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DENGUE-CURRENT STATUS IN PAKISTAN

Shahid Raza*[1] and Saima Hanif[2]

[1]Lahore Garrison University, Lahore, Pakistan.
[2]Lahore College Woman University. Lahore, Pakistan.

***Corresponding Author: Dr. Shahid Raza**
Lahore Garrison University, Lahore, Pakistan.

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ABSTRACT

The earth's climate has always been changing. The impacts of climate change include biodiversity losses, rise in sea levels, shifts in weather patterns, changes in freshwater supply and an increase in extreme weather events such as floods and droughts as well as glacial melting and various health impacts. Major concerns are the threats to food, water, health and energy security. Pakistan is vulnerable to the impacts of climate change. Coping with '**Dengue'** correctly is biggest challenge at the moment for people of Pakistan. Subsequent infection with a different type increases the risk of severe complications. As there is no vaccine, prevention is sought by reducing the habitat and the number of mosquitoes and limiting exposure to bites. All over Pakistan the spray campaigns have been run by provincial governments to eradicate the dengue fever but Punjab government seem to be struggling in getting rid of the dengue mosquito, its told that use substandard spray material does not turned out effective in eradicating the mosquitoes in Punjab and this contributed to dengue fever outreach.

KEYWORD: The earth's climate health dengue fever outreach.

INTRODUCTION

Dengue is well known disease found to be transmitted by several species of mosquito within the genus *Aedes*. Four different types of virus were found causing different infections. Studies shown, first type usually gives lifelong immunity, but only short-term immunity to the others. Dengue fever also known as break bone fever. It is an infectious tropical disease caused by the dengue virus. Later on, the disease develops into the life-threatening dengue hemorrhagic fever (DHF), resulting in severe symptoms like bleeding, low levels of blood platelets and blood plasma leakage leading towards low blood pressure.

Treatment of acute dengue virus is supportive, using either oral or intravenous rehydration for mild disease. Similarly, in case of severity, intravenous fluids and blood transfusion is required. According to previous studies, the incidence of dengue fever has increased since the 1960s.[1] And it was observed, around 50–100 million people infected every year. Hence, studies reported that dengue has become a worldwide problem since the Second World War and is endemic in more than 110 countries.[2] In spite of the fact, it is need of time to eliminate mosquitoes, research is ongoing on a vaccine, as well as medication to kill and treat the virus.

Dengue Virus in Pakistan

The current challenge for people in Pakistan is to cope with the spread of dengue virus, which is now much common. In past, before 1970 only nine countries had experienced DHF epidemics which was escalated more than four-fold by 1995. Moreover, it is estimated that about 120 countries currently have endemic DENV transmission, 2.5 billion i.e. two fifths of the world's population is at risk of severe infection.[3] Therefore, it is observed that dengue is endemic in Pakistan with its usual peak incidence in the post monsoon period. In Pakistan, it was first reported in children under 16 years of age in 1985. In year 2003, dengue was reported in Haripur, mainly 7 deaths registered. Similarly, in Khushab, Nowshera 2500 cases reported and 11 died in the same year. In year 2004, according to survey, only 25 cases were reported from Islamabad and Karachi. In year 2005, 500 cases were reported in Karachi, out of which 13 patients died. In year 2006, 5400 cases of dengue was reported from Karachi, Sukkar, Nawabshah, Rawalpindi and Islamabad with 55 deaths. Similarly, in year 2007, 24 deaths were reported out of 2700 cases in Karachi, Hyderabad, Mirpurkhas, Lahore, Haripur, Rawalpindi and Islamabad. In year 2008, 1800 positive cases were reported in Lahore with three dengue serotypes including DEN 2, 3 & 4 and high frequency of DHF.[4,5,6]

In year 2009, overall 570 cases were reported and serotype 2 and 3 was known to be more prevalent. In year 2010, 5000 positive cases were recognized. Studies conducted in Lahore, Sheikhpura and Gujranwala on 320 patients shown that DEN 2 was the most prevalent followed by DEN virus type 1.[7,8] In Khyber

Pakhtunkhwah 25 cases were reported, out of which 3 deaths and in Azad Jammu Kashmir 5 cases were reported with similar death rate. According to some more reports, the yearly report further stated that 40 cases were reported from Hyderabad, nine from Larkana, eight from Mirpurkhas, seven from Umerkot and six from Jamshoro. Reported data shown, 6147 patients of dengue out of which 5715 belongs to Lahore city. All over Pakistan city of Lahore is found to be more active in terms of dengue outreach. Despite of several claims by Punjab government, they are not yet able to eradicate the mosquitoes from the city.

Moreover, 20 million climate refugees in Pakistan was prepared in just one incident, which is known to be 10 percent of the total global estimate of 200 million climate refugees by 2050. Climate plays a significant role in the temporal distribution of diseases that are borne and transmitted through vectors. The effects of climate change in various parts of the world help vector animals thrive in particular climate conditions. According to the World Health Organization (WHO), malaria is supposed to be most lethal disease now. However, new reports shown the world's fastest growing vector-borne disease is dengue, with a 30-fold increase in disease incidence over the last 50 years.[9]

According to the World Bank study report, rising temperatures and humidity levels are also likely to increase the transmission of vector-borne diseases such as malaria, dengue fever, yellow fever and encephalitis. Studies predicted that an increase of three to four degrees Celsius in average temperatures can double the reproduction rate of the dengue virus.

Hence, malaria is greatly influenced by changing climatic patterns and the degree of immunity among the infected people. The major climatic changes and effects on malaria on transmission are temperature, precipitation and humidity. Moreover, it was noticed that the temperature range of 20 to 30 degrees Celsius is generally optimal for the development and transmission of the malaria vector.[10,11] Mosquitoes breed in standing water and also during rainfall found to play an important role in malaria transmission.

Studies suggested, dengue virus spreads from person to person but not directly in many cases. It spreads from one person to another but via mosquito's trough following events: a) A mosquito bites a human with dengue fever and gets infection, b) Infection grows inside the body of mosquito for seven days before it can infect another human, c) After seven days of dengue virus infection growth in mosquito body. Symptoms include severe fever, headaches, muscle and joint pain. Hence, it can decrease or lessen the quantity of platelets in the patient body. Up till now, no vaccine has been designed that can cope with the dengue fever. However the dengue fever lasts about three to seven days average in patients.

Prevention and Control

Important preventive measures can be adopted to reduce the risk of getting disease. Most common includes, wearing full-sleeve clothes and long dresses to cover the limbs, use of repellents, coils and electric vapor mats. *Aedes* is a domestic mosquito and attempts at spraying pesticides on streets and around the residential areas.[12,13,14] Other innovative technologies and approaches are being tested based on behavior of *aedes* mosquito and involve use of computers. Also, there is need to conduct research in various aspects of dengue virus and mosquito vector to overcome the disease and its severity.[15,16] Moreover, the increased understanding of genetic factors that contribute to disease development and complications would also help define more clearly about populations which are at risk and also about associated factors.

CONCLUSIONS

Climate change is a global issue impacting the health and lives of the major population area indicating that the phenomenon is real. Knowledge of the health impacts associated with climate change will have limited value without effective communication and education strategies to increase public awareness and understanding of the specific risks involved and the complexity of the issues. Communication with particularly vulnerable individuals and populations, as well as with health care professionals and public health officials tasked with protecting communities needs more and further research for effective handling of this disease. If Pakistan has to control dengue viral infection, a strategy based on lessons learned from other countries is required. Also, use of latest technologies involving all the stake holders for integrated vector control and dengue case management needs to be addressed as a national policy with adequate commitment of resources.

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