ORIGINAL ARTICLE

INCIDENCE AND PREVALENCE RATE OF DENGUE IN MIDDLE-INDIA, RAIGARH, CHHATTISGARH

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Abstract

The main objective of the present study to compare the incidence and prevalence rate of the dengue disease in Raigarh Chhattisgarh. The patients were assay Elisa and Rapid test, for both gender in confirmation of dengue. The assessment techniques of dengue, positive cases were involved in present study. Findings of the present study had shown that the cases of dengue are higher number of male patients in year 2017, 2018 and 2019 than the female patients, total male patients were 173(66.53%) and female patient were 87(33.47), the incidence and prevalence rate is high in year 2019(6.00%), comparison of the year, 2017(4.59%), and year 2018(4.24%). Finding of the present study concluded that the cases of dengue in year 2019 are higher than the comparison of the year 2017 and year 2018.

Keywords: Dengue fever, Incidence, Prevalence

1 | INTRODUCTION

Dengue is the most extensively spread mosquito-borne disease, transmitted by infected mosquitoes of Aedes species. Dengue infection in human's results from four dengue virus serotypes (DEN-1, DEN-2, DEN-3, and DEN-4) of Flavivirus genus. As per the WHO 1997 classification, symptomatic dengue virus infection has been classified into dengue fever (DF), dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS). The revised WHO classification of 2009 categorizes dengue patients according to different levels of severity as dengue without warning signs, dengue with warning signs (abdominal pain, persistent vomiting, fluid accumulation, mucosal bleeding, lethargy, liver enlargement, increasing haematocrit with decreasing platelets) and severe dengue [1,2,3]. Dengue fever is endemic in more than 100 countries with most cases reported from the Americas, South-East Asia and Western Pacific regions of WHO [1]. In India, dengue is endemic in almost all states and is the

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leading cause of hospitalization. Dengue fever had a predominant urban distribution a few decades earlier, but is now also reported from peri-urban as well as rural areas [4,5].

Surveillance for dengue fever in India is conducted through a network of more than 600 sentinel hospitals under the National Vector Borne Disease Control Program (NVBDCP) [6], Integrated Disease Surveillance Program (IDSP) [7] and a network of 52 Virus Research and Diagnostic Laboratories (VRDL) established by Department of Health Research [8].

In 2010, an estimated 33 million cases had occurred in the country [9]. During 2016, the NVBDCP reported more than 1,00,000 laboratory confirmed cases of dengue [6]. It is therefore possible that dengue disease burden is grossly under-estimated in India. High dengue disease burden and frequent outbreaks result in a serious drain on country's economy and stress on the health systems. In India, case detection, case management, and vector control are the main strategies for prevention and control of dengue virus transmission [6]. A new dengue vaccine is now available and several vaccines are in the process of development [10, 11, 12].

Infections can also be transmitted through blood transfusion, organ transplantation and possibly vertically from mother to child [13–17]. DENV infections often result in an acute, self-limiting, viral disease. However, the infection can be devastating and progresses to a fatal clinical disease characterized by substantial increase in vascular permeability resulting in shock [13]. Currently, DENV infection is increasingly recognized as one of the world's emerging infectious diseases [18]. Information about dengue disease burden, its prevalence, incidence and geographic distribution is necessary in decisions on appropriate utilization of existing and emerging prevention and control strategies.

Objective-

The main objective of the present study to compare the incidence and prevalence rate of the dengue disease in Raigarh Chhattisgarh.

Research design-

The present study was using in the longitudinal research design for the purpose of study.

2 | METHOD

Procedure of sampling-

The present work was carried out in patient who admitted the department of general medicine at Lakhiram Agrawal Memorial Government Medical College and Associated Kirodimal Government Hospital, Raigarh Chhattisgarh, India. In year 2017, 2018 and 2019 (months of period mostly found the dengue cases are August, September, October, November and December). Total 83 cases in 2017, 80 cases 2018 and 97 cases 2019, total 260 patients were fulfilling the inclusion criteria of the study.

Sample inclusion criteria-

All the patients were assay in the technique of Elisa and Rapid test, both sexes, positive in dengue. Total 260 dengue patients were involving in current study.

Sample exclusion criteria-

Patients does not involve in negative an Elisa and Rapid test. All suspected cases were done in both test.

Statistical analyses- purpose of the current study, the descriptive analyses had been done with the help of SPSS 22.

3 | RESULT

Findings of our study has shown below the tables-

TABLE 1: shown the dengue cases in year 2017, 2018 and 2019 IPD basis

Month	Years		
	2017	2018	2019
Aug.	0	12	3
Sept.	0	20	13
Oct.	50	10	13
Nov.	32	35	55
Dec.	01	3	13
Total	83	80	97

Table 1 reveals that the year of 2019 is higher cases diagnosed (total 97) than the year of 2017 (83 cases) and year of 2018 (80 cases), the cases were higher in month of October in year 2017, year 2018 the month

of November is higher than the other month, the year of 2019, the month of November was higher number diagnosed the dengue cases (35 cases diagnosed) than the another month.

TABLE 2: shown the dengue cases of gender wise on year 2017, 2018 and 2019 IPD basis

Years	Gender		
	Male	Female	Total
2017	53	30	83
2018	55	25	80
2019	65	32	97
Total	173	87	260

Reveals that the table 2, the cases of dengue are higher of male patients in year 2017, 2018 and 2019 than the female patients, total male patients were 173(66.53%) and female patient were 87(33.47) total number of diagnosed dengue cases were 260.

It means men are more probable for the prognosis in dengue cases.

Incidence and Prevalence rate of dengue in Year 2017-

  Total number of suspected fever cases in 2017 were 1805, all cases were analyzing the Rapid and Elisa technique, both the technique was done in conformation of dengue cases such as Rapid Test and Elissa Test.

Incidence and prevalence of dengue = number of newly detected cases of dengue, treated in IPD basis/total number of person admitted fever disease in IPD during 6-month X 100

= 83/1805 x 100

= 4.59% it is the incidence and prevalence rate of the dengue in year 2017.

Incidence and Prevalence rate of dengue Year 2018-

Total number of suspected fever cases in 2018 were 1883, all cases were analyzing the Rapid and Elisa technique. both the technique was done in conformation of dengue cases such as Rapid Test and Elissa Test.

Incidence and prevalence of dengue= number of newly detected cases of dengue treated in IPD basis/total number of person admitted IPD during 6-month X 100

= 80/1883 x 100

= 4.24%, it is clearly shown the incidence and prevalence rate of the dengue in year 2018.

Incidence and Prevalence rate of dengue Year 2019-

Total number of suspected fever cases in 2019 were 1616, all cases were analyzing the Rapid technique and Elisa technique. both the technique was done in conformation of dengue cases such as Rapid Test and Elissa Test.

Incidence and prevalence of dengue= number of newly detected cases of dengue treated in IPD basis/total number of person admitted IPD during 6-month X 100

= 97/1616 x 100

= 6.00%, incidence and prevalence rate of dengue in year 2019.

4 | DISCUSSION

Dengue is a public health problem that effects of population of both poor and as well as developing countries. In our study findings in year, 2017(4.59%), 2018(4.24%) and year 2019(6.00%), supported in the other study done by these fields such as The pooled estimate based on the seven studies conducted in India indicated a dengue seroprevalence of 57%. However, this estimated seroprevalence is not representative of the country, as these studies were conducted only in 12 Indian states, and some had used a convenience sampling method (19). The computed pooled estimate of case fatality due to dengue in India was 2.6% with a high variability in the reported CFRs. The CFR estimated study was higher than the estimate of 1.14% (95% CI: 0.82 ± 1.58)

reported in the meta-analysis of 77 studies conducted globally; in the 69 studies which adopted WHO 1997 dengue case classification, the pooled CFR was 1.1% (0.8±1.6) while the pooled CFR for 8 studies which used the WHO 2009 case definition, the pooled CFR was 1.6% (95% CI: 0.64±4.0) (20). As per the NVBDCP surveillance data, an average of 28,227 dengue cases and 154 deaths were reported annually during 2009±2012. The number of dengue cases reported increased thereafter, with an average of 100,690 cases per year during 2013±2017. However, the reported number of deaths did not increase proportionately. The information about severity of dengue cases is not available from NVBDCP surveillance data (21).

A recent seroepidemiologic survey reported high prevalence of DENV-specific IgG among febrile patients in Kassala State in Eastern Sudan, suggesting significant circulation of DENV in the area, instead of being restricted to a particular point in the past (23, 24). The recently reported high prevalence of DENV-specific antibodies in Kassala State was attributed to the constructed irrigated agricultural schemes and development of extensive urbanization. The presence of DENV-specific antibodies, and subsequent recovery of several DENV serotypes from infected patients have been reported in various regions of the Sudan (22,25).

Another studies shows the high prevalence of Dengue in the different states of the Sudan made its control a top priority. Epidemiologic studies, including implementation of improved surveillance, are extremely warranted and urgently needed for better prediction of the prevalence of this important arbovirus pathogen in the study area. The increasing incidence of dengue outbreaks in the Sudan warranted the current study to provide some information about the epidemiology of the disease in the study area. Dengue has become of great concern because of the frequent occurrence of sporadic cases and outbreaks among residents of urban areas (27, 28, 29). Dengue virus (DENV) is rapidly spreading as the result of urbanization, climatic changes and increased human movements. DENV has emerged as the most common vector-borne viral infection in the current century. The virus occurs primarily in rural areas, but has recently become of urban distribution due to development of extensive urbanization in rural areas (26), studies reported that prevalence rates of 9.4% in the same state (23, 30). In the Red Sea State of eastern Sudan, the prevalence rate was reported to be 12.8% among pregnant women (31).

5 | CONCLUSION

Finding of the present study concluded that the cases of dengue are higher of male patients in year 2017, 2018 and 2019 than the female patients, total male patients were 173(66.53%) and female patient were 87(33.47). The prevalence and incidence of dengue cases in year 2019 are higher than the comparison of the year 2017 and year 2018.

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