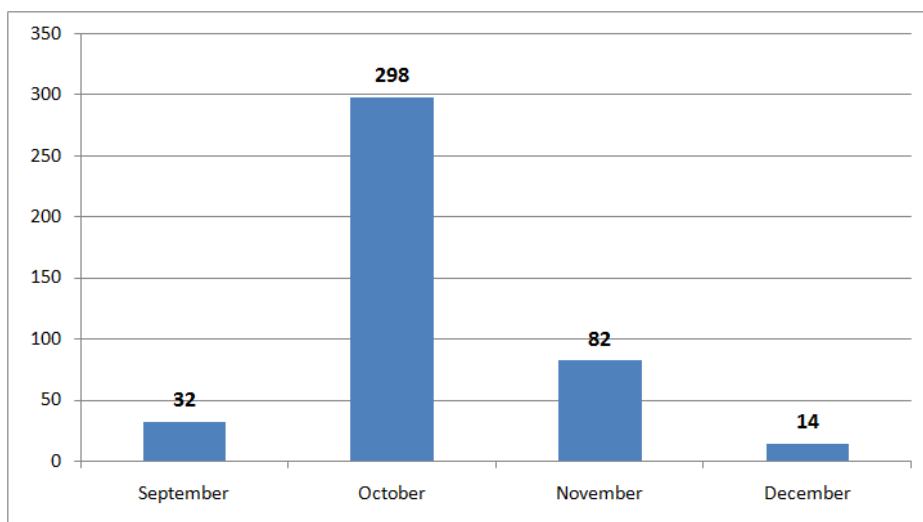
Graph 3: Sex Ratio



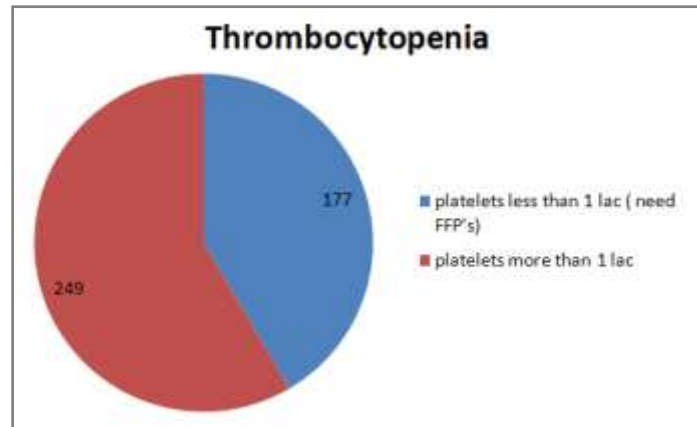
Graph 4: Rural to Urban ratio



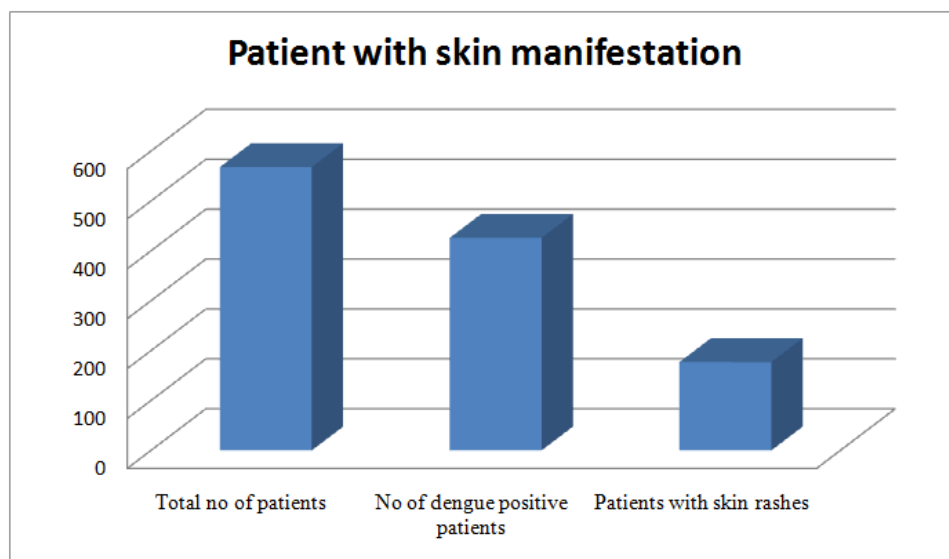
Graph 5: Atypical spectrum of Dengue fever in Percentile



Graph 6: Month wise distribution of patients



Graph 7: Number of patients based on platelet count



Graph 8: Skin manifestations

DISCUSSION

In this observational study, clinical profile of 426 patients were sequentially reviewed and a complete data regarding clinical spectrum [hemorrhagic features, hepatitis, serositis, acalculous cholecystitis, myocarditis, pancreatitis, CNS involvement, myositis, vasculitis] and underlying medical conditions [hypertension, diabetes, chronic liver disease, co-infection with malaria, chronic obstructive pulmonary disease, ischemic heart disease, tuberculosis, typhoid fever, herpes labialis], selected investigations [Routine blood counts, platelet count, bio-chemical assays included liver function tests, coagulation profile, creatine kinase, lipase, amylase, potassium, lactate dehydrogenase, renal function tests, urine myoglobin, radiological examination included X-rays, Ultrasonography, CT scan, electrocardiogram, echocardiography, skin biopsy, upper gastro-intestinal endoscopy], treatment given and outcome of patients were noted and analyzed.

CONCLUSIONS

In the present study 426 patients were observed in inpatient and outpatient department. It is evident from the study that dengue fever was prevalent throughout the spring and summer of 2011 but maximum cases were detected during September/October. All ages were affected. But 21-30 years age group was mostly affected. Males as well as females were affected but number of males exceeded number of females. As per data collected during the study, 70% of patients had developed complications while 30% of patients had no

complications. Dengue disease continues to involve newer areas, newer populations and is increasing in magnitude, epidemic after epidemic [30]. Every aspect of dengue viral infection continues to be a challenge; the pathogenesis of severe dengue disease is not known, no vaccine is yet available for protection and the vector control measures are inadequate. Dengue virus was isolated in India in 1946, but the scientific studies addressing various problems of dengue disease have been carried out at limited number of centres. Though clinical studies have reported on dengue in India, but these are largely based on diagnosis made by kits of doubtful specificity and sensitivity. A lot more remains to be achieved for creating an impact.

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