



Seroprevalence of Dengue Infection in West Godavari District

KEYWORDS

Dengue fever, seroprevalence, ELISA.

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ABSTRACT Dengue fever is an acute viral disease, transmitted by the bite of aedes mosquito. It has emerged as a notable public health problem in recent decades in terms of the mortality and morbidity associated with it. This study was done to report the seroprevalence of dengue virus infection in West Godavari dist by IgM anti dengue antibodies. Blood samples from clinically suspected Dengue were screened for antidengue IgM antibodies by ELISA. Of the 394 samples screened for dengue, 90 tested positive for antidengue IgM antibodies (22.8%). Majority were in the age group of 16-30 years. Dengue cases were more during September to December. Accurate and timely diagnosis would help in patient management, it is also a prerequisite for monitoring the dengue situation in the area and should be carried out regularly for early detection of an impending outbreak and to initiate timely preventive and control measures.

Introduction:

Dengue is a arthropod -borne flavivirus infection widely distributed throughout the tropics and subtropics .¹ This mosquito borne disease is caused by antigenically distinct dengue virus serotypes (DENV Serotypes 1-4).² Generally one serotype predominates in an area .In many urban centers, multiple virus serotypes co-circulate (hyperendemicity).³According to WHO, South East Asia region and Western Pacific region bear nearly 75% of the current global disease burden due to dengue.⁴ Dengue fever is more commonly seen in older children and adults.⁵ Infection with dengue virus causes a spectrum of clinical illness ranging from inapparent infection to mild nonspecific viral syndrome to classical DENV fever to severe and fatal hemorrhagic disease. Case fatality rates can be as high as 20-40% in DHF/DSS, but can be reduced with early diagnosis and proper case management .Diagnosis of primary dengue is made by the detection of IgM anti DENV antibodies which appear 5-7 days after the onset of illness and persists for 2-3 months where as secondary infection is characterized by production of IgG antibodies and a weak IgM response. In view of high mortality rate and to reduce the disease burden, it is important to have a rapid and sensitive laboratory assay for the early detection of the disease.

Aim and objectives:

To study the seroprevalence of Dengue virus infection in West Godavari district, Andhra Pradesh

To know the seasonal trends.

To know the age group more susceptible to Dengue infection.

Material and methods:

This is a retrospective observational study carried out among clinically suspected dengue patients at ,Department of Microbiology, Alluri Sitaramaraju Academy Of Medical Sciences (ASRAM)), West Godavari dist , Sentinel Surveillance Hospital during Oct 2011 to Dec 2014. Blood samples collected from PHC'S of West Godavari district with dengue like illness were included in the study.

The study included patients of all age groups and both sexes. The prevalence of dengue was estimated by studying the presence of Dengue IgM antibodies in the sera of the suspected patients by the NIV Dengue IgM capture ELISA kits provided by NIV Pune .

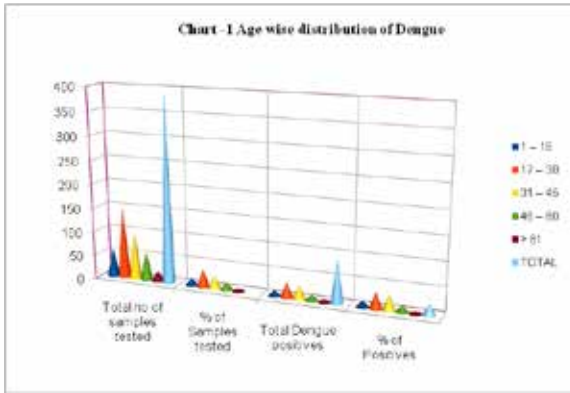
Specimen collection & Storage:

5ml of peripheral blood was collected by venipuncture into a sterile plain container .Sera separated and tested for IgM DEN antibodies.

Results:

During the study period a total of 394 serum samples were tested for Dengue IgM antibodies. The year 2011-2012 had the highest number of reported cases .Of the total samples, 195 were males and 199 were females. Age wise distribution of samples and their positivity is shown in

Chart -1. Majority of them were of the age group 17-30 (37.8%) followed by 31-45 (26.1%) . Month wise distribution of cases is shown in table -2 .Our study reported seasonal trend with maximum number of cases occurring during months September to December that is in post monsoon .Of the 394 serum samples tested ,90(22.8%) were positive for dengue specific IgM antibodies. Among the seropositive samples, 44 (48.9%) were males and 46 (51.1%) were females .Our study showed no major differences in positivity to dengue among both sexes. Maximum positivity was reported in the age group 17-30 (34.4%), followed by 31-45 (32.2%).



Conclusion:

Surveillance is a prerequisite for monitoring the dengue situation in the area and should be carried out regularly for early detection of an impending outbreak and to initiate timely preventive and control measures. Dengue affected predominantly older children and adults, a seasonal trend was also observed for dengue with maximum cases post monsoon, which stresses on the importance of continued and coordinated efforts on health education by health care workers and community participation for the initiation of vector control measures before monsoon to prevent outbreaks.

Table -1 Seasonal distribution of Dengue positivity

Months	Total no of samples tested	Total positives	%of positives
Jan –Aug	18	06	6.7%
Sep –Dec	376	84	93.3%

Discussion:

Dengue is the most important arthropod –borne viral disease of public health significance .It is one of the major re-emerging viral infections. In our study out of the 394 serum samples tested,90(22.8%) were seropositive for dengue ,which is very similar to the one reported by Tanvi Panwala et al ⁶ and that reported by Yukta Sharma et al ^{7,8} No major difference in the seropositivity for dengue among both sexes was noted in our study.Dengue infection in our study occurred in most active age groups i.e older children and adults with maximum incidence noted in age group 16-30 (34.4%) followed by 31-45 (32.2%) which is similar to the one reported by Tanvi Panwala et al ⁶ and Sowmya et al ⁹ This peak incidence in this age groups may be because these were out of the house most of the times during play or at work. Seasonal predilection was also noted in our study with maximum dengue cases during post monsoon season which is similar to the other studies reported in India ^{10, 11} and this seasonal variation may be related to conditions that were favorable for increased breeding and transmission of mosquitoes during these seasons.

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