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DENGUE FEVER OUTBREAK IN DISTRICT SWAT

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Dengue Fever is endemic in Pakistan since its first outbreak in Karachi in 1994.Since then cases are regularly reported each summer and the province of Punjab has witnessed major out breaks in 2006 and 2011. In 2013 both karachi and Rawalpindi suffered small scale outbreak. The beautifully valley of Swat having gone through some very difficult period of its history in 2007-09 (Talibanization) and then 2010(Floods) was hit by yet another natural calamity in the form of an outbreak of Dengue fever in 2013. It started in the mid august in the urban settings of Mingora and surrounding union councils and escalated to the peak in Mid Septemberr with a gradual decline till a last reported case on 21s November. More than 9000 persons had confirmed dengue fever and among them 37 confirmed death with mortality of 0.33 percent.(unpublished data on record). This outbreak had a catastrophic effect on the healthcare services of Mingora-saidu sharif as there is only one major health facility in the epidemic hit area. It stretched to its maximum with exhaustion of all its resources resulting in the sufferings of non-dengue patients. The only Teaching Hospital of the area was converted to a Dengue Hospital and the services it has delivered during that critical period have become part of the history. Many lessons should be learned from this unprecedented event and future strategy be evolved. This was a test case and eye opener for all the stake holder to sit together and think seriously about all the epidemic prone diseases and make comprehensive plans for the future to be implemented effectively in the need of hour.

The global burden of dengue is large; an estimated 50 million infections per year occur across more than 100 countries, with potential for further spread[1]. Central to the emergence of dengue as a public health problem has been the spread the mosquito vectors *Aedes aegypti* across much of the tropical and subtropical world. The primary vector, the urban-adapted mosquito, has become widely distributed across tropical and subtropical latitudes. In addition, the geographic range of a secondary vector, *A. albopictus,* has dramatically expanded in recent years. Dengue Fever emerged from Africa during the slave trade in the 15th through 19th centuries, spread into Asia through commercial exchanges in the 18th and 19th centuries, and has spread globally with the advent of increased travel and trade in the past 50 year. [2,3]Globalization of trade, in particular the trade of tires from used vehicles, is thought to explain the dispersal of eggs and immature forms of these arboviral vectors into new territories' Endemicity has also been facilitated by rapid urbanization in Asia and Latin America, resulting in increased population density with an abundance of vector-breeding sites within crowded urban communities and the areas surrounding them.

Vector control, through chemical or biologic targeting of mosquitoes and removal of their breeding sites, is the mainstay of dengue prevention, but this approach alone has failed to stop disease transmission in almost all countries where dengue is endemic. Antigenic diversity of the dengue virus is important, since the lack of long-term cross-immunity among the four virus types allows for multiple sequential infections.

Thus, the spread of dengue illustrates how global trade (and the transport of the mosquito vectors), increasing travel within and between countries (and the movement of viremic people), urban crowding (which is conducive to multiple infections from an infected mosquito), and ineffective vector-control strategies have supported a pandemic in the modern era. With the increasingly global spread of dengue, practicing physicians in any part of the world should keep it in differential diagnosis in any patient presenting with fever that has developed within 14 days after even a brief trip to the tropics or subtropics.[5,6]

The dynamics of dengue viruses within urban and endemic populations are complex, involving the birth and death of viral lineages. Although dengue has emerged in multiple new territories over the past 40 years, the viruses themselves are paradoxically "local" in their evolutionary histories, suggesting that the global dispersal of dengue virus has occurred in relatively infrequent "jumps," most likely by the movement of viremic humans to new geographic settings with a suitable vector and a susceptible population.[7,8]

As there is no specific drug available, the main focus of research are the vaccines and several of them have been developed with limited efficacy It has been difficult to develop a vaccine for dengue that is safe and elicits balanced neutralizing antibody responses to all four serotypes. However, in the past 5 years, remarkable progress has been made and multicenter phase 23 clinical trials are under way that are designed to determine the efficacy of these vaccines. The leading dengue vaccine candidate, ChimeriVax (Sanofi Pasteur), is a tetravalent formulation of attenuated yellow fever 17D vaccine strains expressing the dengue virus prM and E proteins[9]. Other candidates in early phases of clinical development include vaccines containing live attenuated dengue viruses and recombinant subunit vaccines.[10]

With our current status of understanding of this Disease and vaccine development as a distant future possibility, we should be concentrating on how best we can use our current resources to combat this deadly infection. The curative task should focus on efforts to improve treatment through application of existing best practices in triage and fluid management through proper training of all concerned .Along side, in our own universities and setup; we must aim to develop new antiviral or other therapeutic drugs. Similarly, innovative approaches to preventing transmission of the virus, such as through modification of mosquito populations, should be fostered. An improved understanding of the current epidemiology of the disease and the potential for its future spread would also assist policymakers in allocating resources to combat this global public health challenge.

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