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Mini Review on Dengue Fever

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Review Article

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ABSTRACT

Dengue fever is a viral disease; it will spread by infected mosquito bites. Individual with dengue virus will exhibit various symptoms include high fever, head ach, nausea, diarrhea, itching, bleeding in gums, skin rash and some time it leads to life threatening. Immediately they should consult doctor.

INTRODUCTION

Dengue fever is a mosquito-borne viral infection caused by dengue virus [1-5]. Dengue infection is transmitted by female mosquitoes mainly of the species *Aedes aegypti* and, to a lesser extent, *Aedes albopictus* infected with virus. These mosquitoes will bite in the early morning or evening times but the infection will spread at any time of day. Mosquitoes will take blood from a person who is infected with dengue fever, from 2-10 days after the bite the mosquito will infect with the virus and the virus will spread to all tissues of the mosquito including its salivary glands [6-15].That virus will not affect mosquito but it will be infected for its life time and transfers the virus to humans. And that additionally transmits chikungunya, yellow fever and Zika virus [15-20]. Today, serious dengue influences most Asian and Latin American nations and has turned into a main source of hospitalization and passing among kids and grown-ups in these regions.

Symptoms typically start three to fourteen days after contamination. This may include a high fever, head ach, nausea, vomiting, muscle and joint pains, and skin rash. Recovery takes under two to seven days. In some cases, this will lead to life-threatening dengue hemorrhagic fever, resulting in decreasing platelet count and blood plasma spillage, or into dengue shock disorder where low blood pressure will occurs. There are 4 type of viruses that causes dengue [21-32] are DEN-1, DEN-2, DEN-3 and DEN-4. Recovery from disease by one serotype gives lifelong immunity while other serotypes can give temporary. A novel vaccine for dengue fever has been endorsed in three countries, yet it is not yet available [33-40]. This might be finished by disposing of or covering standing water and wearing attire that spreads a great part of the body. Treatment of intense dengue is strong and incorporates giving liquid either by mouth or intravenously for mellow or direct sickness. For more serious cases blood transfusion might be required [41-50]. About a large portion of a million people oblige admission to healing facility a year.

Symptoms

Regularly, individuals infected with dengue infection are asymptomatic (80%) or just have mellow indications like an uncomplicated fever and chills [51-57]. Others have more extreme disease (5%), and in a little extent it is life-threatening. The incubation period is about 3 to 14 days, yet frequently it is 4 to 7 days [58-66]. Subsequently, voyagers coming back from endemic regions are unrealistic to have dengue if fever or different side effects begin

over 14 days in the wake of arriving home. Youngsters regularly encounter side effects like those of the basic cool and gastroenteritis (spewing and diarrhea) and have a more serious danger of serious complications; however starting side effects are by and large gentle yet incorporate high fever. The trademark manifestations of dengue are sudden-onset fever, cerebral pain (commonly situated behind the eyes), muscle and joint agonies, and a rash [67-74]. Dengue fever is also known as, "break bone fever", and originates from the related muscle and joint pains. The course of disease is isolated into three stages: febrile, basic, and recovery.

Febrile stage: This stage includes high fever, conceivably more than 40°C (104°F), severe head ach, bleeding from mouth and nose, muscle and joint pains, vomiting, rash, diarrhea, loss of appetite, pain behind eyes. These will last for 2-7 days [75-80]. Critical stage: In some people, disease will leads to critical phase, this stage includes leakage of plasma from blood vessels, and there may be organ dysfunction and bleeding, shock and hemorrhage. People who are infected with dengue virus for the second time will be at more risk of getting hemorrhagic fever; this will leads to death in more cases. Recovery stage: And then recovery phase, this phase lasts for 2-3 days and includes itching, slow heart rate, altered level of consciousness, seizures. A feeling of fatigue may last for weeks in adults.

Diagnosis

Diagnosis for dengue fever is made when you are suffering with high fever, head ach, vomiting, nausea, diarrhea, fatigue and etc. Doctors can diagnose this virus with blood test for the virus or antibodies. It will be difficult to diagnose because the symptoms will overlap with various viral diseases, platelet count test will help in diagnosing dengue fever [81-90].

Treatment

There is no particular treatment or medicine to treat dengue virus. The people who are suffering from dengue fever can use pain relievers to avoid muscle pains. They should take plenty of water and fluids. But traditionally, people believe that juice of carica papaya leaf juice will helps in increasing platelet count, which is one of the key symptoms of dengue fever [91-93].

Prevention

There is no vaccine to prevent dengue fever. The best technique for security is to maintain a strategic distance from mosquito chomps and to diminish the mosquito populace [94-98]. But traditionally, at the point when in a high-hazard zone, you ought to:

- Avoid intensely populated local locations
- Use mosquito repellent inside and outside
- Wear long sleeved shirts and jeans tucked into socks
- Use aerating and cooling as opposed to opening windows
- Ensure that window and entryway screens are secure, and any gaps are repaired
- Use mosquito nets if resting ranges are not screened

REFERENCES

1. Tseng YT, et al. Re-model the relation of vector indices, meteorological factors and dengue fever. J Trop Dis. 2016;4:200.
2. Dar W, et al. A rare complication of dengue fever. J Gen Pract. 2016;4:237.
3. Shaukat K, et al. Dengue fever prediction: A data mining problem. J Data Mining Genomics Proteomics. 2015;6:181.
4. Shaukat K, et al. Dengue fever in perspective of clustering algorithms. J Data Mining Genomics Proteomics. 2015;6:176.
5. Bakach I and Braselton J. A survey of mathematical models of dengue fever. J Comput Sci Syst Biol. 2015;8:255-267.
6. Venugopalan B. Meeting the dengue fever challenge. Biol Syst Open Access. 2015;4:135.
7. Eduardo KUNF and de Góis AFT. Tourniquet test in dengue fever. Intern Med. 2015;4:i101.
8. Muhammad S. Dengue fever as a continuing threat in tropical and subtropical regions around the world and strategy for its control and prevention. Journal of Pharmacology and Toxicology studies. 2014.

9. Muhammad S. Proposing solutions for the control of dengue fever virus carrying mosquitoes (Diptera: Culicidae) *Aedes aegypti* (Linnaeus) and *Aedes albopictus* (Skuse). Journal of Pharmacology and Toxicology studies. 2013.
10. Muhammad S. Proposals for the control of principal dengue fever virus transmitter *Aedes aegypti* (Linnaeus) mosquito (Diptera: Culicidae). Journal of Pharmacology and Toxicology Studies. 2014.
11. Khoj L, et al. A case of dengue fever-induced severe aplastic anemia salvaged by allogeneic bone marrow transplant. J Leuk (Los Angel). 2013;1:120.
12. Avasthi G, et al. A case of immune complex mediated acute kidney injury occurring in the first few days of dengue fever. J Clin Case Rep. 2012;2:228.
13. Kala CP. Leaf juice of *Carica papaya* L.: A remedy of dengue fever. Med Aromat Plants. 2012;1:109.
14. Pruthvi D, et al. Evaluation of platelet count in dengue fever along with seasonal variation of dengue infection. J Blood Disord Transfus. 2012;3:128.
15. Luz Estella M, et al. *Artemisia annua* L., potential source of molecules with pharmacological activity in human disease. American Journal of Phytomedicine and Clinical Therapeutics. 2015.
16. Koushik P, et al. Acute disseminated encephalomyelitis: A rare complication of dengue infection. Archives of Medicine. 2016.
17. Tamer Abdullah A. A passport of dengue fever to Riyadh a case report of a boy who travelled to Riyadh carrying dengue fever. Pediatric Infectious Diseases: Open Access. 2016.
18. Amar T and Kirti S. Spontaneous resolution of junctional rhythm in a child with dengue fever. Journal of Prevention and Infection Control. 2015.
19. AA Noor R, et al. Eptospirosis in northeastern Malaysia: Misdiagnosed or co-infection? International Journal of Collaborative Research on Internal Medicine & Public Health. 2015.
20. Altura BM, et al. HDFx: A recently discovered biologic and its potential use in prevention and treatment of hemorrhagic fever viruses and antibiotic-resistant superbugs. J Hematol Thrombo Dis. 2016;4:252.
21. Sophie A, et al. Enzyme-linked immunosorbent assay specific to dengue virus type 1 non-structural protein ns1 reveals circulation of the antigen in the blood during the acute phase of disease in patients experiencing primary or secondary infections. J Clin Microbiol. 2002;40:376-381.
22. Diop D, et al. Zika virus disease epidemics. J Trop Dis. 2016;4:208.
23. Pereira I, et al. Treatment of human immunodeficiency virus-1: Current challenges and future perspectives. J AIDS Clin Res. 2016;7:603.
24. Gohil D, et al. Oseltamivir resistant influenza a (H1N1) virus infection in Mumbai, India. J Antivir Antiretrovir. 2015;7:108-114.
25. Aly TZ. Vitamin B mediated priming of disease resistance and defense responses to tobacco mosaic virus in *Capsicum annuum* l. plants. J Antivir Antiretrovir. 2016;8:035-053.
26. Pradip S, et al. Virucidal activity of newly synthesized chalcone derivatives against h1n1 virus supported by molecular docking and membrane interaction studies. J Antivir Antiretrovir. 2016;8:079-089.
27. Ceron-Carrasco JP, et al. Application of computational drug discovery techniques for designing new drugs against zika virus. Drug Des. 2016;5:e131.
28. Brown JP and Gosselin J. Does Epstein-Barr virus infection contribute to disease flares in rheumatoid arthritis? J Arthritis. 2016;5:208.
29. Wangikar P, et al. Update on methyltransferase inhibitors of the dengue virus and further scope in the field. J Emerg Infect Dis. 2016;1:108.
30. Sricharoenchai S, et al. Epidemiology of respiratory syncytial virus lower respiratory tract infection (rsv-lrti) in children in developing countries. J Trop Dis. 2016;4:212.
31. Solomon IH. Neuropathology of zika virus infection. J Neuroinfect Dis. 2016;7:220.
32. Pope B and Pogreba-Brown K. Beware more than just the yellow snow: A norovirus outbreak associated with a ski resort. Epidemiology (Sunnyvale). 2016;6:244.
33. Yin Low JS, et al. Antiviral activity of emetine dihydrochloride against dengue virus infection. J Antivir Antiretrovir. 2009;1:62-68.
34. Shuo S, et al. Hemagglutinin immunoglobulin m (Igm) monoclonal antibody that neutralizes multiple clades of avian H5N1 influenza a virus. J Antivir Antiretrovir. 2009;1:051-055.
35. Tao D, et al. Human monoclonal fab antibodies against west nile virus and its neutralizing activity analyzed *in vitro* and *in vivo*. J Antivir Antiretrovir. 2009;1:036-042.
36. Redlberger-Fritz M, et al. Influenza virus evolution, host factors and the assessment of influenza vaccine effectiveness. J Vaccines Vaccin. 2016;7:325.
37. Kazakos EI, et al. Novel insights into the role of defensins in virus-induced autoimmunity in the central nervous system. J Neuroinfect Dis. 2016;7:216.
38. Konda S, et al. The evolution and challenge of the zika virus and its uncharted territory in the neurological realm. J Neuroinfect Dis. 2016;7:215.

39. Bandameedi R. Recent outbreak of zika virus threat for pregnant women. Clin Pharmacol Biopharm. 2016;5:157.
40. Kaihatsu K, et al. Future perspective of nucleic acid-based detection of dengue virus and its serotypes. J Antivir Antiretrovir. 2016;8:LXIX-LXXII.
41. Kiseleva I and Rudenko L. Potentially pandemic live influenza vaccines based on Russian master donor virus are genetically stable after replication in humans. J Vaccines Vaccin. 2016;7:317.
42. Dolan SM, et al. Decision making in the face of uncertainty: Perinatal zika virus infection. J Preg Child Health. 2016;3:250.
43. Osman AH. Protein energy malnutrition and susceptibility to viral infections as zika and influenza viruses. J Nutr Food Sci. 2016;6:489.
44. Adiga A, et al. A review of inflammatory bowel disease in patients with human immunodeficiency virus infection. J AIDS Clin Res. 2016;7:575.
45. Kotwal J, et al. Evaluation of surrogate markers for prediction of cd4 counts in people living with human immunodeficiency virus/acquired immunodeficiency syndrome. J AIDS Clin Res. 2016;7:573.
46. Chatterjee A, et al. Congenital cytomegaloviral infection causing severe pulmonary hypertension in a newborn with an HIV seropositive mother - a case report from eastern India. J AIDS Clin Res. 2016;7:567.
47. Chowell G, et al. Spatial and temporal dynamics of dengue fever in Peru: 1994-2006. Epidemiology and Infection. 2008;36:12.
48. Gulich GA. Epidemiology, driving factors, transmission and control options of zika virus: A review. J Infect Dis Ther. 2016;4:278.
49. Molina NB and Basualdo JA. *Zika virus* in the Americas: A new global health emergency. J Med Microb Diagn. 2016;5:e132.
50. Weltman JK. An immuno-bioinformatic analysis of zika virus (zikv) envelope e protein. J Med Microb Diagn. 2016;5:228.
51. Wilson DJ, et al. Prevalence of bovine viral diarrhea virus in bovine samples from the intermountain west of the USA - comparison between age, sex, breed and diagnostic methods. J Veterinar Sci Techno. 2016;7:326.
52. Bandyopadhyay A, et al. Classifying dengue: A review of the difficulties in using the who case classification for dengue haemorrhagic fever. A European journal. 2006;11:1238-1255.
53. Zhang Y, et al. Restoration of retarded influenza virus-specific immunoglobulin class switch in aged mice. J Clin Cell Immunol. 2016;7:403.
54. Acharya A, et al. Human immunodeficiency virus: Discovery to drug resistance - A review update. Biol Syst Open Access. 2016;5:154.
55. Awasthi S. Zika virus: Prospects for the development of vaccine and antiviral agents. J Antivir Antiretrovir 8:LXI-LXIII. 2016.
56. Yamaya M, et al. Serine proteases and their inhibitors in human airway epithelial cells: Effects on influenza virus replication and airway inflammation. Clin Microbiol. 2016;5:238.
57. Pratte-Santos R, et al. Guidelines for recreation water quallity in Brazil, USA and Canada: Enteric viruses as faecal pollution indicators. J Trop Dis. 2015;4:195.
58. Kushwah RS, et al. Co-habitation and concurrent infection of dengue and chikungunya viruses in *Aedes aegypti* field populations from India. J Trop Dis. 2015;4:194.
59. Wickramasinghe NC and Steele EJ. Dangers of adhering to an obsolete paradigm: Could zika virus lead to a reversal of human evolution? Astrobiol Outreach. 2016;4:147.
60. Alam CM, et al. Imex based analysis of repeat sequences in *flavivirus* genomes, including dengue virus. J Data Mining Genomics Proteomics. 2016;7:187.
61. Matos A, et al. Topoisomerase I improve JC virus DNA detection. Mol Biol. 2016;5:155.
62. Ye H, et al. Potential applications of epigallocatechin gallate-fatty acid derivatives as antiviral agents. J Antivir Antiretrovir 2016;7.
63. Cassandra MB. Towards a universal influenza virus vaccine eliciting broadly neutralising haemagglutinin antibodies. J Vaccines Vaccin. 2015;6:303.
64. Sundberg K, et al. Effectiveness of nanomaterial copper cold spray surfaces on inactivation of influenza a virus. J Biotechnol Biomater. 2015;5:205.
65. Johnson OK. Pilot case series demonstrating unsuspected ulceration in perforated ileum from typhoid fever. J Gastrointest Dig Syst. 2016;6:445.
66. Razzaq A, et al. Exploring the causes, diagnosis, symptoms, risk factors, treatments and prevention of rheumatic fever. Research & Reviews in Pharmacy and Pharmaceutical Sciences. 2015.
67. Adebayo D, et al. Response preparedness to viral hemorrhagic fever in Nigeria: Risk perception, attitude towards Lassa fever. Epidemiology (Sunnyvale). 2015;5:199.

68. Mohamed A D and El-Bouzedi A. Viral haemorrhagic fever in North Africa; An evolving emergency. J Clin Exp Pathol. 2015;5:215.
69. Falkenstern Ge R, et al. Endobronchial volume reduction with lung sealant (Aeriseal®); post interventional fever and malaise treated with combined therapy of broad- spectrum antibiotic and supportive prednisolone. J Clin Case Rep. 2015;5:480.
70. Aydin G, et al. Cytokine storm following tooth extraction: An alternative hypothesis for fever and hypotension in the immediate postoperative period. 2011.
71. Iheukwumere I, et al. Manifestations, mismanagement and diagnostic challenges of malaria and typhoid fever. Malar Chemoth Cont Elimination. 2013;2:109.
72. Qureshi JA, et al. An epidemic of dengue fever in Karachi--associated clinical manifestations. JPMA. The Journal of the Pakistan Medical Association. 1997;47:178-181.
73. Cecaro M and Rossi G. European monitoring plans for the management of outbreak of JEV (Japanese Encephalitis Virus). Occup Med Health Aff. 2013;1:e105.
74. Frew PM, et al. Enrollment in YFV vaccine trial: an evaluation of recruitment outcomes associated with a randomized controlled double-blind trial of a live attenuated yellow fever vaccine. Trop Med Surg. 2013;1:117.
75. Cox D, et al. The role of platelets in viral hemorrhagic fevers. J Bioterr Biodef. 2013;S12:003.
76. Carrion Jr R, et al. Vaccine platforms to control arenaviral hemorrhagic fevers. J Vaccines Vaccin. 2012;3:160.
77. Kularatnea SAM. Cardiac complications of a dengue fever outbreak in Sri Lanka, 2005. Trans R Soc Trop Med Hyg. 2007;101:804-808.
78. Agwu E. Distribution of community acquired typhoid fever among febrile patients attending clinics in Bushenyi, Uganda: Case study of the year 2005. J Medical Microbiol Diagnosis. 2012;1:101.
79. Wang X, et al. Concurrent porcine reproductive and respiratory syndrome virus, porcine circovirus type 2 and pseudorabies virus infections associated with 'high fever syndrome' in swine of northern china. J Veterinar Sci Technol. 2011;2:106.
80. Erdogan H, et al. Investigation of the presence of crimean-congo hemorrhagic fever virus RNA in tears of eleven infected patients. J Clinic Experiment Ophthalmol. 2011;2:185.
81. Kuo CH, et al. Liver biochemical tests and dengue fever. The American journal of tropical medicine and hygiene. 1992;47:265-270.
82. Newton EA and Reiter P. A model of the transmission of dengue fever with an evaluation of the impact of ultra-low volume (ULV) insecticide applications on dengue epidemics. The American Journal of Tropical Medicine and Hygiene. 1992;47:709-720.
83. Dennis AB, et al. Dengue fever in humanized nod/scid mice. Journal of Virology. 2005;79:13797-13799.
84. Patey O, et al. Unusual neurologic manifestations occurring during dengue fever infection. The American journal of tropical medicine and hygiene. 1993;48:793-802.
85. Andrew FT, et al. Dengue fever in us military personnel in Haiti. JAMA. 1997;277:1546-1548.
86. Liang L, et al. Time series analysis of dengue fever and weather in Guangzhou, China. BMC Public Health. 2009;9:395.
87. Christian D, et al. Rapid detection and quantification of RNA of Ebola and Marburg viruses, Lassa virus, crimean-congo hemorrhagic fever virus, rift valley fever virus, dengue virus, and yellow fever virus by real-time reverse transcription-PCR. Journal of clinical microbiology. 2002;40:2323-2330.
88. Daniel HL, et al. High circulating levels of the dengue virus nonstructural protein ns1 early in dengue illness correlate with the development of dengue hemorrhagic fever. J Infect Dis. 2002;186:1165-1168.
89. Carol J, et al. Evaluation of the MRL diagnostics dengue fever virus IGM capture ELISA and the panbio rapid immunochromatographic test for diagnosis of dengue fever in Jamaica. J Clin Microbiol. 2002;37:1600-1601.
90. Gubler DJ. Dengue and dengue hemorrhagic fever. Clin Microbiol Rev. 1998;11:480-496.
91. Guzmán MG. Epidemiologic studies on dengue in Santiago de Cuba, 1997. Am J Epidemiol. 2000;152:793-799.
92. Wen KH, et al. The ocular fundus findings in dengue fever gaoxiong yi xue ke xue za zhi the Kaohsiung. Journal of medical sciences. 1990;5:24-30.
93. Row D, et al. Dengue fever with encephalopathy in Australia. The American journal of tropical medicine and hygiene. 1996;54:253-255.
94. Watt G, et al. Decrease in human immunodeficiency virus type 1 load during acute dengue fever. Clin Infect Dis. 200636:1067-1069.
95. Loke H, et al. Strong hla class I–restricted t cell responses in dengue hemorrhagic fever: A double-edged sword? J Infect Dis. 2001;184:1369-1373.

96. Skae FMT. Dengue fever in Penang. Br Med J. 1902;2:1581-1582.
97. Danielle V, et al. Economic impact of dengue fever/dengue hemorrhagic fever in Thailand at the family and population levels. Am J Trop Med Hyg. 2006;72:786-791.
98. Erum K, et al. Demographic and clinical features of dengue fever in Pakistan from 2003–2007: A retrospective cross-sectional study. Plos One. 2010.