Research Article

DENGUE IN URBAN AREAS: IS THERE A CAUSE FOR ALARM?

[1]Dr PMP Singh and Dr Sukhmeet Minhas[2]

[1]DADH ,HQ 41 Artillery Division C/o 56 APO
[2]Officer Commanding, Station Health Organisation, Kirkee

ARTICLE INFO

ABSTRACT

Background Dengue a rapidly spreading mosquito borne disease, is now endemic in over a 100 countries all over the wor

INTRODUCTION

Dengue a rapidly spreading mosquito borne disease, is now endemic in over a 100 countries all over the world. Several fold increase in number of Dengue cases has also been reported by India in the last decade.[1,2]

The epidemiological patterns of dengue are alarming for both human health and the global economy. This is despite the fact that the global burden of the disease is not well known. Guzman MG *et al* labelled Dengue as a disease of the future owing to trends toward increased urbanization, scarce water supplies and, possibly, environmental change.[3] Dengue has historically been considered an urban disease.[4] Despite an extensive medline search, the workers observed that there was lack of adequate data pertaining to trend of dengue fever in various countries across the globe, particularly in India. This prompted the workers to analyse the trend of dengue fever in their setup.

In this paper, we aim to share our experience in cases of dengue in an urban area.

MATERIAL AND METHODS

Study design used by the workers was retrospective cohort study. The study was carried out in a ward of an urban area in India. The study was carried out from January 2014 to December 2019. The workers obtained data pertaining to dengue fever cases during the study period in the area of study. The data collected was for OPD as well hospital admission cases of Dengue which were positive for NS1 Antigen ELISA test.

Standard statistical tools like Chi Square for linear trend were utilised for data analysis.

RESULTS

Data on number of cases of dengue in the area of study during the period from 2014 to 2019 is tabulated in Table 1.Overall dengue incidence shows a significantly increasing trend during the period of study with a marginal dip in the year 2018 (Chi square for linear trend = 14.637; p = 0.01). (Figure 1). Data on disease burden/mortality attributable to dengue as a proportion of all consultations/deaths in the study area is presented in Table 2.

Over the five year period , it was observed that 03.33 % to 24.00 % of all consultations was attributable to dengue. Disease burden due to dengue as proportion of all consultations also shows a generally significantly increasing trend during the period of study with a marginal dip in the year 2019. (Chi square for linear trend = 19.613; p = 0.001) (Figure 2). Mortality attributable to dengue ranged from 00.00 % to 100 %.

Mortality attributable to dengue as a proportion of all deaths also shows an increasing trend with a slight decrease in 2017. (Chi square for linear trend = 2.857 ; p = 0.722) (Figure 3).

Corresponding author: **Dr PMP Singh**
DADH , HQ 41 Artillery Division C/o 56 APO

DISCUSSION

Dengue fever has re-emerged as a major public health problem in several parts of the world.[5,6] Harapan H *et al* reported an increasing trend of dengue hemorrhagic fever incidence in Indonesia based on data of the last 50 years. Incidence rates which appear to be cyclic, peak once every 6-8 years. On the other hand, since 1980, the case fatality rate has reduced by approximately by half each decade.[7] Maula AW *et al* also reported an increasing number of cases in Indonesia in the last decade.[8] Gubler DJ also reported resurging and emerging Dengue fever in 1998.[9] More recently Lai *et al* analysed statutorily mandated national dengue surveillance data from 1990 till 2014. Their findings, highlight urgent action required to be taken if China wishes to prevent itself from becoming another country that experiences large and frequent cycles of epidemic dengue.[10]

Hsu JC *et al* reported a 30 fold increase in the incidence of dengue in last 50 years. They assessed the trends in prevalence of dengue in Taiwan by population characteristics and geographical region.[11] Bekoe C *et al* reported an increase in the annual trend of Dengue fever from 2003 to 2015 in Thailand.[12]

Recommendations

The workers recommend that further studies on analysing the trend of dengue fever in other urban areas; and various states of India be carried out. These may subsequently be utilised to form a mathematical model to predict the incidence of dengue fever. Further studies will help to identify the "hot spots" i.e areas which have a higher incidence or an increasing trend. Thus preventive measures can be focused towards these "hot spots" to have a better preventive strategy.

CONCLUSION

The workers depict how the trend of dengue fever is increasing significantly in urban areas. The percentage of consultations attributable to dengue; and mortality attributable to dengue is also showing an increasing trend over the last five years. Is this not a cause for alarm?

Conflicts of Interest:Nil

None identified

Table 1 Morbidity amongst local population due to Dengue for the period 2014 to 2019

Year	No of Dengue cases	Population	Incidence (per100)
2014	03	0995	03.01
2015	08	1000	08.00
2016	09	1003	08.97
2017	12	1010	11.08
2018	06	1015	05.91
2019	18	1020	17.64

Table 2 Data on disease burden/mortality attributable to Dengue as a proportion of all consultations/deaths amongst local population for the period 2014 to 2019

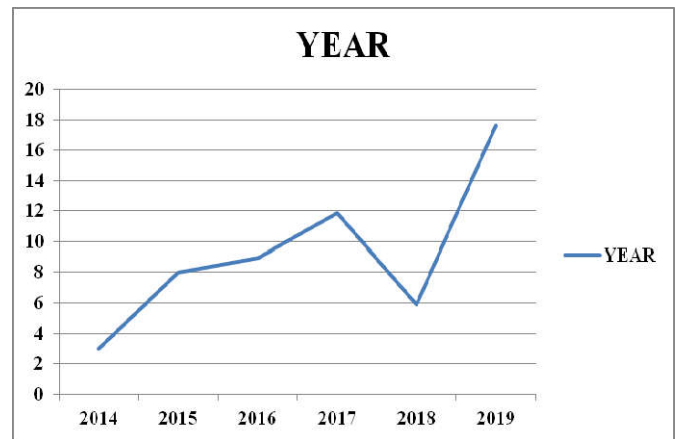| Year	Total consultations (All causes)	No. of Dengue cases	Disease burden attributable to Dengue (%)	Total Deaths (All causes)	Deaths attributable to Dengue	Mortality attributable to Dengue as a proportion of all consultations
2014	90	03	03.33	02	00	00.00
2015	76	08	10.52	01	00	00.00
2016	88	09	10.22	01	01	100.00
2017	84	12	14.28	01	00	00.00
2018	74	06	08.10	01	01	100.00
2019	75	18	24.00	01	01	100.00

Figure 1 Trend of Dengue during the period of study (Incidence per 100)
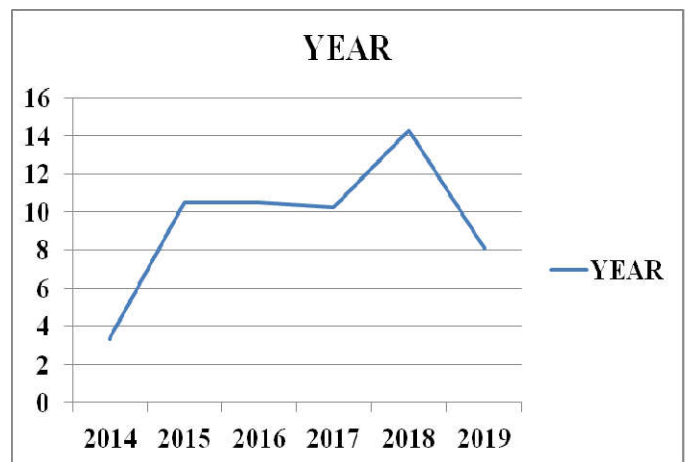

Figure 2 Disease burden attributable to Dengue as proportion of all consultations also during the period of study
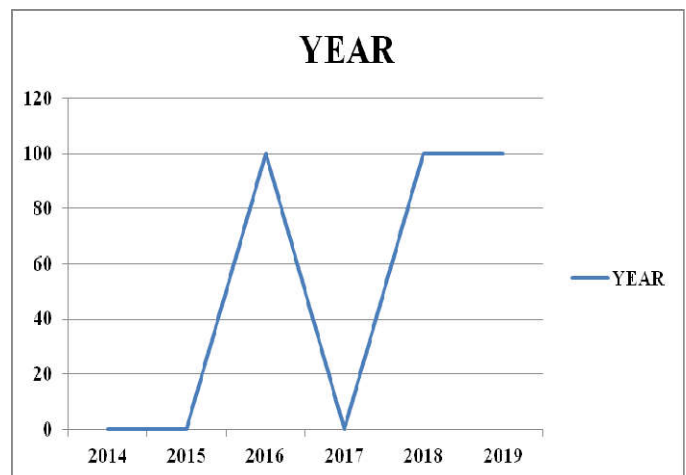

Figure 3 Mortality attributable to malaria as a proportion of all deaths during the period of study

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