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Epidemiology of Dengue Fever

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Introduction

Dengue fever is the world's fastest-spreading mosquito-borne viral disease, transmitted primarily by Aedes aegypti and Aedes albopictus. It strikes unexpectedly and with a high rate of occurrence, resulting in large-scale outbreaks and major public health problems. Severe dengue is associated with a substantial risk of death through bleeding or shock. However, there were no specialised antiviral medicine treatments available, and the licenced vaccination was causing concern due to an antibody-dependent impact that raised the likelihood of hospitalisation. Despite significant efforts in research and control techniques, fast spread continues, resulting in a significant economic burden.

Description

Furthermore, extensive studies have contributed to its epidemiology over the last few decades, including disease burden and distributions, risk factors, and control and prevention practises. We give an updated evaluation that provides an integrated overview to help improve disease detection. The pathogen dengue virus can cause a wide range of infections, from unnoticed, subclinical infection to symptomatic infection, and from mild, typical dengue to severe dengue hemorrhagic fever and dengue shock syndrome, both of which can result in death.

Dengue-related infections with no clinical symptoms account for the majority of dengue-related infections. After a 3–15 day incubation period, apparent infections manifest as cases, followed by acute onset. Flu, colds, and other acute febrile disorders must be distinguished from mild illness. Classical dengue fever symptoms include acute fever, headache, rash, myalgia, arthralgia, thrombocytopenia, and leukopenia, as well as a greater number of clinic visits. They can have three different forms, including febrile, critical, and recovery periods. Hypovolemic shock, organ failure, metabolic acidosis, disseminated intravascular coagulation, and severe bleeding can develop during the defervescence phase, with increases in capillary permeability and hematocrit value due to plasma leakage. Hepatitis, neurological problems, myocarditis, and shock are all possible side effects of severe dengue. Depending on age, viral serotype and genotype, comorbidities, infection history, and antibodies, the natural fatality rate can approach 20% without effective clinical treatment [1,2].

The fatality rate, however, was reduced to 1% with proper symptomatic and supportive care. In the two years following the illness, 57 percent of adults experienced arthralgia and fatigue. Dengue co-infections with malaria, HIV, zika, chikungunya, and several DENV serotypes have been described, offering a significant diagnostic and treatment challenge. Diagnosis of DHF needs hemorrhagic tendencies, thrombocytopenia, and plasma leakage, albeit instances without these key criteria are likely to be misdiagnosed. Severe plasma leakage, shock, respiratory distress, severe bleeding, and major organ damage were all listed as criteria for severe dengue in the 2009 WHO recommendations. The 2009 guidelines enhanced the diagnostic sensitivity of severe dengue fever when compared to the 1997 guidelines. 8–10 A novel approach of early detection of dengue cases is currently required due to a paucity of laboratories and health facilities. Under the present case definitions, several cases of mild disease have gone undiagnosed or recorded. As a result, future multicenter studies must continue to work to strengthen classification diagnostic criteria. Dengue fever is the second most serious vector-borne disease in the world, after malaria, in terms of incidence and mortality rate. Except for the cost of vector control, the economic burden of dengue fever has surpassed the cost of other viral illnesses in five American countries, including Brazil, El Salvador, Guatemala, Panama, and Venezuela, and three hyperendemic Southeast Asian countries, including Cambodia, Malaysia, and Thailand. The annual burden has reached 950 million USD in Bhutan, Brunei, Cambodia, East Timor, Indonesia, Myanmar, Philippines, Singapore, Vietnam, and the Chinese province of Taiwan [3,4].

Dengue fever has a disease burden of up to 25.5 disability-adjusted life years per 100,000 people. However, the incidence and economic burden of illnesses that are not visible and inadequately reported are not well estimated. Dengue fever is a year-round disease in tropical and subtropical climates, and it is strongly linked to temperature, rainy season, and vector seasonality. The epidemic peak varies depending on the physiographic settings. The time of imported cases determines the peak in non-endemic places. Peak season in Thailand and Myanmar is from May to October, while in Malaysia and Vietnam it is from June to December. Peak season in Central and South America is during the rainy season, which runs from February to May in Brazil and July to December in Puerto Rico. Guangdong's peak season is from June to November, whereas Guangxi, Yunnan, Fujian, and Zhejiang's high season is from July to October. DENV's primary amplifying hosts are humans. Cases are the main source of infection, with a communicable period ranging from pre-one day to post-five days from the commencement date, during which Aedes bites spread virus to healthy persons. Furthermore, once infected, the person has a 50% chance of developing an undetectable infection. The ratio of undetectable to detectable infection was 2.2:1. 33 Infections that aren't visible play an important part in the spread of disease [5].

Conclusion

Because the source of infection in jungle epidemic zones is localized in Southeast Asia, nonhuman primates such as chimps, gibbons, and macaques are key natural reservoirs. Storage and diffusion hosts include monkeys, bats, pigs, and chickens. Aedes in the summit of the jungle can spread virus among monkeys and eventually contact humans, causing disease.

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Acknowledgement

Conflict of Interest

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