

A Comprehensive Exploration to Zika Virus

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DESCRIPTION

Zika fever is an infectious condition brought on by the Zika virus. It is sometimes referred to as Zika virus sickness or simply as Zika. In Africa, the disease-causing virus was discovered for the first time in 1947. In the Federated States of Micronesia in 2007, there was the first confirmed outbreak of disease among people. 2015 saw the commencement of an outbreak in Brazil that later extended to the Americas, Pacific, Asia and Africa. The World Health Organisation did so in February 2016, designating it a Public Health Emergency of International Concern. 84 nations continued to report cases as of March 2017, even though the emergency was removed in November 2016. In the continental United States, 2017 was the final confirmed instance of Zika transmission [1].

Cause

The dengue and yellow fever viruses share a close relationship with the mosquito-borne flavivirus known as the Zika virus. Although rodents and West African monkeys have shown positive serological evidence, the main reservoir species is still unclear despite the fact that mosquitoes serve as the vector.

Transmission

Aedes mosquitoes, especially Aedes aegypti in tropical areas, are the primary vectors of transmission. Additionally, sexual contact between infected men and their partners might spread the Zika virus [2,3]. Men who had no signs of a Zika virus infection have been seen to spread the illness. Similar to other flaviviruses, it may be spread through blood transfusions, hence several affected nations have devised methods to check blood donors.

Diagnosis

Due to similarities with other arboviruses that are endemic to nearby locations, it is challenging to diagnose Zika virus infection solely based on clinical signs and symptoms. Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) can detect it in patients who are acutely unwell. The World Health Organisation (WHO) advises RT-PCR testing be done on blood

collected within 1 to 3 days of symptom start or on saliva samples collected within the first 3 to 5 days because the period of viremia might be brief [4]. Since the virus has been observed to survive longer in urine than either saliva or serum, urine samples can be collected and examined up to 14 days after the onset of symptoms. Later, serology can be used to find specific IgM and IgG antibodies against the Zika virus. Within 3 days of the start of an illness, IgM antibodies may be found. It is conceivable for vaccinations against flaviviruses as well as closely related flaviviruses like dengue and West Nile virus to cause serological cross-reactions [5].

Pregnancy screening: Even if they don't exhibit infection symptoms, the Centres for Disease Control and Prevention (CDC) advise screening some pregnant women. Pregnant women who have travelled to impacted areas should be examined [6]. The CDC has advised testing at the first prenatal appointment with a doctor as well as in the middle of the second trimester for women residing in affected areas. Every three to four weeks, ultrasounds on the foetus should be performed on women with positive test results for Zika virus infection to track the foetal anatomy and growth [7].

Testing in infants: The CDC advises testing using both serologic and molecular assays such RT-PCR, IgM ELISA and Plaque Reduction Neutralisation Test (PRNT) for newborns with suspected congenital Zika virus illness. Within the first two days of life, RT-PCR on the infant's serum and urine should be carried out. Infants whose mothers may have been exposed who also have positive blood tests, microcephaly or intracranial calcifications should have further examinations [8,9].

Prevention

Since the virus is conveyed by mosquitoes, avoiding them is crucial for disease prevention.

The CDC advises individuals to:

- Wear long sleeve shirts and long, permethrin-treated trousers to cover any exposed flesh.

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- Use an insect repellent with N,N-diethyl-meta-toluamide, picaridin, ethyl butylacetylaminopropionate or Oil of LemonEucalyptus (OLE).
- Always reapply according to the product's instructions.
- Insect repellent should be used after sunscreen, after allowing it to dry. When applying repellent to children, follow the guidelines on the bottle. Avoid getting repellent in their eyes, mouth or on their hands.
- Stay and sleep in an air-conditioned or screen-in room.
- If the space where sleeping is open to the outside, use a bed net. For infants younger than two months, use mosquito netting to cover cribs, strollers and carriers.

Mosquito prevention: The present focus of disease prevention in the afflicted nations is mosquito management. The elimination of larval breeding grounds and the use of pesticides that either target the larval stages, adult mosquitoes or both are two methods for managing *Aedes aegypti* mosquito populations [10].

CONCLUSION

The Zika virus still poses a serious threat to world health, necessitating extensive and coordinated measures to properly combat its effects. People can lessen the threat posed by the Zika virus by increasing awareness, advancing education, encouraging international cooperation, empowering local communities and investing in long-term fixes. Also they can safeguard populations and clear the path for a healthier future *via* collaborative action that is informed by scientific knowledge and compassion.

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