Original Research Article

Trend & Pattern of Dengue Cases Admitted In a Tertiary Care Centre

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Abstract: Dengue is a major international health concern that is prevalent in tropical and sub-tropical countries. The dengue infection has caused epidemics in India which are cyclical and are becoming more frequent. Proliferation in density and geographic distribution of vector and marked increase in rate and geographic range of virus transmission have lead to resurgence of dengue in recent years. Major demographic changes such as uncontrolled population growth, unplanned urbanization resulting in substandard housing and need for water storage has greatly aided vector proliferation. To study trend & pattern of dengue cases in a tertiary care centre. The present cross-sectional study was conducted in DR.S.C.G.M.C. & hospital Nanded. Retrospective review of records of admitted patients from January 2012 to November 2014 & trend, pattern of dengue was analyzed subsequently. There is increasing trend of dengue cases from 2012 to 2014. Maximum number of cases was seen in 2014, i.e. 40 and most of the cases occurred during August to December months. Majority i.e. 86% were male & 96.6 % are having complains of fever. Early diagnosis and treatment, vector control measures should be strengthened and community awareness should be increased, during peri-monsoon period. Every case of fever should visit physician immediately to prevent complications.

Keywords: dengue, epidemic, cyclical, resurgence, trend, pattern.

INTRODUCTION

Over the past two decades there has been dramatic global increase in Dengue fever, (DF) Dengue haemorrhagic fever, and Dengue shock syndrome and their epidemics [1, 2]. The number of cases in SE-Asia increased in the last 3-5 years [3].

Dengue is a public health problem in tropical and sub-tropical countries. It is an arboviral infection transmitted to humans through the bite of an infected Aedes mosquito [1]. In India, epidemics are becoming more frequent and are straining the limited resources of the public health system [1, 2]. Dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS) are fatal forms of this disease, reported in India from Delhi, Calcutta and Chennai. The word "dengue" is derived from the Swahili phrase Ka-dinga pepo, meaning "cramp-like seizure"1. Dengue viruses (DV) belong to family Flaviviridae and there are four serotypes of the virus referred to as DV-1, DV-2, DV-3 and DV-4 [8].

In India, there is increased proportion of Dengue cases with severe disease. The dengue epidemics in India are cyclical and are more frequent, expanding geographically into the rural areas and all forms of serotypes are circulating in the community [4]. Dengue infection is a major health problem in our

country. Globally the incidence of dengue has increased in the recent years. The WHO estimates that presently about two fifths of the world population is at risk for this viral infection [5]. Dengue was first reported in 1780, when Benjamin Rush described this condition as "break bone fever". It is a mosquito borne viral infection with four serotypes causing dengue fever (DF), dengue hemorrhagic fever (DHF), and dengue shock syndrome (DSS) [6]. It is estimated that worldwide nearly 2.5 billion people continue to live at risk of contracting the infection while 50 million cases and 24,000 deaths tend to occur in 100 endemic countries. Risk of mortality in treated cases of DHF/DSS is 1% while mortality rate among untreated cases escalates to 20% [7].

The first evidence of occurrence of DF in the country was reported during 1956 from Vellore district in Tamil Nadu. Recurring outbreaks of DF/DHF have been reported from various States/UTs namely Andhra Pradesh, Delhi, Goa, Haryana, Gujarat, Karnataka, Kerala, Maharashtra, Rajasthan, Uttar Pradesh, Pondicherry, Punjab, Tamil Nadu, West Bengal and Chandigarh. Improper disposal of waste and sewage are responsible for high mosquito densities. This is the cause for post monsoon epidemics in country like India. Dengue fever is characterized by fever, headache,

muscle and joint pains, rash, nausea and vomiting. It can lead to-"classical" dengue fever, dengue hemorrhagic fever without shock, dengue hemorrhagic fever with shock. It has become a major public health concerns. About 50 million infections occur worldwide annually. There is dramatic global increase in number of dengue cases. There is 10 fold rise in India i.e. 5534(2007) to 50222 cases (2012) ; 5 fold rise in Maharashtra i.e. 614(2007) to 2931 cases(2012) in number of dengue cases in last five years as per data from NVBDCP(2012).

The rural spread of the vector is relatively recent occurrence associated with the development of rural water supply schemes, improved transport system, scarcity of water and life style changes [9]. With this background, present study was conducted to study trend & pattern of dengue patients admitted in a Tertiary Care Hospital.

MATERIAL & METHODS

This study was a hospital record based retrospective cross sectional study conducted at Tertiary Care Hospital attached to DR.S.C.G.M.C. Government Medical College, Nanded, Nanded district of Maharashtra state in India, Trend & pattern of dengue cases admitted since 2012 to 2014 (January 2012-December 2014) was recorded. Institutional ethical committee permission was taken. These patients were admitted with fever, myalgia, headache, vomiting, abdominal pain or bleeding manifestations. NS1 antigen and IgM dengue antibody was estimated using capture ELISA. A pre tested & pre structured data sheet was used as a tool for data collection. This data was entered in Microsoft Excel and analyzed.

RESULTS & DISCUSSION:

The present study shows that there is increasing trend of dengue cases from 2012 i.e. 19(10.98%) to 2014 i.e. 113(65.32%), more no. of male 95(53.75%) than female 80(46.25%).

There is a steady increase in the number of dengue patients over the past few years was noted. This is due to the rapid urbanization with unplanned construction activities and poor sanitation facilities contributing fertile breeding grounds for mosquitoes. Due to an increase in the alertness among medical fraternity following the initial epidemic and the availability of diagnostic tools in the hospital have contributed to the increased detection of cases.

Mohan Kashinkunti found that a gradual increase in cases was noticed from June with a peak in September, during all the seven years of the study [18]. Pre-monsoon increase in the number of cases was noted in the months of March and April due to the stagnation of water, after a few bouts of pre-monsoon rainfall which facilitate vector breeding. These findings highlight that preventive measures against dengue infection should be taken during water stagnation periods after the initial bouts of rainfall and at the end of monsoon.

Male patients were more in this study as compared to the study by S. Saini [12] and Ritu Karoli [13] in North India and similar to study in Karnataka by Ashiwini Kumar[10] , PM Ukey[11] in Central India. In the study by Godale *et al.;* the mortality trend was linear for the period 2005-2009. In our study there were 95 (63.33%) males and 55 (36.66%) females, with a male to female ratio of 1.73:1 [16]. Mohan Kashinkunti found that majority of the cases, 54% were males and 46% were females [18].

Table-1: Distribution of year-wise dengue cases admitted

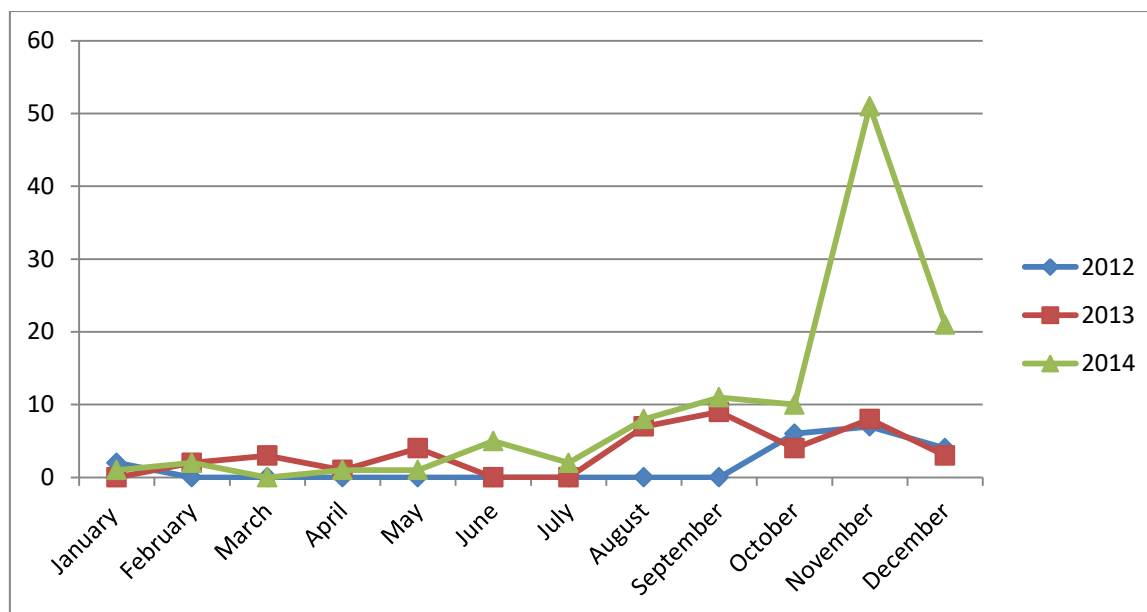| Year	Male	Female	Total
2012	15	4	19(10.98%)
2013	21	20	41(23.70%)
2014	57	56	113(65.32%)
Total	93(53.75%)	80(46.25%)	173(100%)

Fig-1: Month wise seasonal distribution of Dengue cases

There is increasing no. of cases from July onwards i.e. monsoon period in months from August to November. No. of cases were less from January to July months. The presence of stagnant water after rain fall favors the mosquito breeding which leads in an increased occurrence of dengue.

Kendre Varsha rani V in study at Latur concluded that most of the cases occurred during the period September to December i.e. 71.08% with a pick in October [9] and pick in November in 2011 & 2013. Very few cases occurred during the period January April i.e. 9.98%. Ashiwini Kumar revealed pick in September[10]. PM Ukey revealed dengue during September to November[11].

Kale AV revealed that maximum number of cases occurred during the months of October to December (59.33%), followed by July to September (30.67%) [17]. Majority of the cases were admitted in the rainy and winter (post monsoon) season, that is from June to December. Thus present study throws further light on the relation between dengue infection and the monsoon season. Similar findings have been found in studies from Ludhiana [14] Kerala [15] and Karachi. [16] This shows that the prevention measures to be taken against dengue should be aggressively followed specially during the periods of water stagnation after the initial episodes of rainfall and towards the end of rainy season as concluded by Ashwini Kumar *et al.;* [10]

Limitations of present data include leaving out all out-patient department cases. Also, entomological data could not be collected. Education and intervention strategies by government agencies could be taken into consideration for correlation and impact in future studies. Further studies need to be done on a broad scale so as to understand dengue infection in depth which can help in designing effective interventions at community level for prevention and management of dengue infection.

CONCLUSIONS

Dengue is the most common infection causing mortality and morbidity mainly among productive age group. Most of the patients were males and from rural residence. Most cases occur during post monsoon period i.e. September-December. Community awareness, early diagnosis and management and vector control measures need to be strengthened in order to reduce the increasing number of dengue cases.

Recommendations

Special preventive strategies should be planned during post monsoon period. Every case of fever should visit physician immediately to prevent complications, in rural area also.

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