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Short Communication

The Spread of the Zika Virus and its Consequences

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ABOUT THE STUDY

Zika is a virus is mostly transmitted by mosquitoes. It can be carried to a child by a pregnant woman during pregnancy or shortly after birth. It can be passed on through sexual interaction. The virus has also been reported to have transmitted through blood transfusions. Fever, rash, headache, joint discomfort, red eyes, and muscular soreness are the most typical Zika virus symptoms. Many persons who are infected with Zika may have no symptoms or will have moderate symptoms that persist several days to a week.

Structure of Zika virus

An envelope and a nucleocapsid make up the Zika virions. The virus particles are spherical and tiny (about 50 nm in diameter), with an electron-dense centre around 30 nm in diameter. In icosahedral-like symmetry, the virion surface comprises Envelope protein (E) dimers and Membrane (M) proteins. Flaviviruses are tiny, spherical viruses with a positive single-stranded nonsegmented RNA of around [1].

ZIKV is a positive-sense enclosed single-stranded RNA virus. The Envelope (E) proteins on ZIKV attach to host cell receptors during infection, and the viral particle is subsequently endocytosed. The E proteins promote virus-endosomal membrane fusion, resulting in the release of genomic RNA into the host cell cytoplasm. The Endoplasmic Reticulum (ER) is where the RNA genome is translated. The RNA is translated into a single polypeptide chain that includes all viral proteins: C-prM-E-NS1-NS2A-NS2B-NS3-NS4A-NS4B-NS5. The polypeptide chain is woven back and forth across the ER membrane, exposing various viral proteins within the sequence to the cytoplasm or the ER lumen. The polyprotein is subsequently cleaved by host and viral proteases into three structural (C, prM, and E) and seven non-structural proteins (NS1, NS2A, NS2B, NS3, NS4A, NS4B, and NS5). Non-structural proteins are involved in the reproduction of the viral RNA genome, whereas structural proteins are utilised to form new virus shells. Although the capsid protein is known to interact with the viral RNA genome to promote virus particle packing, it is unknown how encapsidation happens. The first protein translated in the single viral polypeptide chain is the 122 amino acid ZIKV capsid protein. The capsid protein's N-terminus has a strongly positively charged loop followed by five-helices (helices 1-5).

Transmission of Zika virus

The Zika (ZEE-kuh) virus is predominantly transmitted to humans through mosquito bites in tropical and subtropical regions of the world. The majority of those infected with the Zika virus show no signs or symptoms. Some persons get a slight fever, rash, and muscular ache. Even in those who exhibit no signs of infection, the Zika virus can cause brain or nervous system disorders such as Guillain-Barre syndrome in rare situations. The Zika virus infection is also known as Zika, Zika fever, or Zika virus sickness [2].

Women who become infected with the Zika virus while pregnant are more likely to miscarry. Infection with the Zika virus during pregnancy also raises the chance of major birth problems in newborns, including microcephaly, a potentially fatal brain disorder.

Researchers are developing a Zika virus vaccine. For the time being, the most effective strategy to minimise illness is to avoid mosquito bites and eliminate mosquito habitats.

The Zika virus is most commonly transmitted to humans through the bite of an infected mosquito. Two aedes species mosquitoes are known to carry the virus and may be found all over the world. When a mosquito bites a person who is already infected with the Zika virus, the mosquito becomes infected with the virus. The virus then enters the bloodstream of the person who is bitten by the infected mosquito and produces an illness. The Zika virus can also be passed from mother to fetus during pregnancy [3,4].

CONCLUSION

In certain circumstances, the Zika virus has been passed from person to person via blood products (blood transfusion). To limit the danger of Zika virus transmission by blood transfusion, blood donation centers in the United States and its territories screened all blood donations for the virus. The Zika virus is

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prevalent, local blood donation facility may advise to wait four weeks before donating blood.

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