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Review Article……!!!

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A REVIEW ON UNDERSTANDING OF ZIKA VIRUS

Hodgar Sachin, Tamane Rushikesh*

Department of Pharmaceutical Chemistry, Vidyaniketan Institute of Pharmacy and Research Centre, Bota, Sangamner, M.S., India.

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For Correspondence:

Tamane Rushikesh

Department of Pharmaceutical Chemistry, Vidyaniketan Institute of Pharmacy and Research Centre, Bota, Sangamner, M.S., India

E-mail:

skh.ksscop@gmail.com

ABSTRACT

Zika virus disease is caused by a virus transmitted primarily by Aedes aegypty mosquitoes, which bite during the day. As we familiar with well-known disease dengue which is also caused by mosquitoes of the same species. Zika virus is mosquito borne disease flavivirus that was first identified in Uganda in 1947 in monkeys; hence the name was taken from the forest Zia. It was later identified in humans in 1952 in Uganda & United republic of Tanzania. Zika virus is an acute disease which can be serious if not treated in time. Host of the Zia virus are the species of mosquitoes namely Aedes aegypti and *Aedes albopictus*. Zika virus disease has been recorded in Africa, Americas, Asia, & pacific from 1960's to 1980's, on an average it is found in Tropical Africa, Southeast Asia, and pacific island but commonly found in pacific region south and central America Caribbean Africa and part of south and southeast Asia.

Introduction: -

Zika virus is an RNA virus member of the flavivirus genus of the family 'Flaviviridae' and also similar to the Yellow Fever (Dengue), Encephalitis virus. Flavivirus is encephalitis. This virus is commonly spread due to Arthropods. Zika virus is the type of arbovirus. It has best impact in the warm condition as most of the mosquitoes and ticks are favoured in this condition. The RNA is single stranded, positive sense RNA viruses. Zika genome is a 11kb long. The RNA molecule of zika virus encodes a polyprotein which cleaves to the structural and non-structural proteins by breaking peptide bonds between amino acids in proteins (Proteolytic cleavage).

Structural Protein includes: - Capsid (C) Protein, Glycoprotein precursor (preM) which is split into PR protein, M protein & the Envelope Protein

Non-Structural Proteins: -NS1, NS2A, NS2B, NS3, NS4A, NS4B & NS5 Protein

How Zika get transmitted into the host?

Zika is transmitted into host in following steps:

1. Fusion of Virus Membrane with host endosomal membrane and then release of viral RNA into Cytoplasm.
2. Cleavage of Polyprotein into viral replication Proteins.
3. Genomic replication in member transcribes ds-RNA intermediate to New Single stranded, Positive sense RNA genomes.
4. virus particles assemble via intracellular budding and then release in host by exocytosis.

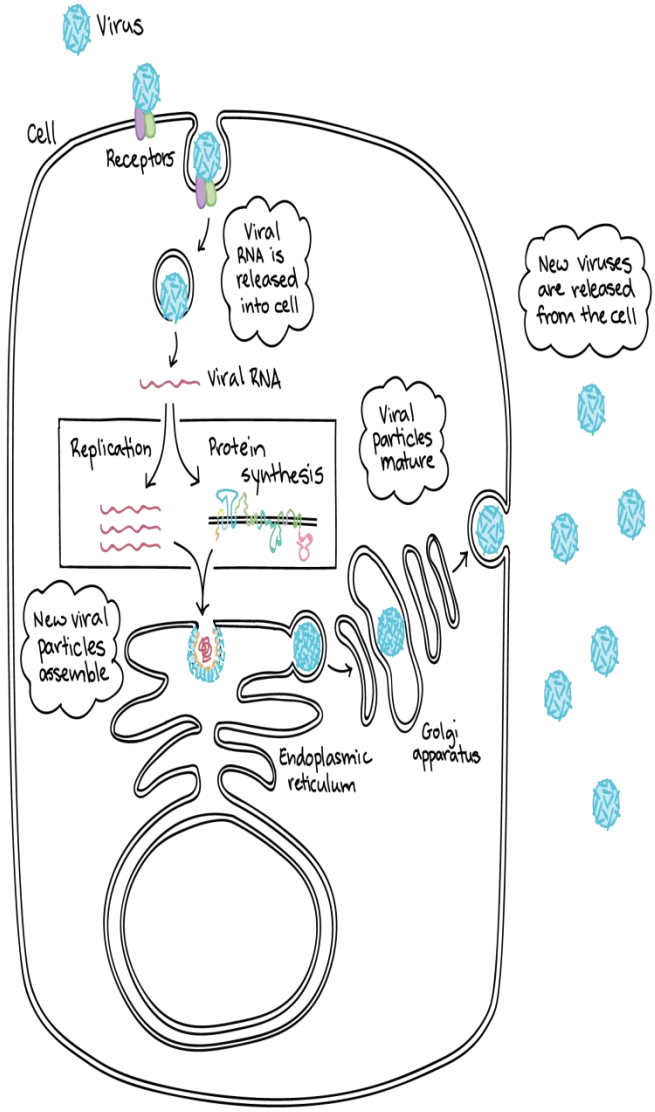

Diagram based on "The flavivirus life cycle," by Ted Pierson

Disease & Diagnosis: -

A diagnosis of zika virus infection can only be confirmed through laboratory tests on blood or other body fluids such as urine saliva semen. According to recent studies

Retrospective population based serousney founded that 9% children evidence pair Zika infection at the age of 5 years. Some asymptotic blood donors also founded with this infection in Lao people republic. Zika spreads through infected mosquito bites but it can be sexually transmitted. If pregnant women travel in the area with risk of Zika she has chances of Zika infection & Zika in pregnant women's causes birth defects. (10%). Thailand demonstrated seasonal patterns of zika (as Thailand reported 1st Case). In India 1st case was reported in Rajasthan and also in Kerala i.e. South region of India. Globally 61 countries and 4 NHO regions were considered with terror ties of Zika.Aedes agypti have not documented Zika infection or transmission. Medical analysis tells us that 2 major lingaes known as Asian and African lingaes have been identified in genetical analysis.

- Symptoms/How to Conclude Zika:

The symptoms are similar to other arbovirus infection such as dengue, and include

a) Fever
b) Skin Rashes
c) Conjunctivitis
d) Muscle and Joint pain
e) Malaise
f) Headache

These Symptoms are usually mild and lasts for 2-7 Days.

Certain conditions of the zika virus are as follows: -

a) Flavivirus yields a polymerase chain reaction product with matching sequence of 99% of identity with Zika Virus
b) Urine sample and the nasopharyngeal Swab for the measles are positive for this Virus by Reverse transcription polymerase chain Reaction.
c) Urine sample yields a Zika Virus isolate in cell culture.

Disease and Details of Zika Virus can be studied in brief with the help of some Patients Cases: -

Case No.1: -

Some Symptoms by analysis: -

If in Pregnant women then it comes also in foetal; Some foetal abnormalities were found. - Dr. Rita W. Diggerers

Case Details: -

33 years old Finnish Women at 11th months of pregnancy having mild common symptoms such as Eye pain, rashes, Muscle pain, Fever. Virus in her RNA was in between 16-21 weeks of her pregnancy (gestation period).

Long term effects are unpredicted: -

CDC predicted that long term effect cannot be predicted or can be uncertain. - Dr. Presten.

Case No.2: -

A woman who travelled to the Thailand admitted in local emergency department with fever and papular rash. She was tested for measles, malaria and dengue.

- Day wise Symptoms of the patient are as follows: -
  - Day 1: -Intermittent periods of fever and chills.
  - Day 3: -Mouth become sore and oral blisters developed.
  - Day 5: -Papular Rash Developed which spread to extremities and the palms.
  - Rashes lasted for 4 days with Retro-Orbital Headache and fever prompted to emergency department, After Admitting
  - Day 7: -Significant joints and muscle tenderness developed, lasted for 2 days.

She took approximately 16 days for resolution of her symptoms.

- Tests performed for the patient are as follows: -

  PCR (Polymerase chain reaction) of flavivirus was matched with the Zika and due to measles following tests were done.

a) Urine Test
b) Nasopharyngeal Test (Test performed from the nostrils to Pharynx as Fever was observed to check fever is viral or not)
c) Blood Test

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