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Review Article

**CONTROLLING OF DENGUE FEVER IN PAKISTAN:
A REVIEW STUDY****¹Dr Naheed, ²Dr Shazia Munawar**¹Quaid-e-Azam Medical College Bahawalpur, ²Services Institute of Medical Sciences Lahore.**Article Received:** November 2019 **Accepted:** December 2019 **Published:** January 2020**Abstract:**

In recent years, dengue has become a shared infection transmitted by mosquitoes, one of the main international health problems. In broad spectrum clinical manifestations, symptomatic dengue virus can occur from gentle febrile sickness to hazardous shock disorder. As a contribution to the manifestation of the disease, both the viral factor and the host have an important role in each infection. It is significant to realize the burden of mortality and morbidity in health care. Early intuition and dengue fever diagnosis in primary health care services can minimize complications if managed appropriately. We must apprehend the intensity of the complication in relation to clinical picture, treatment, transmission, diagnosis and prevention.

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INTRODUCTION:

Dengue fever is commonly a mosquito bite disease and is a main health issue in subtropical and tropical regions of the world. Benjamin Rush first defined the word dengue in 1789, a Spanish word that means "fastidious", derivative of the word "dinga", which means the break bone fever and the evil of the soul. The Flavivirus and Flaviviridae family of mosquitoes are the causative agent of dengue fever. An infected female mosquito transmits the dengue virus in humans which belong to genus *Aedes*. Dengue fever represents an extensive series of clinical manifestations, comprising mild fever to severe forms (Keating J. 2001, 1587-97). Dengue Shock Syndrome (DSS) and Hemorrhagic Dengue (DHF) are the worsening form of Dengue. The common clinical symptoms of dengue fever are severe headache, vomiting, joint and muscle pain, nausea and rash. High fever and hemorrhagic phenomena are the features of DHF. Dengue is the foremost reason of hospitalization, and severe dengue fever manifests about 500,000 people which need hospitalization, dominated by children, with about 2.5% of affected people dying annually.

In the world; the most usual infection transmitted by mosquitoes is Dengue virus.

These infections may or may not be dominant, and may also cause dengue hemorrhagic fever, undifferentiated fever, dengue fever (DF) or dengue shock syndrome (DHF / DSS). Four related but antigenically identified viruses are DEN 1, 2, 3 and 4 which causes DF. Dengue fever is an acute febrile condition. *Aedes* mosquitoes are the most important vector of the virus in humans. This virus affects the population in a wide spectrum and causes a very high mortality rate.

In tropical and subtropical regions of more than 100 countries, approximately 3 billion people are more likely to develop DV infection. Some common clinical features of patients suffering from DV infection are; lymphoma, leukopenia, lymphocytosis, high hematocrit and thrombocytopenia. Different serotypes due to secondary infections are responsible for primary infections and are considered as major elements in the epidemiology of DH / DSS. Early detection of dengue fever requires a more accurate and cost-effective diagnostic test. Many are practically available for dengue infection (Zhang B, Salieb-Beugelaar GB, Nigo MM, Weidmann M, Hunziker P.2015, 1745-61.) (Guzman MG, Kouri G. *J Clin Virol* 2003; 1-13). Delayed diagnosis and failure to detect impediments may lead to worse results.

Local Prevalence:

In Pakistan, first dengue outbreak was reported in 1994. The outbreak in India and Sri Lanka was related with many serotypes of dengue virus, but DEN-3 was dominant and was different genetically from DEN-3 viruses which was isolated previously from people who were infected in these kingdoms. (Kumar K, Singh PK, Tomar J, Baijal S. *Med* 2010; 997-1000). Dengue virus is native to Pakistan, spreading throughout the year with maximum spread after monsoon. The recent floods in Pakistan have exacerbated the situation. Pakistan, 1809 indefinite dengue 881 approved by October 11, 2010, 5 dead cases reported, 15 were found to be deadly in Islamabad turned out to be confirmed. In primary health care units, mild to moderate fever is considered assumption of dengue. Investigators have determined that the co-circulation of DEN-2 and DEN-3 is liable for the outbreak in 2006 in Karachi. In both groups; Primary and secondary cases were identified. DHF cases exhibit a marginal relation with DEN-2. The new serotype introduction (DEN-3) and / or a genotypic change of the endemic serotype (DEN-2) are possible factors for the outbreak of DHF in this section (Gibbons RV, Vaughn DW. 2002; 1563-6).

Clinical features of DF:

Most of the presented clinical cases are asymptomatic, with the disease starting from a mild flu to severe conditions such as vascular leakage, bleeding and even shock. DF is also known as febrile disease. Half of the patients have skin problems, while the fever stays between 5 and 7 days. A common symptom that appeared during the first 24-48 hours was flushing of face. Maculopapular or petechial rash occurs in patients during suspension (WHO. *Managing Regional* 2013; RPT125191-2.). Clinical symptoms included fever, headache, leukocytopenia, pain and rash in the muscles and bones. Because of obdurate pain, DF is also called as break bone fever. Pal et al discovered a significant relationship between dengue virus burden (VL) and interferon-gamma level (IFN-g). They determined that there is a strong association between fever, nausea, rash and pain, aches, leukopenia and persistent vomiting (Ooi EE, Goh KT, Gubler DJ. 2006; 12: 887-92).

Pathophysiology:

Dengue fever arises from 4 antigenically dissimilar dengue virus serotypes: DENV-1, 2, 3 and DENV-4. Four types of viruses can cause serious diseases. These include West Nile virus, yellow fever virus, Louis Flaviviridae / family including the encephalitis

virus and Japanese encephalitis virus are members of the genus *Flaviviridae* (Rigau-Pérez JG, Clark GG, Gubler DJ, Reiter P, Sanders EJ, Vorndam AV. 1998; 971-7). *A. aegypti* is the primary vector responsible for infection spreading, extremely domesticated mosquito bitten during the day, and *albopictus* is responsible for infection. Although mosquitoes are of Asian origin, they are currently reproduced in Africa, Europe and America. Both the vector and the virus have been transmitted through international travel and freight transport (Wasay M, Channa R, Jumani M, Zafar A. 2008; 488-9). Virion consists of a lipoprotein envelope, 3 structural proteins and 7 non-structural proteins in which the non-structural protein 1 (NS1) has pathological and diagnostic significance. With any type of serotype infection delivers long-term immunity to this specific serotype; however, cross-protection with other serotypes persists solitary for some months [Siddiqui FJ, Haider SR, Bhutta ZA. 2009; 3: 306-12]. Some analysis have revealed that with the DENV-1 or DENV-2 serotype infection may lead to a much serious infection. Pathogenesis is related to the host's immune response. [Rasheed SB, Butlin RK, Boots M. 2013; 127:11-7] Primary infection is mostly benign. However, secondary infection with multiple infections or different serotypes may cause a serious infection which may be categorized as dengue shock syndrome or dengue hemorrhagic fever according to clinical findings. Dendritic cells have a part in the pathogenesis of antigen presenting with cell-mediated immune response and humoral immune response (Khan E, Hasan R. 2011; 26: 1-). The memory T cells proliferation and pro-inflammatory cytokines production lead to dysfunction of vascular endothelial cells, leading to plasma leakage.

Primary prevention:

The World Health Organization commends approaches for the control and prevention of dengue infection, and establishments in the endemic areas of dengue can also produce their own initiatives and prevention programs. Communities in dengue endemic areas should be trained to recognize signs and inhibit transmission (Ashley EA. 2011; 1: 39-41).

Secondary prevention:

The different serotypes may leading to secondary infections. After recovery from the initial infection, the standard primary prevention measures must be taken.

Management:

Treatment is absolutely supportive, such as keeping the body temperature below 39 ° C and giving the patient paracetamol (up to four times per 24 hours).

Patients are advised to avoid aspirin or Brufen / Ponston. It recommends drinking liquids containing water, soup, milk and fruit juices. The patient should rest. If the fever persists for three days, CBC should be performed to prevent deterioration of the condition, even if the dehydration is absent. Intravenous fluid should be administered to patients in whom lifesaving is required if administered at the right time (Oishi K, Saito M, Mapua CA, Natividad FF. 2007; 13: 125-33).

Health education and Prevention:

Health professionals are capable of providing extensive care program for many patients, Adequate training resources and expert advice are provided if necessary. Primary health care professionals and nurses can play an important role in hygiene and health education [Pal T, Dutta SK, Manda S, Saha B, Tripathi A. 2014; 61: 365-70]. Popular sources of information, such as television and newspapers, must be used to spread a wide range of information (Premaratna R, Bailey MS, Rtnasena BGN, de Silva HJ. 2007; 101: 683-5).

Protection against mosquito bites should be done using long-sleeved clothing and long clothing to cover the use of repellents, electric steam mats and mosquito coils throughout the day. In order to protect pregnant women, young children and the old persons, there are nets treated with insecticide (ITN), among others, which can be rested during the day. Water-containing objects such as tanks, drums, drums, buckets, air coolers should be emptied and the plants removed from the house when not in use. Stored water containers should be properly covered each time.

(Jardim DL, Tsukumo DM, Angerami RN, Carvalho Filho MA, Saad MJ. 2012; 16: 92-5) To prevent access by laying eggs from female mosquitoes, proper disposal of solid waste is encouraged and water storage practices are developed, including container coverage through community programs (Aneja VK, Kochar G, Bisht N. 2010; 7: 69).

Suggested measures to improve the situation:

To reduce the prevalence and number of disease-related deaths, the carrier should have early detection and control and improve the clinical management of DF. Currently, the most important element is not only the opinion of the community, but also for medical health professionals working in Pakistan, a good understanding of the disease, so that those who complain of symptoms Probably DF is properly managed. Standard care can be provided by health professionals following the development of a

protocol. In order to do so, the Pakistani government needs to deploy personnel and mobilize strategies.

The population living in Pakistan faces great difficulties in accessing medical care and is becoming more difficult where the population is based in rural areas. A strategy should be made to ensure effective treatment in all areas. It is important to address the power and perspectives of social and general media, whereas the ability to absorb the maximum knowledge of the given information largely depends on the level of literacy in rural areas.

Literature mainly deals with the data of the big city population. In fact, this does not give us a real picture of the real burden of the disease. We can certainly hypothesize from the data provided, but an even more complete epidemiological study and the use of electronic patient registration systems will provide accurate information to help adequately address scarce resources. To address the DF outbreak, there should be strategies, such as nationalized forms with management plans, the deployment of equipment required for diagnosis and treatment at national level, and consistent recruitment and placement at times of outbreaks. In addition, resources should be allocated to monitor DF levels when there is no outbreak; Investigating and understanding outbreak patterns can also help direct resources and mobilize staff and team appropriately. The vector control is a signal, and the calculation must be performed with the closely monitoring to control the vector. The prevention strategies proposed by the World Health Organization (WHO) differ fundamentally in vector control. Although persistent or well-financed programs are difficult to implement, this will be the main suspension of preventive measures due to political and sectarian violence in Pakistan. Of course, water systems need to be improved to improve the trajectories and the welfare of the country, but this can be an important task. In addition to improving street cleanliness and better collection of household waste, there are other major problems. Immediate or simpler options may be, for example, to change the market coding to ensure that all water containers are sold with airtight closures.

CONCLUSION:

Doctors play a vital role in the care, promotion and identification of the symptom of immediate bleeding, a serious consequence of dengue fever, and therefore refer to tertiary care to replace intravenous fluids, platelet transfusion and supportive care is required. Public awareness campaigns should start at all levels. Doctors in professional health care institutions have the opportunity not only to offer their patients the

best possible supportive care recommendations, but also to improve dengue and vector control spread.

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