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ZIKA VIRUS PANDEMIC: A GLIMPSE

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ABSTRACT

Zika virus is a serious cause of concern in developing nation's worldwide of patients with serious complications spreading promptly. It is a major threat, as far the foetal transmission is concern, Hence a stand point is that an approach with the prevention of the disease primarily, with the management of pandemic zika virus with treatment protocol is very essential to curb the wide spread trait of this pandemic virus. Hence, only in this context remarkable information of the virus with is prevention and diagnosis has been debated.

Keywords: Zika virus, History, Prevention, Diagnostic consideration.

INTRODUCTION

Zika virus (ZIKV) belongs to the *Flavivirus* genus; like other flaviviruses, Zika virus is an icosahedral, enveloped, single-stranded RNA virus. The lipid envelope is covered with dense projections that consist of a membrane and envelope glycoproteins.

In most cases, Zika virus infection causes a mild, self-limited illness. The incubation period is likely 3-12 days. Owing to the mild nature of the disease, more than 80% of Zika virus infection cases likely go unnoticed. The spectrum of Zika virus disease overlaps with other that of arboviral infections, but rash (maculopapular and likely immune-mediated) typically predominates.

Zika virus was first described in a febrile rhesus monkey in the Zika forest of Entebbe, Uganda, and was reported in a human field worker shortly thereafter. Currently, Zika virus is known to be widely distributed outside of Africa. Outbreaks have been described previously in Micronesia and French Polynesia [1].

Pathophysiology

Like many other flaviviruses, Zika virus is transmitted by an arthropod: the *Aedes* mosquito, including *Aedes aegypti*,*Aedes africanus*, *Aedes luteocephalus*, *Aedes albopictus*, *Aedes vittatus*, *Aedes furcifer*, *Aedes hensilli*, and *Aedesapicoargenteus* Sexual transmission among humans has also been described.

Zika virus is well-adapted to grow in various hosts, ranging from arthropods to vertebrates. Viral attachment to unidentified cellular receptors is mediated by the E (envelope) glycoprotein. This is followed by endocytic uptake and then uncoating of the nucleocapsid and release of viral RNA into the cytoplasm. A viral polyprotein is produced and modified by the endoplasmic reticulum. Immature virions collect both in the endoplasmic reticulum and in secretory vesicles before being released.
Sirohi et al described the structure of mature Zika virus based on cryoelectron microscopy [2]. The virus resembles other known flavivirus structures with the exception of approximately 10 amino acids surrounding the Asn154 glycosylation site in each of the 180 envelope glycoproteins comprising the icosahedral shell, the carbohydrate moiety of which may be the attachment site of the virus to host cells.

History

In most cases, Zika virus (ZIKV) infection causes a mild, self-limited illness. The incubation period is likely 3-12 days. Owing to the mild nature of the disease, more than 80% of Zika virus infection cases likely go unnoticed. The spectrum of Zika virus disease overlaps with other that

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of arboviral infections, but rash (maculopapular and likely immune-mediated) typically predominates.

The rash in Zika virus infection is usually a fine maculopapular rash that is diffusely distributed. It can involve the face, trunk, and extremities, including palms and soles. Occasionally, the rash may be pruritic [3,4]. The rash, along with other symptoms, usually occurs within 2 weeks after travel to a Zika virus–affected area. Zika virus rash usually occurs within the first week of illness, with the illness itself lasting from several days to weeks.

Complications

Serious complications have been reported in some cases of Zika virus infection, including Guillain-Barré syndrome.In addition, great concern is emerging over congenital malformations due to transplacental transmission of Zika virus, including microcephaly and various ophthalmologic abnormalities.

Diagnostic Considerations

Signs and symptoms of Zika virus (ZIKV) infection are nonspecific and mimic other infections. Among them, dengue virus infection is the most serious and may be life-threatening. Other etiologies include chikungunya virus, yellow fever virus, parvovirus, enterovirus, Ross River virus, plasmodia (malaria), and rickettsia.

Differential Diagnoses

- Chikungunya Virus
- Dengue
- Enteroviruses
- Malaria
- Parvovirus B19 Infection
- Rickettsial Infection
- Yellow Fever

Approach Considerations

Diagnosis of Zika virus (ZIKV) infection is typically based on serologic testing, although the CDC now recommends urine testing. The CDC has issued interim guidance on Zika virus antibody testing and result interpretation.

Urine can be tested via real-time reverse transcription-polymerase chain reaction (rRT-PCR) using samples collected less than 2 weeks following symptom onset. Urine should be tested in conjunction with serum if specimens were obtained less than one week following symptom onset. A positive result on either test confirms Zika virus infection.

The viral level may be higher in urine and for a longer duration than in serum. In Florida, among 55 patients in whom travel-related Zika infection was suspected, urine and serum samples were collected within five days of symptom onset. Fifty-six percent of serum samples tested positive for Zika RNA, while 95% of urine samples tested positive. At day six and afterward, Zika RNA was no longer found in serum, while urine specimens continued to return positive results until day twenty.

All pregnant women should be screened for a travel history to Zika virus–affected areas

The WHO recommends using the Brighton criteria to diagnose Guillain-Barré syndrome.

Treatment

Zika virus (ZIKV) infection is usually mild and self-limited. There are no specific treatment options for Zika virus infection.

Medical Care

Supportive care with rest and adequate fluid hydration is advised. Symptoms such as fever and pain can be controlled with acetaminophen. Use of nonsteroidal anti-inflammatory drugs (NSAIDs) in patients with unconfirmed Zika virus infection should be avoided since the use of such drugs in dengue fever is associated with hemorrhagic risk.

Prevention

Avoidance of Travel to Areas of Active Zika Virus Transmission

The best method for preventing Zika virus infection is to avoid travel to areas with active Zika virus transmission.

Mosquito Control and Prevention of Mosquito Bites

Residents who live in endemic areas or travelers to endemic areas are advised to avoid mosquito bites [5,6]. Different strategies to prevent mosquito bites include wearing full-sleeved shirts and long pants, sleeping under mosquito bed net, and treating clothing with permethrin.

CONCLUSION

In this context a glimpse about the history and prevention of zika virus have been discussed with few significant information on the scheme of viral spread and its complications with remarkable diagnostic considerations alongside differential diagnosis pretty well discussed.

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