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Dengue Fever and its Fatality in Human: A Review

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Abstract

Dengue fever, also called breakbone fever (associated muscle and joint pains), is caused by the dengue virus and is a mosquito-borne tropical disease. Symptoms in infected humans are similar to measles which include fever, headache, muscle and joint pains, and a characteristic skin rash. Sometimes, it develops into grievous dengue hemorrhagic fever which is a life-threatening disorder. In severe cases, it results to dengue shock syndrome like bleeding, low levels of blood platelets and blood plasma leakage.

Key-Words: Dengue fever, Dengue shock syndrome, Symptoms, Transmission

Introduction

An infection can be acquired through a single mosquito bite both in human and in non-human primates. Several species of mosquito within the genus *Aedes*, principally *A. aegypti* are responsible for transmission of Dengue. They typically bite during the day, particularly in the early morning and in the evening. [1, 2] and can transmit the infection throughout the year. Other *Aedes* species that transmit the disease include *A. albopictus*, *A. polynesiensis* and *A. scutellaris*. [3] There is no commercially available vaccine against the disease. Prevention is sought by reducing the habitat and the number of mosquitoes and limiting exposure to bites. The virus has five different types. [1] Lifelong immunity is assured with infection with one type with short-term immunity to the others. Subsequent infection with a different type increases the risk of severe complications.

Treatment of acute dengue is supportive which includes intravenous fluids and blood transfusion, using either oral or intravenous rehydration for mild or moderate disease, and for more severe cases.

Symptoms of the disease

Typically, people infected with dengue virus show mild symptoms such as an uncomplicated fever and are mostly asymptomatic (80%) [3-5]. In other forms of the disease more severe illness develops (5%) and in a small proportion it is life-threatening. The incubation period (time between exposure and onset of symptoms) most often is 4 to 7 days and ranges from 3 to 14 days. [6] Children often experience symptoms similar to those of the common cold and gastroenteritis (vomiting and diarrhea) and have a greater risk of severe complications, [7][8] though initial symptoms are generally mild but include high fever. [9]

The course of infection is divided into three phases: febrile, critical, and recovery. The characteristic symptoms of dengue are sudden-onset fever, headache (typically located behind the eyes), muscle and joint pains, and a rash.

The febrile phase involves high fever, potentially over 40 °C (104 °F), and is associated with generalized pain and a headache; this usually lasts two to seven days. Nausea and vomiting may also occur. A rash and petichiae like red erythematous spots occurs in 50–80% of those with symptoms. The fever itself is classically biphasic or recurrent in nature [11].

Clinical diagnosis

Virus isolation in cell cultures, nucleic acid detection by PCR, viral antigen detection (such as for NS1) or specific antibodies (serology) are the tests employed for diagnosis of dengue fever. Virus isolation and nucleic acid detection are more accurate than antigen detection [12],

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Prevention and control

The primary method of controlling *A. aegypti* is by eliminating its habitats by spraying organophosphate or pyrethroid insecticides or biological control agents in open stagnant water. Generalized spraying with organophosphate or pyrethroid insecticides, while sometimes done, is not thought to be effective. People can prevent mosquito bites by wearing clothing that fully covers the skin, using mosquito netting while resting, and/or the application of insect repellent (DEET being the most effective). [13]

References

1. Normile D. Surprising new dengue virus throws a spanner in disease control efforts. *Science*. 2013; 342 (6157): 415. doi:10.1126/science.342.6157.415
2. WHO. Global Strategy For Dengue Prevention And Control. World Health Organization. 2012; pp. 16–17. ISBN 978-92-4-150403-4.
3. Reiter P. Yellow fever and dengue: a threat to Europe? *Euro. Surveill*. 2010; 15 (10): 19509.
4. Ranjit S, Kisooson N. "Dengue hemorrhagic fever and shock syndromes". *Pediatr. Crit. Care Med*. 2011; 12 (1): 90–100. doi:10.1097/PCC.0b013e3181e911a7.
5. Varatharaj A. Encephalitis in the clinical spectrum of dengue infection. *Neurol. India*. 2010; 58 (4): 585–91. doi:10.4103/0028-3886.68655.
6. Simmons CP, Farrar JJ, Nguyen vV, Wills B. Dengue. *N. Engl. J. Med*. 2012; 366 (15): 1423–32. doi:10.1056/NEJMra1110265
7. Chen LH, Wilson ME. "Dengue and chikungunya infections in travelers". *Current Opinion in Infectious Diseases*. 2010; 23 (5): 438–44. doi:10.1097/QCO.0b013e32833c1d16.
8. Wolff K, Johnson RA (eds.). *Viral infections of skin and mucosa. Fitzpatrick's color atlas and synopsis of clinical dermatology (6th ed.)*. New York: McGraw-Hill Medical. 2009; pp. 810–2. ISBN 978-0-07-159975-7.
9. Knoop KJ, Stack LB, Storrow A, Thurman RJ (eds.). *Tropical medicine. Atlas of emergency medicine (3rd ed.)*. New York: McGraw-Hill Professional. 2010; pp. 658–9. ISBN 0-07-149618-1.
10. Gould EA, Solomon T. Pathogenic flaviviruses. *The Lancet*. 2008; 371 (9611): 500–9. doi:10.1016/S0140-6736(08)60238-X
11. WHO. Vector-borne viral infections. World Health Organization. Retrieved 17 January 2011.
12. Wiwanitkit, V. Dengue fever: diagnosis and treatment. *Expert review of anti-infective therapy*. 2010; 8 (7): 841–5. doi:10.1586/eri.10.53
13. Gubler DJ. Dengue viruses. In: Mahy BWJ, Van Regenmortel MHV. *Desk Encyclopedia of Human and Medical Virology*. Boston: Academic Press. 2010; pp. 372–82. ISBN 0-12-375147-0.

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