



PREVALENCE OF SEROPOSITIVE DENGUE CASES IN CHANDRAPUR DISTRICT.

Microbiology

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ABSTRACT

Being a vector born disease with its four differently going on serotypes Dengue 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 practitioners.

Hence the present study was undertaken to know the prevalence of the disease in 2019. In present study suspected cases from city and periphery of the Chandrapur district of Maharashtra state were taken in to consideration.

Serum samples collected from the suspected dengue cases were analysed by performing ELISA for detecting anti dengue IgM antibodies. After analysing 1616 suspected cases 512 males and females were found positive with period prevalence of 31.68% in the duration of January to December 2019. With the findings of present study it could be concluded that prevention of dengue should be done with supreme priority just before end of Monsoon / rainy season when the diseases spread is at its absolute.

KEYWORDS

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

INTRODUCTION:

In recent past the Dengue has rehabilitated its framework form somewhat less sporadic self-limiting dengue fever (DF) to a life hounding condition like Dengue Shock Syndrome (DSS) and Dengue Haemorrhagic Fever (DHF) with its incremental prevalence of out breaks.¹

After devastating 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 no hostile disease.²

Dengue a vector inborn disease initiated from a single stranded RNA virus (DENV) of Flavoviridae family, genus Flavivirus by means of its four serotypes. Infection persuades lifelong protection against the infecting serotype, but it adds only a little for protective immunity beside the other three 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.¹

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 hampered³. 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 recent analytics of the disease prevention has become unavoidable to avoid the complications of Dengue like DHS

and DSS the severity of the diseases. Hence in the present retrospective study yearly changes in the year 2019 are being plotted which may help to construct a robust health system alongside 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 1616 samples from suspected dengue patients were processed in Microbiology laboratory. Out of all these tested samples 512 were found to be reactive for IgM capture dengue ELISA as depicted in table. 1. Considering the total population under study 759 were males and 857 were females. Amongst these 285 males and 227 females were positive. Considering monthly distribution most number of suspected cases were seen in the month of October were 312 of which 168 were dengue positive.

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.

Considering point prevalence of Chandrapur district month of October was highest and climbed up to 53.84%.

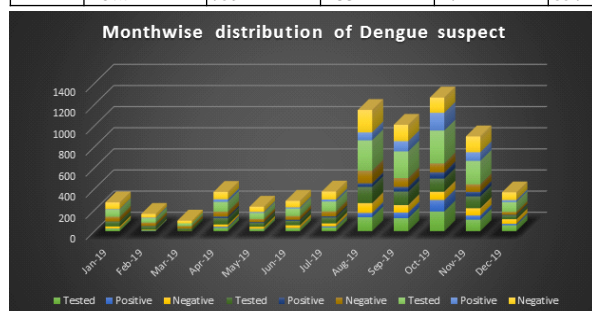
Hence prevalence of dengue for a period of 12 months (that is period

prevalence) is 31.68%.

In comparison with year 2018 where prevalence was 27.46 % there is hike of 4.22%.¹⁰

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

Sr. No.	Year-2019	No. Of Tested Sample - Male			No. Of Tested Sample - Female			No. Of Tested Sample		
		Tested	Positive	Negative	Tested	Positive	Negative	Tested	Positive	Negative
01	January	23	03	19	46	01	45	68	04	64
02	February	07	03	04	34	02	32	41	05	36
03	March	01	Nil	01	24	Nil	24	25	00	25
04	April	32	10	22	61	14	47	93	24	69
05	May	21	02	19	37	07	30	58	09	49
06	June	28	02	26	44	08	36	72	10	62
07	July	37	09	28	57	10	47	94	19	75
08	August	133	41	92	154	34	120	287	75	212
09	September	124	53	71	128	44	84	252	97	155
10	October	187	109	78	125	59	84	312	168	144
11	November	109	40	69	113	42	71	222	82	150
12	December	57	13	44	35	06	29	92	19	73
	Total	759	285	474	857	227	630	1616	512	1104



DISCUSSION:

Dengue is emerging as a vast burden on our country with all its (DEN-1-4) types being isolated from affected Indian population. The outburst in 1996 was the prime one to befall in Delhi after which massive efforts were reserved to prevent the outbreaks of the disease stating hard situation of the disease.

In the existing study, 31.68 % patients were affirmative 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 from rest of the parts of Indian continent like Bangalore, Punjab, Maharashtra etc.^{9,10,11}

Predominantly Dengue cases were observed in the month of September and October towards the end of Monsoon. This rise could be due to the fact that development of the vector *Aedes aegypti* is at its supreme during this passé of the year. Prevention and control of the disease could be managed by regulating spread of the vectors especially in remote dense forest areas of Chandrapur^{11, 12}. These actions will also reduce chances of bleeding disorders due to thrombocytopenia and worse phases of the disease spread.¹³

In current study it was observed that period prevalence of Dengue amongst males was 37.55% and in females was 26.49%. Parallel 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.¹⁴

Sex ratio amongst the seropositive patients in current study was differing nearly by 10% which is homologous to the observations seen by T. Arun demarcating more number of affected males as compared to females.¹⁵

Considering period prevalence for the year 2018 nearly 4.22% hike in the diseased population was observed in present study which could be due to improper vector control measures.

Therefore with this we conclude that Dengue cases were more towards the end monsoon season. This time period should be targeted to plan

On the other hand the period prevalence of dengue amongst the male dwellers of Chandrapur was found to be 37.55%. While in females the period prevalence was observed to be 26.49%.

special Preventive strategies like vector control and surveillance, enhanced disease surveillance, line up waste management and community education for prevention and control of the Disease.¹⁶

Existing study pulls attention toward the dengue infection are more as compared to rest of the regions with its prevalence of nearly 31% which is 4.22% more as compared to year 2018 making a calamitous epidemic in central parts of India especially in Chandrapur district. Strict action against vectors and spread could diminish the mortality and spread of dengue; which could be act beyond and well before TIME towards making a Dengue free India.

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