Original Research Article

A Study on Seroprevalence of Dengue Infection in Acute Febrile Illness Patients Attending Government General Hospital Mahabubnagar

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Abstract

Dengue fever is the most common Arboviral disease in India. Dengue is endemic in almost all states and leading cause of hospitalization in India. An overview on Dengue burden, prevalence, Geographical distribution and seasonal trends at a particular area is necessary for administration of appropriate preventive and control measures. The present study was aimed to assess the prevalence of dengue infection among the patients suffering from acute febrile illness at GGH Mahabubnagar. A total number of 3076 clinically suspected cases of dengue were included in the study. Serum samples from these patients were collected and were subjected either dengue IgM or NS1 ELISA based on the duration of fever. Out of 3076 cases 206 were positive for dengue serology, out of them 112 were positive by NS1 ELISA and 94 were positive by IgM ELISA. In the present study commonly effected age group is 0-20yrs and showing male preponderance. Dengue infection is common in post monsoon season from September to November months. These epidemiological details in the particular region will help in proper planning of resources in disease prevention and control.
Keywords: Dengue, NS1 ELISA, IgM ELISA, Mahabubnagar, Prevalence, Acute febrile illness.

INTRODUCTION

Dengue fever is the most common Arboviral disease caused by dengue virus belongs to Genus Flaviviruses [1]. Dengue is endemic in more than 100 countries with high prevalence in few regions like south East Asia, western pacific region and few states of America [2].

In India dengue is endemic in almost all states and is the leading cause of hospitalization [3]. In 2016 NVBDCP (National vector borne disease control programme) has reported more than 100,000 lab confirmed cases of dengue in India [4].

Clinical spectrum of Dengue infection varies from simple self limiting acute febrile illness to severe fulminate dengue hemorrhagic fever and dengue shock syndrome. Early detection and monitoring for complications is required in dengue management.

High prevalence of dengue and frequent out breaks result in a serious burden on economy of health care system. Case detection, case management and vector control are the main strategies for prevention and control of dengue virus transmission [5].

An over view on dengue disease burden, prevalence, geographical distribution and seasonal trends at a particular area is necessary for appropriate utilization of existing fund for prevention and control strategies of dengue.

The present study was aimed to assess the prevalence of dengue infection among patients suffering from acute febrile illness attending Government Medical College, Mahabubnagar.

MATERIALS AND METHODS

An observational study was conducted at government medical college Mahabubnagar over a period of 1 year from January 2018 to December 2018. A total number of 3076 clinically suspected cases of dengue were included in the study.

Patient Inclusion Criteria

A patient suffering from two or more of the following symptoms were included in the study. Those are fever with or without rash, arthralgia, retro-orbital pain, mayalgia, head ache, body ache and malaise

Patient exclusion Criteria

Known cases of immune compromised patients were excluded from the study.

Specimen Collection

Adequate amount of blood samples from the patients were collected under aseptic conditions according to standard sample collection protocol. Serum samples were separated and subjected to laboratory investigations.

Sample Processing

Serum samples from patients suffering from fever of less than 5 days duration were subjected to antigen detection. Pan bio dengue early ELISA kit was used which is based on principle of Dengue NS1 antigen capture ELISA. The tests were done according to the manufacturers guidelines and results were recorded based on OD value of the test.

Serum samples from patients suffering from fever of more than 5 days duration were subjected to IgM antibody detection. NIV DENGUE IgM capture ELISA kits were used to perform the test which is based on sandwich principle using anti human IgM coated wells. The tests were done according to the manufacturers guidelines and results were recorded based on OD value of the test.

RESULTS

A total number of 3076 dengue suspected cases of dengue were included in the study. Out of them 752 samples were subjected to Dengue NS1 antigen ELISA and 2324 samples were subjected to IgM capture ELISA.
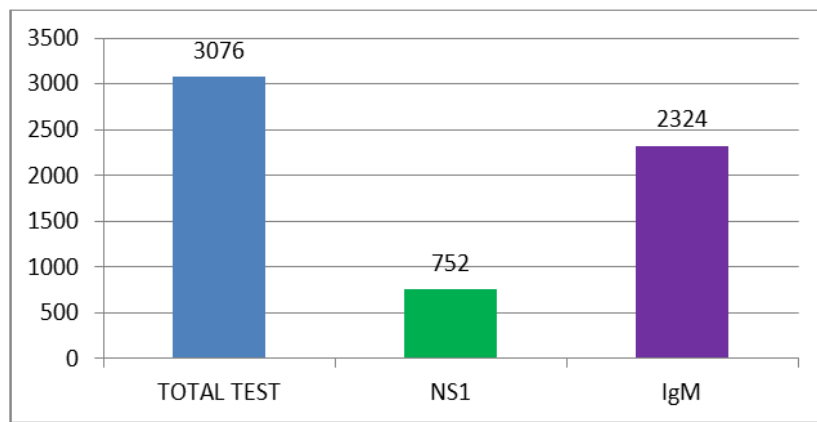

Fig-1: Distribution of samples by NS1 and IgM ELISA

Out of 3076 samples 206 samples were positive by dengue serology comprising up to7 %. Out of 206 positive samples 112 samples were positive by Dengue NS1 antigen ELISA and 94 by IgM capture ELISA.
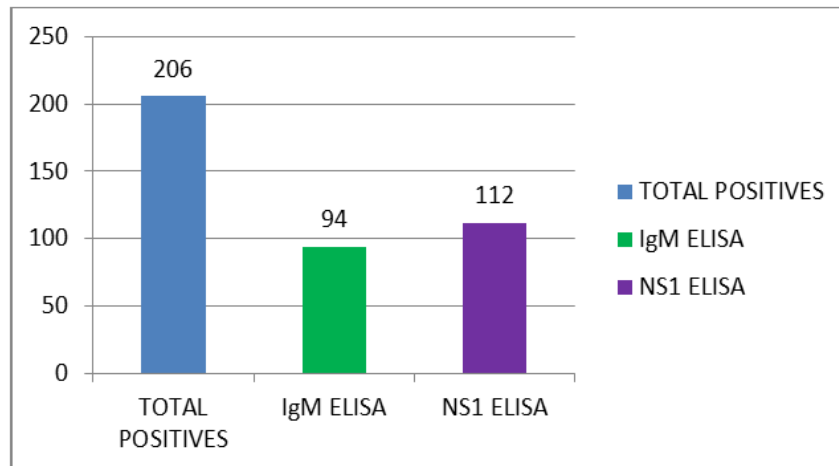

Fig-2: Distribution of positive samples by NS1 and IgM ELISA

Out of 206 dengue confirmed cases 91 (44.17%) were females and 115 (55.82%) were males, showing male predominance.
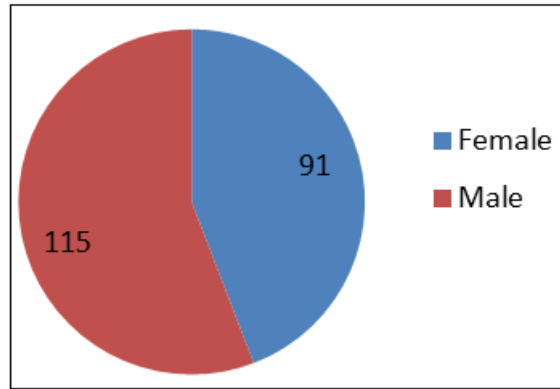
Fig-3: Sex distribution

Out of 2016 dengue confirmed cases maximum number of patients belong to 0-19 age group comprising up to 70.87%, followed by 20-39 age group comprising up to 20.38%.
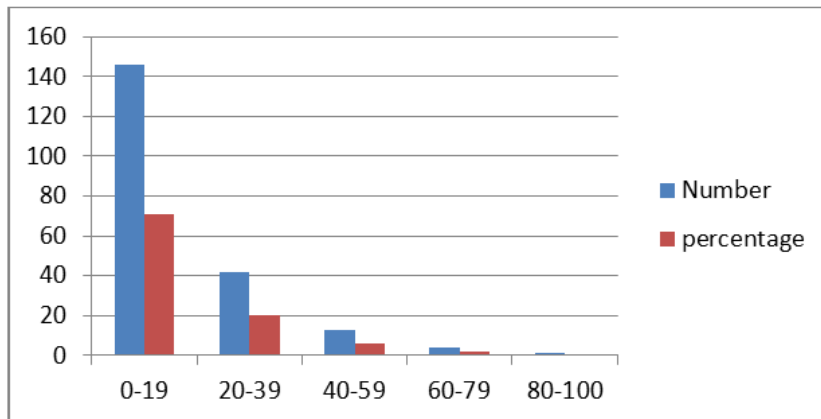

Fig-4: Age distribution

Maximum number of dengue positive cases were found in the month of September (n=65), followed by October (n=65), November (n=37).
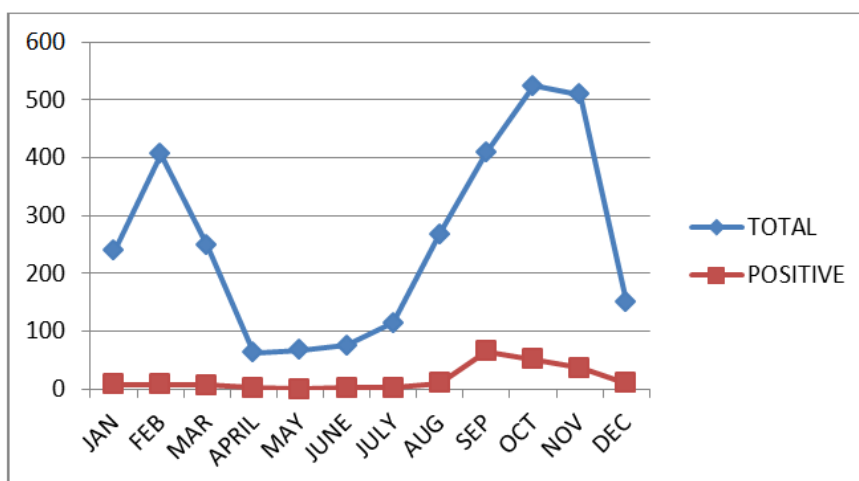

Fig-5: Sample distribution month wise

DISCUSSION

The present study has concentrated on the epidemiology of Dengue fever at a tertiary care hospital in Mahabubnagar in the year of 2018. In the present study out of 3076 dengue suspected cases 206 samples were positive comprising of 14.93%, which is correlating with the study conducted by Eric Daude *et al*., Vandana Solanki *et al*., [6].

Out of 3076 positive cases maximum patients were males comprising up to 55.82%, showing male predominance of the disease. Same finding was reported in study done by G. Pandya *et al.*, [7]. In the present study maximum patients belongs to 0-19(70.87%) age group followed by 20-39 (20.38%). The same finding was reported by G. Pandya *et al*., Cahakravarthi *et al*., Gupta *et al.,* in their study that maximum disease prevalence is seen in teenagers [7-9].

Large number of positive cases occurred in the months of September, October and November giving a peak in post-monsoon season. The same finding is reported in P. Reiter *et al*., and G. Pandya *et al*., [10, 7].

In our study out of 206 positive samples 112 samples were positive by Dengue NS1 antigen ELISA and 94 by IgM capture ELISA. NS1 ELISA seems to be a promising tool for early diagnosis of dengue. Same finding is reported by Pal *et al*., [11].

CONCLUSION

Surveillance and reporting is paramount for effective tool in dengue control. Accurate quantification of the burden of dengue will allow improved political, financial, and research prioritization as well as informed decision making and enhanced modeling. The epidemiological details in the present study will help in proper planning of resources in disease prevention and control. The study will also helps in identification of out breaks and changing trends of the disease.

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