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REVIEW ARTICLE

AN INSIGHT INTO ZIKA VIRUS: A REVIEW ARTICLE

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ABSTRACT

Zika virus is an arbovirus, member of the Flaviviridae family of genus *Flavivirus*, which also includes dengue, yellow fever, and West Nile viruses. It was first identified from rhesus macaques in the Zika forest near Kampala, Uganda in 1947. Zika virus has two major lineages: Asian and African. In Africa, it is thought to revolve between non-human primates and mosquitoes, with humans as accidental hosts. However, humans have been probably the main hosts in areas outside the Africa. The key vector for Zika virus transmission is thought to be the daytime biting mosquito *Aedes aegypti* and *Aedes albopictus*. Infection with Zika virus results in fever, rash, conjunctivitis, arthralgia, and myalgia, or it may be subclinical. Zika fever in pregnant women is associated with microcephaly.

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INTRODUCTION

Zika virus is an enveloped, icosahedral positive strand RNA virus. It is found to be related with yellow fever, dengue, West Nile, and Japanese encephalitis viruses, and most closely to Spondweni virus (Gubler *et al.*, 2007). It is spread by daytime-active mosquitoes viz. female *Aedes aegypti* in order to lay eggs, but has also been isolated from a number of other species such as *A. africanus*, *A. apicoargenteus*, *A. furcifer*, *A. hensilli*, *A. luteocephalus* and *A. vittatus* with an extrinsic incubation period in mosquitoes of about 10 days (Hayes, 2009). Common symptoms of infection with the virus include mild headaches, maculopapular rash, fever, malaise, conjunctivitis, and joint pains (Hayes, 2009).

Zika virus RNA was detected in the amniotic fluid of two pregnant women whose fetuses had microcephaly, indicating that the virus had crossed the placenta and could have caused a mother-to-child infection. (Schuler-Faccini *et al.*, 2015). Zika fever in pregnant women is associated with intrauterine growth restriction including abnormal brain development in their fetuses, which may result in miscarriage (Mlaker *et al.*, 2016). Zika viral transmission has been documented in a total of 44 countries from 2007 to February 2016. In 2015 and 2016, the geographical range of Zika virus has been increasing steadily. In late 2014, Brazil detected a cluster of febrile rash illness related to Zika virus in its Northeast region. The link to Zika

virus was confirmed in April 2015. By October 2015, a single state in the northeast of Brazil (Bahia)¹, reported 56 318 suspected cases of Zika virus disease. In July 2015, Brazil reported the detection of patients with neurological syndromes who had recent history of Zika virus infection in the state of Bahia. Brazilian national authorities estimate that between 497 593 and 1 482 701 cases of Zika virus infection have occurred since the outbreak began. After Brazil, Colombia has been the most-affected country so far, with 20 297 cases reported (up to 23 January 2016) since the country's first cases were detected in October 2015. There has been a rapid regional spread of the virus. By 4 February 2016, 26 countries and territories in the Americas reported local transmission of the virus. In October 2015, Cape Verde, an island off the coast of West Africa, reported an outbreak of Zika virus and has reported 7 081 cases as of January 2016. On 8 January 2016, the Hawaii State Department of Health received laboratory confirmation of a past Zika virus infection in a baby recently born with microcephaly in a hospital on Oahu. The mother is likely to have acquired Zika infection in Brazil in May 2015 (WHO, 2016).

There are no specific antiviral vaccines or drugs and treatment is symptomatic. Analgesics and antipyretic agents must be carefully used, in order to prevent any adverse effects including hepatopathy, allergy and nephropathy. Vector control measures should be increased, as well as healthcare actions. In Zika virus

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free regions, care should be taken with travellers returning mainly from tropical regions.

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