A Story of the Disease Free Area to High Endemic

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ABSTRACT

The Dengue fever is a viral disease caused by dengue virus (DENV) belongs to genus flavivirus. The current study was conducted on Dengue fever in district Swat, Khyber Pakhtunkhwa, Pakistan. The aim of this study was to provide recommendations on combating the disease and to update the epidemiology, preventive and control measures. And also aware the local population and find out the ratio of occurrence of the disease. The virus infects more than 7000 thousand population of the said area. For the control of the disease proper management is needed and further studies is recommended in this aspect.

Key words: Dengue fever, Flavivirus, Epidemiology.

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BACKGROUND

The Dengue outbreak occur in August 2013 in the district Swat Khyber pakhtunkhwa Pakistan, is alarming infected thousands of people in district Swat. The aim of this editorial is to provide recommendations on combating the disease and to update the epidemiology, preventive and control measures of dengue in district Swat. In the past this area is free from the dengue. But from the last two months the high incidence of the disease were recorded and estimated that dengue virus infected more than 7000 people in this area. What is dengue fever? What is the cause? How it is transmitted? How it is prevented. Currently the dengue is one of the most significant and infectious challenge emerging vector-borne viral disease for the global public health, especially in tropical and subtropical countries [1],[2]. Every aspect of the disease continues to be a challenge. Increase in the magnitude of dengue disease due to continues to involve newer areas, newer populations which result epidemic after epidemic. The dengue fever was first referred as “water poison”. The word “dengue” is derived from the Swahili phrase Ka-dinga pepo, meaning "cramp-like seizure". In 1780, the first clinically recognized dengue epidemics occurred almost simultaneously in Asia, Africa, and North America [3]. In general use the term dengue fever came only after 1828. Dengue is an acute viral infection cause by virus known as dengue virus (DENV). There are four serotypes of dengue virus, DEN-V1, DEN-V2, DEN-V3 and DEN-V4. All the four serotype of the dengue virus cause disease from a subclinical infection to a mild self-limiting disease, the dengue fever (DF) and a severe disease that may be fatal, the dengue haemorrhagic fever (DHF)/dengue shock syndrome (DSS). In 2009, the WHO classified dengue fever into two groups: uncomplicated and severe [4]. It is small spherical, single-stranded RNA enveloped virus. The DENV is belonging to a viral family known as Flaviviridae and genus flavivirus. This DENV infects mammalian and vector cells. The female mosquito transmitted the disease from the infected person to a healthy person. The mosquito Aedes aegypti and Aedes albopictus transmitted the disease. The common symptom of the dengue is headache, prolonged fever, skin rash, muscle ache, joints pain, leucopenia and thrombocytopenia[5],[6],[7],[8].

HISTORY OF DENGUE VIRUS

In 1943, in Japan dengue virus was isolated by inoculation of serum of patients in suckling mice, while in 1944 at Kolkata the dengue virus was isolated from serum samples of US soldiers [9],[10]. In late 1940s in South East Asia the outbreak of the dengue fever were recorded. From most countries in the American
region during 1950-1970s, dengue was eliminated [11]. Nevertheless, in 1980s, the dengue has re-emerged globally and has rapidly become a major public health threat in Asia Pacific and South America. Currently the dengue fever is endemic to more than 100 countries and approximately, 2.5 billion populations at risk. Out of the total cases World wide the 70% of the dengue fever occurs in Asia and the Pacific, followed by the Americas, the Middle East and Africa [8],[12].

Globally estimated at around 50-100 million people were infecting annually, with 500,000 severe cases accounting approximately 12,500 deaths [14]. The re-emergence of dengue the exact reason is not fully understood. However, rapid increases in population density and unplanned urbanization, poor public health infrastructure, lack of effective vector control systems, poor socio-economic status and climate change and extreme weather events, have been identified as some of the key determinants [8],[13].

### PREVALENCE OF DENGUE VIRUS IN PAKISTAN

In last 20 years at least seven dengue epidemics have been reported from Pakistan [14],[15],[16],[17],[18],[19],[20]. In Pakistan the first epidemic of dengue fever was reported in 1994. In 1995, the 75 cases and 57 deaths were reported in Hubb, Baluchistan [16]. In Haripur the 1000 cases and 7 deaths were registered in 2003. While in the same year in Nowshera, Khashub 2500 cases of dengue were reported along with 11 deaths. From Islamabad and Karachi only 25 cases were registered in 2004. While in 2005, in Karachi 500 cases of dengue with 13 deaths were recorded. The dengue is the most important mosquito borne viral disease affecting humans in 2005 [21]. In 2006, 5400 cases and 55 deaths were reported from Karachi, Islamabad Rawalpindi, Sukkar and Nawabshah [22],[18]. In 2006, the outbreak of dengue occurs in Karachi. In 2007, 2700 cases and 24 deaths were reported in Karachi, Hyderabad, Mirpurkhas, Lahore, Haripur, Rawalpindi and Islamabad. In Lahore the 1800 positive cases of dengue were recorded in 2008 [20],[23].

In 2010, 5000 positive cases were documented from Lahore, Sheikhpura and Gujranwala, while in federal capital Islamabad 35 cases of dengue along with one death. In the Khyber Pakhtunkhwa 25 cases of dengue with 3 deaths were recorded and in Azad Jammu Kashmir 5 cases were registered [24]. In October 2010 the dengue Surveillance Cell Sind province of Pakistan reports 1,809 suspected dengue cases out of which 881 confirmed with 5 deaths while, in Islamabad the 16 confirmed cases were recorded without any death [23]. More than 21204 people were infected in November 2010, the infected patients are mainly from Punjab, Pakistan. In 2011, more than 20,000 cases of dengue and 300 deaths were reported in Pakistan [25],[26].

In Pakistan dengue virus is now increasingly becoming an epidemic, circulating throughout the year with a peak incidence in the post monsoon period. In 2011, the disease spread more rapidly than in previous years because due to high cost of treatment. Socio-economic condition, flood and war in Pakistan made the situation worse. Due to the high cost of treatment, the disease spread more rapidly in 2011 than in previous years. The Pakistan is at high risk of dengue fever hit by large epidemics, because of many factor are involved in spread of disease like unsafe drinking water, inadequate sanitation, over crowded cities, costly treatment, ignorance of disease, lack of knowledge regarding the disease, poverty, insufficient health facility, low vaccination coverage and large number of refugees. These factors promote the spread of infectious disease due to which every year large number of epidemics/outbreaks occur in different parts of the country. As a result the rate of morbidity and mortality are increased.

### DENGUE VIRUS IN DISTRICT SWAT

Currently the dengue is a challenge for Pakistan, the recent outbreak is occurred in district Swat. The dengue virus infects more than 7000 people along with 3 Doctors and at least 26 deaths in Swat district from the last two months till it 15 October 2013. Out of the total cases the male were more as compare to female. Every day hundreds of people admitted in the hospitals. Over two thousand patients have been discharged from Saidu Sharif hospital and over 100 are still undergoing treatment. The dengue also infects the Tehsil Khwaza Khela, Tehsil Kabal and Tehsil Mata of Swat district. But the high burden of the dengue were found in (Saidu, Ghumbat Mera, Rang Mala, Aman Koat, Boot Kada and Naway Kalay) Mingora city [27],[28],[29],[30]. The dengue cases are also recorded in Bakhela, Malaknad Agency and district Dir (Lower). The cases recorded in Bakhela shows traveling history to district swat.

The Government of Pakistan and other Organization needs to focus on the disease. Nevertheless, it is an infectious disease if a proper measurement is not done immediately by the Government of Pakistan, Provincial Government of Khyber Pakhtunkhwa and local authority of district Swat. As a result the rate of morbidity and mortality will be increase and the disease will be spread to other area of the country.

### RECOMMENDATION

The following step should be taken by the local population to prevent the dengue from spreading.
1: Awareness regarding the disease is needed.
2: The people should adopt the protective measures for the control of disease.
3: Use of anti-mosquito’s/ mosquito’s coils/ mosquito’s nets.
4: Wear full clothes, shoes and socks.
5: Cover water tank/container.
6: Close window/door in morning and evening time.
7: Remove all stagnant sources of water.

The Government should take the following step to control the disease from spreading
1: Arrange the public awareness programs and seminar about the disease.
2: Anti-mosquitoes spray should be done.
3: The staff should be trained in this matter.
4: For the reduction of disease Filter clinic should be established.
5: Make sure that the Treatment centre should be open 24 hours. And most important On-going public awareness campaign need. For the control of dengue the vector reduction is the most important measure but the strategies differ from the ones which are employed for malaria control.

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