SERODIAGNOSIS OF DENGUE IN TERTIARY CARE HOSPITAL IN DAVANGERE DISTRICT OF KARNATAKA

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ABSTRACT

Purpose: To study the seoprevalence of Dengue infection in Davangere district of Karnataka.

Materials and Methods: A total of 1952 blood samples were collected from patients attending tertiary care hospital in south India from January to December 2010.Serum was separated and subjected to Ig M ELISA. Results: Out of 1952 samples tested 583 (29.9%) were positive for IgM ELISA with female preponderance 266 cases (33.29%).Common age group affected was 11-20 yrs followed by 1-10 yrs with 39.45% and 36.36% respectively.Maximum number of cases were seen during the month of july and August. Conclusion: The prevalence of Dengue is 29.9% which is in agreement with other studies . More number of cases were seen in july and august affecting less than 20yrs age group which helps to plan preventive measure strategies.

Keywords: Dengue, Seroprevalence, ELISA.

INTRODUCTION

Dengue fever, dengue heamorrhagic fever (DHF) and Dengue shock syndrome (DSS) represent a spectrum of disease resulting from infection with the dengue virus (member of the genus flavivirus and family flaviviridea)which is primarily transmitted by the mosquito ,*Aedes aegypti* and *Ae albopticus*.Dengue fever can be caused by one of four types of dengue virus :DEN-1,DEN-2,DEN-3 and DEN-4.Dengue virus infection is clinically similar to many other acute febrile illnesses ,in which serological testing plays a important role in early diagnosis and management. The spectrum of illness is broad and ranges in severity from mild symptoms to death .The World Health Organisation (WHO) receives reports of about 5,00,000 dengue fever cases each year, but estimates that as many as 50 million people are infected annually with 24,000 deaths[3]. India is endemic for dengue infections and various states have reported outbreaks. In India highest number of Dengue cases were reported in 2010, as 25725 cases and 99 deaths till November,2010.In Karnataka highest number were reported in 2010 with 2177 cases and 6 deaths [4] . Laboratory diagnosis of Dengue fever can be done by various methods such as virus isolation and characterisation, detection of genomic sequence by a nucleic acid amplification assay, and detection of dengue virus antigen & specific antibodies [5] .However, most of laboratories in India do not have setup for molecular diagnosis,hence diagnosis is made by demonstration of antigen and antibodies by ELISA based tests. This study was conducted to know the seroprevalence of dengue in tertiary care hospital in central part of Karnataka.

MATERIALS AND METHODS

The study was conducted in department of microbiology, J.J.M. Medical college, Davangere .The study group consist of clinically suspected cases of dengue attending Chigateri General and Bapuji hospital attached to J.J.M.Medical college in the year 2010. A total of 1952 blood samples were collected from clinically suspected cases from January to December 2010.Sera was separated and

Ig M ELISA was performed using Dengue IgM Microlisa manufactured by J.Mitra. The test was performed according to manufacturers instruction.

RESULTS

Out of 1952 cases tested 583 (29.9%) were positive for dengue infection.

Table no 1: Sexwise distribution of Dengue cases

	Male	Female
No of cases Tested	1153	799
No of Positive cases	317 (27.4%)	266(33.29%)

Maximum No of positive cases were seen in females with 266 cases(33.29%) than males with 317 cases(27.4%).Male to female ratio was 1.19.

Table no 2: Agewise distribution of Dengue positive cases from Jan to Dec.

Age group	1-10	11-20	21-30	31-40	41-50
Jan	12	04	01	03	04
Feb	12	13	07	2	-
March	10	12	06	-	-
April	07	06	01	-	-
May	13	20	10	-	02
June	25	27	13	07	03
July	50	48	16	06	04
Aug	45	60	13	07	03
Sep	13	10	05	03	-
Oct	10	16	06	02	02
Nov	07	11	08	-	03
Dec	08	03	04	-	-
Total	212	230	90	30	21

Maximum No of Positive cases were seen between the age group of 11-20 years with 230 cases (39.45%)followed by 1-10 years with 212 cases(36.36%).

Table no 3: Distribution of Dengue positive cases from jan to dec.

	Number of cases tested	Number of positive cases
Jan	85	24
Feb	87	34
March	106	28
April	78	14
May	74	45
June	141	75
July	259	124
Aug	273	128
Sep	251	31
Oct	251	36
Nov	193	29
Dec	154	15

Maximum number of cases tested and positive were seen during the month ofJuly and August. The number of positive cases began declining from September to December.

DISCUSSION

The first evidence of occurrence of Dengue fever in the country was reported during 1956 from Vellore district in Tamilnadu . Subsequently , the first DHF outbreak occurred in Calcutta, West Bengal in 1963 with 30% of cases showing haemorrhagic manifestations. All the four serotypes have been isolated in India since 1966 .In the present study seroprevalence of Dengue infection was 29.9% .Similar findings have been reported by various other studies . Ukey PM et al[6] reported prevalence of 31.3%,Lal M[7] et al reported 39.4 %.But Gunasekaran[8] et al reported high prevalence of 43.0% and Garg et al reported low prevalence of 19.7%.

In our study high incidence was seen in age group of 11-20 yrs with 230 cases (39.45%)

followed by 1-10 yrs with 212 cases (36.36%).This is in concordance with other workers, Gunasekaran[8] et al has reported high incidence of 84.5% in age group less than 14 yrs, Ukey PM et al[6] reported 31.71% in 15-30 yrs age group. The incidence was high in females with 33.29%.

Seasonal distribution showed highest incidence in july and August. This is in agreement with other studies like Garg et al[9] , Pandhya G[10] et al and

Tripathi P et al[11] .The high incidence in monsoon and postmonsoon is due to the climatic conditions favouring breeding of mosquitos and transmission of disease.

REFERENCES

1. Guzman MG,Kouri G.Dengue diagnosis:advances and challenges.Int J Infect Dis.20004;8:69-80.
2. World Health Organisation-Dengue Haemorrhagic fever: Diagnosis, Treatment, Prevention and control.2nd Edn.New Delhi:WHO/SEARO,1997.
3. World Health Organisation- Dengue :Guidelines for diagnosis,treatment,prevention and control:a joint publication of the WHO and a special programme for research and training in tropical diseases(TDR) Geneva:WHO,2009.
4. Baruah K,Dhariwal AC.Epidemiology of dengue,its prevention and control in India. J Indian Med Assoc.2011;109:82-86.
5. Robert.B.Belshe editor .Flaviviruses in Textbook of human virology,2nd edn,Mosby -Year Book,Inc:1991;23:p 23.
6. Ukey PM,Bondade SA,Paunipagar PV,Powar RM,Akulwar SL.Study of seroprevalence

of dengue fever in central India.Indian J Community Med 2010;35:517-19.

7. M Lal,A Aggarwal ,A Oberio.Dengue fever-an emerging viral fever in Ludhiana,North India.Indian J Public Health.2007;51:198-99.

8. Gunesekaran P,Kaveri K,Mohana S,Arunagiri K,Babu BS,Priya PP et al.
    A retrospective analysis Dengue disease status in Chennai (2006-2008)
    Indian J Med Res . 2011;133:322-25.

9. Garg A,Garg J,Rao YK,Upadhyaya GC,Sakhuja S.Prevalence of dengue among clinically suspected febrile episodes at a teaching hospital in North India. J Infect Dis Immun.2011;3:85-89.

10. Pandhya G. Prevalence of dengue infection in India. Def Sci J.1982;32:359-70.

11. Tripathi P,Kumar R,Tripathi S,Tambe JJ,Venkatesh V.Descriptive epidemiology of Dengue transmission in Uttar Pradesh.Indian Paediatrics.2008;45:315-18.