TREND OF DENGUE IN A TERTIARY CARE HOSPITAL OF SURAT CITY, WESTERN INDIA

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ABSTRACT

Background: India is one of the countries in the South-East Asia region regularly reporting dengue fever (DF)/dengue hemorrhagic fever (DHF) outbreaks.

Objective: To study the trend of confirmed dengue cases admitted in a tertiary care hospital & to identify the seasonal variation of the disease during three years period in Surat city, Western India.

Methodology: Secondary analysis of data of Dengue patients obtained from three hospitals of Surat city was done.

Results: 1918 serum samples were tested for dengue IgM ELISA out of which **671** samples tested positive. Majority were males, having sex ratio of 2.54:1 and in the age group of 15-44 years. Maximum number of cases were seen in 2009, 393 and in the month of October, 125.

Conclusion: The numbers of cases declined during this study period. Community awareness, early diagnosis and management and vector control measures were strengthened which results in decrease in number of cases.

Key words: Dengue, MAC ELISA, Trend.

INTRODUCTION

Dengue virus infection is caused by four serotypes of dengue virus namely DEN1, DEN2, DENS and DEN4. Clinical spectrum of dengue virus infection varies from asymptomatic through classical dengue fever to life-threatening dengue haemorrhagic fever (DHF)/dengue shock syndrome (DSS)[1]. The DENV are RNA viruses & the principal transmission vectors are peri-domestic mosquitoes Aedesaegypti[2].Globally dengue and DHF are endemic in South East Asia, South America, Africa and Pacific Islands. A major outbreak associated with haemorrhagic manifestations occurred in Calcutta in 2004 [3]. Similar observation has been reported in DF outbreaks in several other states of India[4,5,6]. The aim of our study is to know the trend of dengue from the year 2009 to 2011 in a tertiary care hospital. This would help us to implement control measures and preventiveprogrammes for dengue. This is a benchmark study for trend of dengue in South Gujarat region.

MATERIALS & METHODS

Serum samples from clinically suspected Dengue patients were received at the Department of Microbiology of SMIMER Hospital, a tertiary care 750-bedded teaching hospital in Surat city. These samples were received from SMIMER hospital, Maskati Charitable trust Hospital (MCH)and Malaria&Filaria department of SMC (Surat Municipal Corporation). Samples from these hospitals were received by our department taking due considerations that standard guidelines for serum collection and transports were followed.

Samples were further tested for IgM anti-Dengue antibody by Dengue IgM capture ELISA (MAC ELISA). Kits for ELISA testing were supplied by National Institute of Virology (NIV), Pune. Tests were done and results were read as per the literature provided. All the data related to patients like laboratory number, zone, name of the patients, age, sex, address, date of fever onset, date of collection of sample and

result of IgM ELISA were maintained. Available data was analyzed & the trend of Dengue in SMIMER hospital was observed during the study period

RESULTS

Sex ratio for dengue seropositive patients for male to female was 2.54:1. Table 1 shows that age group of 15 to 44 years shows maximum numbers of cases. Infants represent minimum number of cases.

Table 1: Age group distribution of positive cases of dengue

Age group	Year 2009	Year 2010	Year 2011
<1	2	0	0
1 TO 4	8	3	0
5 TO 14	95	46	3
15 TO 44	266	199	10
45<	22	17	0
Total	393	265	13

Table 2: Positivity Rate during the study period

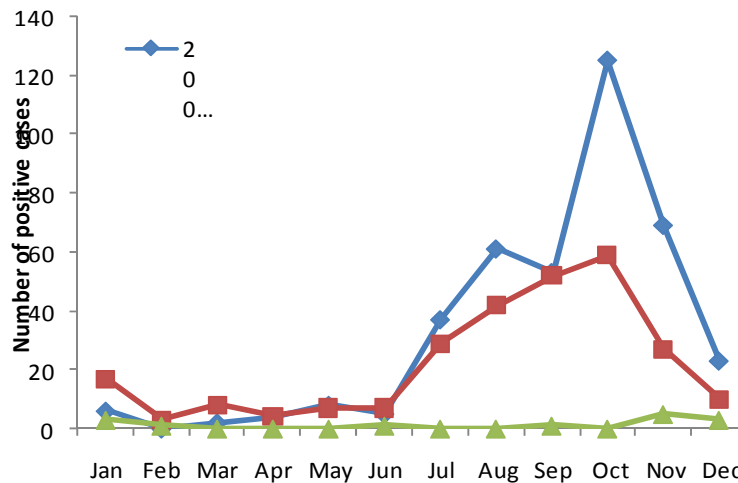| Years	Dengue +ve Samples	Tested Samples	Positivity Rate	Total samples
2009	393	778	50.51 %	671/1918
2010	265	788	33.63%	Positivity rate is 34.98%
2011	13	353	3.69 %	

Fig-1: Shows the trend of Dengue cases for the Study period. (n=1918)

Table 2 shows that positivity rates were declining during the study period. Figure-1 Shows that Dengue cases were declining during this study period. The number of cases started rising from the month June and peaks at October-November month during this study period.

DISCUSSION

Dengue is an important emerging disease of the tropical and sub-tropical regions today. There are many intermittent reports of the infections and its sequelae from Ludhiana [7], Delhi [8-10], Lucknow [11], Kolkata [12,13], Chennai [14], Mangalore [15], Assam/Nagaland [16], Vellore[17]. Upon analyzing the year-wise distribution of dengue cases in the study population, steady decrease in the number of dengue patients over the past few years was noted. This study shows that in the year 2009,2010 & 2011 dengue positivecases were respectively 50.38%, 33.63% and3.96%.Males were found to be more affected than females. The proportion of dengue cases for age group 15-44 was highest & for age group <1 year was lowest. Similar results were also noted in one study by Ashwini Kumar et al [21].The seasonal variation is also noticed during this period. A gradual increase in cases was noticed from June with a peak in October month. Premonsoon increase in the number of cases was noted in the months of March and April which could be explained by the stagnation of water, after a few bouts of pre-monsoon rainfall which facilitate vector

breeding. The correlation between occurrence of dengue and monsoon season is clearly evident in this study and is further supported by similar findings from Kerala[18], Ludhiana [19] and Karachi[20]. These findings indicate that preventive measures against dengue infection should come into full swing during water stagnation periods after the initial bouts of rainfall and at the end of monsoon. Dengue cases were decreased gradually during year 2009, 2010 & 2011. This may be contributed by the combine efforts of public awareness and increased mosquito control measures by SMC.

CONCLUSION

The trend of dengue in Surat city is declining in past three years. The rise in cases was found to be in Pre-monsoon and monsoon season of the year.

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