

## A CASE STUDY

# Flavivirus in India : A major threat for public health and mortality

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Dengue is a mosquito borne arboviral disease caused by dengue virus, which belongs to the Flaviviridae family. It causes a febrile illness, which is usually self-limiting; but occasionally may have serious complications. It associated hypokalemic paralysis is an unusual neurological complication of dengue fever. Dengue epidemics are becoming a regular threat every few years in West Bengal, Delhi leading to significant mortality and morbidity. The objectives of this paper was to study the causes and effects of flavivirus in India.

**Key words :** Dengue, Disease, Fever, Mortality, Morbidity

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## INTRODUCTION

Dengue virus presently threatens half of the world's population and is an important public health problem in many tropical regions of the world. Geographic distribution and genetic diversity of dengue virus suggests its origin in Asia. The first reported out-break of DHF was from Philippine in 1953 (Khan and Khan, 2015). It is now endemic in more than 100 countries and the South-East Asia and the Western Pacific regions are most seriously affected (Gupta, 2010). Dengue fever, caused by a flavivirus is the most prevalent arboviral disease in tropical and subtropical regions of Asia, the Pacific and Caribbean islands and Central and South America (Ramesh *et al.*, 2014).

Dengue is known in India since 1940s, but the disease is very limited in its spread. Dengue is becoming rampant in many states of southern India. As of now, no specific treatments (therapies) or vaccines are available against the disease (Chandran and Azeez, 2015). WHO defines dengue fever as an acute onset febrile illness that lasts 2-7 days, with two or more of the following

symptoms: headache, retro-orbital pain, myalgia/arthritis, maculopapular rash, petechiae and positive tourniquet test (Singh *et al.*, 2007). About two-thirds of the world's population lives in areas infested with dengue vectors, mainly *Aedes aegypti* (Pinheiro and Corber, 1997).

Dengue infection is caused by the infectious bite of the female *Aedes aegypti* mosquito carrying the Flavivirus responsible for the pathological condition (Sahu, 2015). Approximately 2.5 billion people live in dengue-risk regions with about 100 million new cases each year worldwide. The cumulative dengue diseases burden has attained an unprecedented proportion in recent times with sharp increase in the size of human population at risk. Dengue disease presents highly complex path physiological, economic and ecologic problems (Gupta *et al.*, 2012).

## RESEARCH METHODOLOGY

The paper is based on secondary information. Information are called from published sources, like as journals, books, news papers, government reports,

magazines etc.

## RESEARCH FINDINGS AND ANALYSIS

Dengue is one of the major public health concerns and an emergent disease in India. It has endemicity in some parts of country with periodic outbreaks in the post monsoon period (Malhotra and Kaur, 2014). Dengue fever (DF) is caused by the dengue virus which belongs to the family Filoviridae. The clinical spectrum of DF ranges from an uncomplicated febrile illness to devastating hemorrhages and refractory shock (Koshy and John, 2012). Dengue fever outbreaks have mainly been reported from urban areas of India (Arunachalam *et al.*, 2004).

The rapid increase in human population, lack of awareness among people, environmental changes, social changes and increased breeding of vector mosquitoes resulted in increased dengue transmission (Malhotra *et al.*, 2014). Temperature, rainfall and relative humidity are thought as important climatic factors contributing towards the growth and dispersion of the mosquito vector and potential of dengue outbreaks (Banu, 2011).

Dengue epidemics are becoming a regular threat every few years in West Bengal leading to significant mortality and morbidity. It is generating unprecedented panic amongst the general population (Chatterjee, 2014). Dengue virus infection is endemic in Andhra Pradesh. In the year 2009, 1,190 laboratory confirmed cases of dengue fever had been reported in Andhra Pradesh with 11 deaths (Jogdand and Yerpude, 2013). Dengue is one of the most serious mosquito-borne viral infection mainly affecting tropical and subtropical countries of the world (Garg, 2011). The clinical and epidemiological profile of dengue infection is changes from time to time (Kale, 2014). Traditionally, the four dengue virus serotypes have been associated with fever, rash and the more severe forms, haemorrhagic fever and shock syndrome (Roche and Gould, 2013).

Dengue is the most common disease among all the arthropod-borne viral diseases. Due to occurrence of remarkable changes in the epidemiology of dengue, currently dengue ranks as the most important mosquito-borne viral disease in the world (Acharya *et al.*, 2005). Dengue infections vary in severity, ranging from influenza-like self-limiting illness to life-threatening dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS) which, if left untreated, are associated with mortality as high as 20 per cent (Karoli, 2012). Infection with DENV can cause a spectrum of illness ranging from no symptoms to life-

threatening dengue hemorrhagic fever/dengue shock syndrome. Dengue infection produces a self-limiting illness in humans that is often characterized by sudden onset of fever, headache, fatigue, nausea, vomiting, rash and myalgia (Dutta, 2012).

The most severe complications of dengue include dengue hemorrhagic fever and dengue shock syndrome (Verma *et al.*, 2016). Dengue has emerged as a notable public health problem in recent decades in terms of mortality and morbidity associated with it. There are many ayurvedic and natural plants and home remedies are used for cure of dengue fever they are *Neem*, coriander, *Tulsi*, dengue virus is the big problem for the human life. Dengue virus causes the dengue fever in human by the mosquito bite. Many people died by dengue fever. Then the problem is generated how to control dengue fever. There are many home remedies for control of dengue fever which can be easily obtained and cheap and also free from side effects (Singh *et al.*, 2016).

During the last 50 years a large number of physicians have treated and described dengue disease in India, but the scientific studies addressing various problems of dengue disease have been carried out at limited number of centres. Achievements of Indian scientists are considerable; however, a lot remain to be achieved for creating an impact (Gupta *et al.*, 2012). The WHO global control programme recommends the following broad guidelines for the dengue endemic countries (i) Selective integrated vector control with community and inter-sectoral participation, (ii) Active surveillance based on a strong health information system, (iii) emergency preparedness, (iv) Capacity building and training, and (v) Research on vector control (Sarin *et al.*, 1998).

## Conclusion :

Dengue is one of the most significant public health problems in tropical and subtropical countries and is increasingly being detected in traditionally non-endemic areas (Zangmo, 2015). The main causal vector for the transmission of dengue fever is mosquito *Ae. aegypti* is now well documented (Kumar *et al.*, 2015). Dengue fever is the most prevalent form of flavivirus infection in humans (Dinesh *et al.*, 2014). Dengue fever is one of the major health problem and leads to death in few cases. It is an emerging disease of tropical and sub-tropical regions, affecting urban and semi urban areas (Gnanamani *et al.*, 2013).

## LITERATURE CITED

- Acharya, A., Srinath, G. and Goswami, A. (2005).** Awareness about dengue syndrome and related preventive practices amongst residents of an urban resettlement colony of south Delhi, *J. Vect. Borne*, **42** : 122.
- Arunachalam, N., Murty, U. Suryanarayana, Kabilan, L. and Satyanarayana, K. (2004).** Studies on dengue in rural areas of Kurnool district, Andhra Pradesh, India. *J. Am. Mosq. Control Assoc.*, **20** (1) : 87-90.
- Banu S. (2011).** Dengue transmission in the Asia-Pacific region: impact of climate change and socio-environmental factors, *Tropical Medicine & Internat. Health*, **6** (5) : 598.
- Chandran, R. and Azeez, P. (2015).** Outbreak of dengue in Tamil Nadu, India, *Curr. Sci.*, **109** (1) : 171.
- Chatterjee, N. (2014).** An observational study of dengue fever in a tertiary care hospital of eastern India, *J. Assoc. Phy. India*, **62** : 12.
- Dinesh, P., Prabhu, Pranitha and Gita, S. (2014).** A case of unusual manifestation of dengue fever. *Internat. J. Sci. Stud.*, **2** (3) : 98-100.
- Dutta, P. (2012).** Demographic and clinical features of patients with dengue in Northeastern region of India: A retrospective cross-sectional study during 2009-2011, *J. Virol. & Microbiol.*, **2012** : 1-11.
- Garg, A. (2011).** Prevalence of dengue among clinically suspected febrile episodes at a teaching hospital in North India, *J. Infect. Dis. & Immu.*, **3** (5) : 85.
- Gnanamani, G., Prasad, K. N., Basavaraj, M. Ingalgeri and Kumar, P. S. Vinoth (2013).** An insight investigation of dengue fever outbreak in pondicherry. *Internat. J. Scient. & Res. Public.*, **3** (11) : 1-3.
- Gupta, N. Srivastava, S., Jain, A. and Chaturvedi, U.C. (2012).** Dengue in India, *Indian J. Med. Res.*, **136** : 373-390.
- Gupta, P. (2010).** Assessment of world health organization definition of dengue hemorrhagic fever in North India, p.150.
- Ramesh, Y., Verma, C. and Bhat, S. (2014).** Dengue fever with co-infections: A case series in children. *J. Microbiol. & Infect. Dis.*, **1**:62-64.
- Jogdand, J. and Yerpude, Y. (2013).** The community knowledge and practices regarding dengue fever in an urban slum area of south India, *People's J. Scient. Res.*, **6** (1) : 13.
- Kale, A. (2014).** Clinical profile and outcome of dengue fever from a tertiary care centre at Aurangabad Maharashtra India: An Observational Study, *J. Dental & Med. Sci.*, **13**(9): 14.
- Karoli, R. (2012).** Clinical profile of dengue infection at a teaching hospital in North India, *J. Infect. Develop. Countries*, **6** (7) : 551.
- Khan, J. and Khan, A. (2015).** Incidence of dengue in 2013: Dengue outbreak in district Swat, Khyber Pakhtunkhwa, Pakistan, *Internat. J. Fauna & Biological Stud.*, **2** (1) : 1-7.
- Koshy, M. and John, M. (2012).** Myocarditis complicating pregnancy in dengue hemorrhagic fever, *Indian J. Clinic. Med.*, **3** :17-20.
- Kumar, Sanjay, Singh, Monica and Chakraborty, Arindam (2015).** Climatic imbalance and their effect on prevalence of dengue fever in India. *Internat. J. Curr. Microbiol. Appl. Sci.*, **4** (11) : 185-191.
- Malhotra, G., Yadav, A. and Dudeja, P. (2014).** Knowledge, awareness and practices regarding dengue among rural and slum communities in north Indian city, India, *Internat. J. Med. Sci. & Public Health*, **3** (3) : 295.
- Malhotra, V. and Kaur, P. (2014).** The community knowledge, attitude and practices regarding dengue fever in field practice area of urban training health centre of Patiala, *Internat. J. Res. & Develop. Health*, **2** (1) :19.
- Pinheiro, F.P. and Corber, S.J. (1997) .** Global situation of dengue and dengue haemorrhagic fever and its emergence in the Americas. *World Health Stat Q.*, **50** (3-4) : 161- 169.
- Roche, R. and Gould, E. (2013).** Understanding the dengue viruses and progress towards their control, *Bio.Med. Res. Internat.*, **2013**: 1-20.
- Sahu, S. (2015).** Indigenous medicinal plants used for treatment of dengue fever by tribal's of Chhattisgarh (India), *Internat. J. Pharma & Bio Sci.*, **6** (4) : 404.
- Sarin, Y.K., Singh, S. and Singh, T. (1998).** Dengue viral infection. *Indian Pediatr.*, **35** : 129-137.
- Singh, J., Mittal, D., Markanda, R., Verma, A. and Garg, S. (2016).** Dengue encephalitis. *Internat. J. Med. & Dent Sci.*, **5** (2) : 1283-1285.
- Singh, S., Kissoon, N. and Bansal, A. (2007).** Dengue and dengue hemorrhagic fever: management issues in an intensive care unit. *J Pediatr.*, **83**(2): 22-35.

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