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PREVALENCE OF SEROPOSITIVE DENGUE CASES IN CHANDRAPUR DISTRICT: A RETROSPECT…

Microbiology

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ABSTRACT

Since the first catastrophic epidemic Dengue has changed its outline and transformed into life different bullying conditions. Being a vector born disease with its four variedly occurring serotypes disease has reformed its advancement revealing its severe form as DHF and DSS with increased frequency of outbreaks. Considering the severity of the diseases its prevention and cure is now socially seeking the top priority of the practioners. Hence the present study was undertaken to know the prevalence of the disease in 2018. In present study suspected cases from city and periphery of the Chandrapur district of Maharashtra state were taken in to account.

Serum samples collected from the suspected dengue cases were analysed by performing ELISA for detecting anti dengue IgM antibodies. After analysing 1584 suspected cases 435 males and females were found positive with period prevalence of 27.46% in the duration of January to December 2018. With the findings of present study it could be concluded that prevention of dengue should be done with utmost priority just before end of Monsoon / rainy season when the diseases spread is at its supreme.

KEYWORDS

Period prevalence, Dengue, Dengue haemorrhagic fever (DHF), Dengue shock syndrome (DSS), ELISA.

INTRODUCTION:

Ever since the first catastrophic epidemic in Kolkata during 1963-64, Dengue is now sprouting as infectious in many places of India which was elderly supposed to be nonthreatening and self-limiting disease.[1]

In modern days the disease has changed its outline form relatively less sporadic self-limiting dengue fever (DF) to a life bullying condition like Dengue Shock Syndrome (DSS) and Dengue Haemorrhagic Fever (DHF) with its accumulative prevalence of out breaks.[2]

Dengue a vector native disease instigated from a single stranded RNA virus (DENV) of Flavoviridiae family, genus Flavivirus with nearly its four serotypes. Infection convinces lifelong safeguard against the infecting serotype, but it contributes only a little time cross protective immunity beside the other types.[3]

In last couple of years, the disease has reformed its advancement revealing its severe form as DHF and DSS with increased frequency of outbreaks.[2]

Dengue is sprouting as a key health distress in India. Delhi has practised seven outbreaks of dengue virus since 1967; analogous incidents in the year 1968 and 2005 which compelled to take dynamic steps to prevent DSS.[4]

At start of the millennium, magnitude of dengue was volatile and escorted the movement of people across continents because of the slavery and World Wars in which Indian continent was grossly hampered [3]. Presently, about 40% of the world's population is at menace and an predictable 500 000 people with severe dengue necessitate hospitalization each year and almost 2.5% of individuals pretentious die.[5]

Outbreak of dengue are also reported in Mumbai in 2003, analogous scenario was reported from Parbhani and Dhule region of Maharashtra state.[6,7,8]

Hence considering the severity of the diseases its prevention and cure is now socially seeking the top priority of the practioners. Hence in the present retrospective study yearly changes from January 2018 to December 2018 are being plotted which may help to construct a resilient health system against the disease.

MATERIAL AND METHODS:

The present retrospective study was carried out in the Dengue sentinel surveillance centre, dept. of Microbiology, Govt. Medical College, Chandrapur (MH). All serum samples of clinically suspected dengue patients received from GMC and Hospital Chandrapur and from periphery of Chandrapur district were considered for the present study. Demographic details like age, gender, address, and patient's details like date of admission, clinical history, signs, symptoms, collection of sample were noted.

Received samples were processed for IgM anti dengue antibody by Dengue IgM capture ELISA (Mac ELISA), and required kits were provided by National Institute of Virology, Pune (MH). The ELISA machine used was *mindray micro plate reader* model: *MR-96A* by Shenzhen Mindray bio-medical electronics, Shenzhen, China. Test results were read as per provided literature and the data obtained was utilised for knowing seroprevalence of dengue in Chandrapur district.

RESULTS:

A sum 1584 samples from suspected dengue patients were processed in Microbiology laboratory. Out of all these tested samples 435 were found to be reactive for IgM capture dengue ELISA as depicted in table. 1. Considering the total population under study 857 were males and 727 were females. Amongst these 236 males and 199 females were positive. Considering monthly distribution most number of suspected cases were seen in the month of October were 468.

With the present scenario Prevalence of Dengue amongst the population of Chandrapur district could be calculated as:

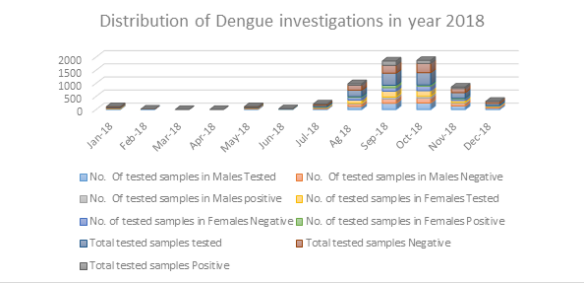
Prevalence of Dengue = total number of positive cases / sample size under observation × 100.

Hence prevalence of dengue for a period of 12 months (that is period prevalence) is 27.46%.

On the other hand the period prevalence of dengue amongst the male dwellers of Chandrapur was found to be 27.53%. While in females the period prevalence was observed to be 27.37%.

Table 1: Monthly distribution of Dengue suspects in males and females:

Sr. No	Month	No. Of tested samples in Males			No. of tested samples in Females			Total tested samples		
		Tested	Negative	positive	Tested	Negative	Positive	tested	Negative	Positive
1.	Jan 18	15	15	00	12	12	00	27	27	00
2.	Feb 18	02	02	00	01	01	00	03	03	00
3.	Mar 18	00	00	00	00	00	00	00	00	00
4.	Apr 18	00	00	00	00	00	00	00	00	00
5.	May 18	18	14	04	09	06	03	27	20	07
6.	Jun 18	03	03	00	04	01	03	07	04	03
7.	Jul 18	26	18	08	27	22	05	53	40	13
8.	Aug 18	118	91	27	127	99	28	245	190	55
9.	Sept 18	237	163	74	225	132	93	462	295	167
10.	Oct 18	250	179	71	218	172	46	468	351	117
11.	Nov 18	134	93	41	80	62	18	214	155	59
12.	Dec 18	54	43	11	24	21	03	78	64	14
	Total:	857	621	236	727	528	199	1584	1149	435



DISCUSSION:

Dengue is incipient as a gigantic liability on our country with all its four (DEN1-4) types being isolated from pretentious Indian population. The outbreak in 1996 was the largest one to occur in Delhi after which massive efforts were taken to prevent the outbreaks of the disease stating the staghorn problem of epidemics of the disease. Considering recent analytics of the disease prevention has become unavoidable to avoid the complications of Dengue like DHS and DSS.

In the existing study, 27.46 % patients were serologically positive for dengue infection these results coincide with dengue infection from Nagpur, the outbreak from Parbhani and Dhule. [7,8] In India, the outbreak of dengue were consistently reported from Delhi in 2004 and form rest of the parts of Indian continent like Bangalore, Punjab etc. [9,10,11]

Dengue cases were prominently occurred towards the end of monsoon season that is in the month of September and October. The present finding could be attributed to the fact that this period of year is favourable for breeding and development of the vector *Aedes aegypti*. Hence to prevent the outbreaks of the disease vector control programme around these durations could be the mile stone in prevention of the disease especially in remote dense forest areas of Chandrapur [10,11]. These measures will not only prevent the spread of the diseases but also will reduce chances of bleeding disorders due to thrombocytopenia. [12]

In current study it was observed that period prevalence of Dengue amongst males was 27.53%. This observed prevalence was similar than that observed in females which was 27.37%. Analogous results were seen by Mehendale SM amongst the male and female dwellers of Nagpur region in a period of about five years. [7]

PM Ukey also had observed that nearly 31% patients were seropositive who reside in Nagpur city and district. In the month of October and November increased number of cases were seen these outcomes are congruent with the observations of present study. [13]

Sex ratio amongst the seropositive patients in current study was nearly the same which is heterologous to the observations seen by T. Arun demarcating more number of affected males as compared to females. [14]

Therefore with the existing conclusions it can be resolved that Dengue cases were more during September to October towards the end monsoon season which is useful to plan special Preventive strategies like vector control and surveillance, improved disease surveillance, prioritize waste management and community education for the disease [15].

The study draws attention toward the dengue infection are more as compared to rest of the regions with its prevalence of nearly 27% making a catastrophic epidemic in central parts of India specially Chandrapur district. Applicable investigation, firm monitoring and rapid reassuring management can lessen mortality and spread of dengue; which could be a stepping stone towards making a Dengue free India.

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