

WEST NILE FEVER: MANAGEMENT AND CONTROL

Ranjan Kumar Maji^{1*}, Sambit Maiti², Kishor Kumar Roy³, Pratyush Roy⁴, Sudip Pal⁵

^{1*,2,3,4,5}Bharat Technology, Uluberia, Howrah-711316, India

ABSTRACT:

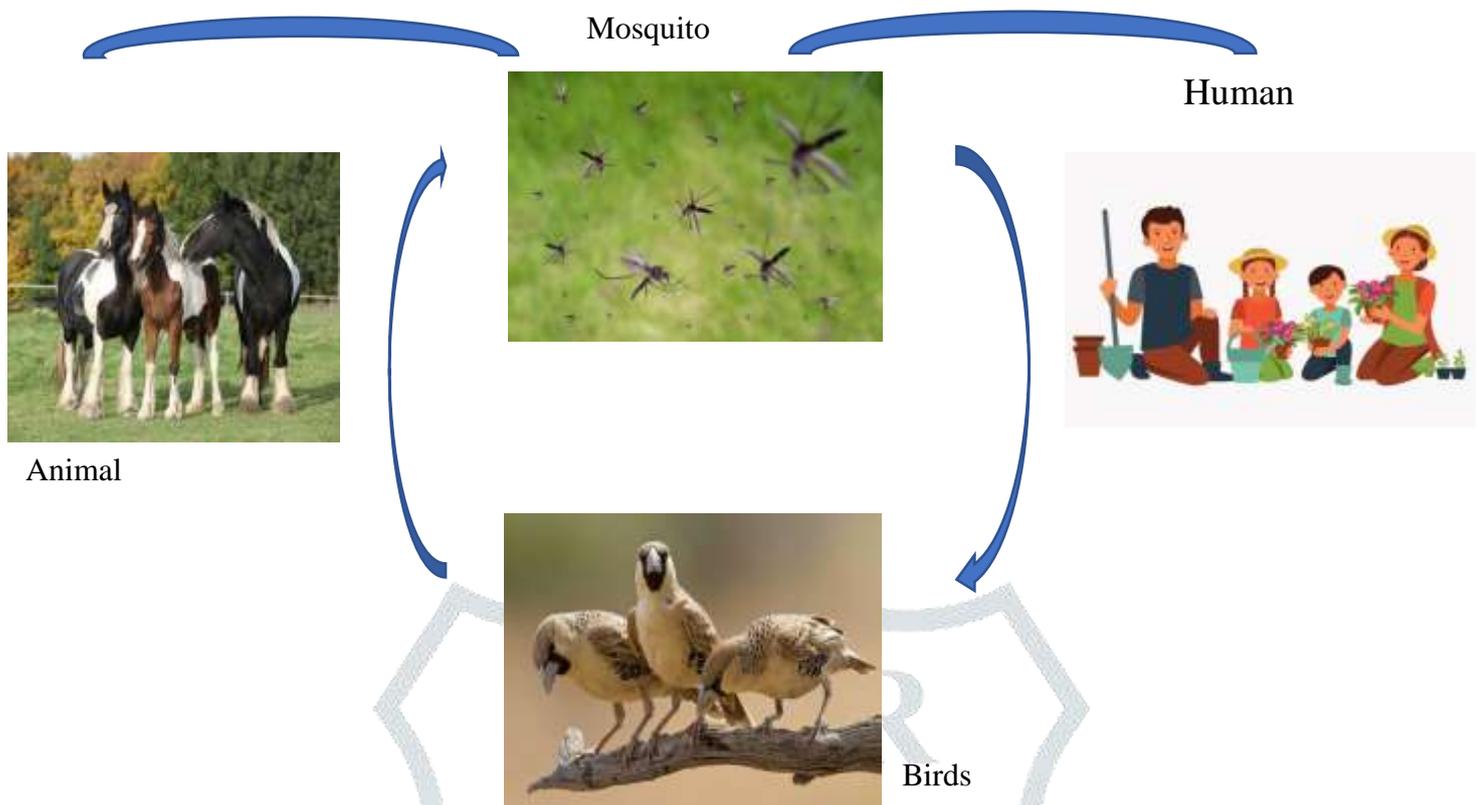
West Nile fever is a viral fever caused by the West Nile virus (WNV). In 1937, West Nile virus is initially determined in the West Nile district of Uganda. The virus is mainly single stranded RNA virus. The virus has belonged to the family of Flaviviridae, and the genus is Flavivirus, which also carrier of the Zika virus, Yellow fever virus, Dengue virus, St. Louis encephalitis, Japanese encephalitis. The Mosquito is the main vector of the West Nile virus which spread the disease of human population. About 80% infected people have no symptoms, 20% people are suffering from fever, headache, vomiting, and also rashes. 1% people are suffering from serious condition. Specific vaccine is not available for West Nile fever. West Nile fever is controlled by the use of mosquito net, wear full cloths, various types of mosquito repellent spray. The further discussion is transmission, signs and symptoms, diagnosis, management and control will be carried out below.

Keywords: West Nile fever, West Nile virus.

INTRODUCTION:

In 1937, West Nile virus (WNV) was first introduced in the West Nile district of Uganda in a woman, this is how the West Nile virus got its name. In 1951, Israel was reported an epidemic of West Nile fever, in human beings. This infectious disease (West Nile fever) produced a large outbreak that spread through the United States of America during 1999. It is also occurred in Romania, Russia, Greece, Widely, reported from Canada to Venezuela, the West Nile virus is commonly found in the Europe, the Middle East, North America and West Asia.^{1,2,3,4}

It is highly prevalent in India, generally the virus infection (West Nile fever) runs a mild febrile course, without any serious involvement of the CNS. Febrile illness and encephalitis were observed in Udaipur district of Rajasthan, Buldana, Marathwada and Khandesh districts of Maharashtra.^{5,6} In 2006 the North-Eastern region of India was documented for the presence of West Nile virus four districts of Assam.⁷

TRANSMISSION:**Fig1:** Transmission cycle of West Nile virus

A Culex mosquito is the vector of West Nile virus (WNV). And the birds are the main reservoir of the West Nile virus (WNV). The Culex mosquitos bite the infected birds ingesting the West Nile virus in the blood. The Culex mosquitos spreading the West Nile virus (WNV) from one bird to another birds^{8,9,10}. The mosquitos spreading the infection (West Nile fever) human and animal also. This cycle is circulating one bird to another bird by the way of mosquito bites. Some birds are most reservoirs then other birds, especially the crow family (corvidae). The mosquitos also infected when they bite the infected birds. And the infected mosquitos also bite the human and animal and spread the West Nile virus. That's why humans are suffering from West Nile fever.^{11,12,13,14}

SINGS AND SYMPTOMS:

A. Most of the patient dose not develop any type of symptoms infected with West Nile virus. (Example, if 10 people are infected, 8 do not develop any symptoms)

B. 80% of the infected people is asymptomatic (without symptoms) and 20% of people develop west Nile fever, and 1% of the infected people develop encephalitis, meningitis, with associated neck stiffness, confusion or seizures.^{4,5,6}

C. Symptoms includes high fever, nausea, vomiting, skin rash (on the body) and swollen lymph gland.

D. When the infection is very serious than the sing and symptoms are stiff neck, high fever, headache, seizures, muscle weakness, disorientation & even coma.^{15,16}

DIAGNOSIS:

A. The virus is determined by the cell culture.

B. IgM antibody is collected from the WNV infected patient and capture enzyme- linked immunosorbent assay (ELISA).^{17,18}

C. IgG antibody is collected from the WNV infected patient in two serial specimens at one week interval by enzyme-linked immunosorbent assay (ELISA).^{19,20}

D. By reverse transcription polymerase chain reaction (RT-PCR) the virus is determined.²¹

MANAGEMENT AND CONTROL:

Current therapeutic medication against the West Nile Virus are supportive. Until currently these are not any government agency approved vaccine exists. Most of the people has recovered from this virus without treatment. However, investigations are continuing to identify any individual susceptibility markers, recombinant antibodies, peptides, RNA interference, and small molecules of the virus, with the ability to directly or indirectly neutralize WNV have been reported^{22,23}. Though there is no effective drug, are available. Currently there are four vaccine exits which are under USDA licensed among them two vaccines were ineffective against the virus, remaining one is a nonreplicating live canary pox recombinant vector vaccine, and another one is an inactivated flavivirus chimeric vaccine. Ribavirin is an one of the drug in high doses and interferon- α 2b that has demonstrated efficacy against the WNV in vitro, though no clinical trials are held on the application of drug. In some case, people who are severely suffering from the virus need supportive therapy in a hospital with intravenous fluids and pain medication, respiratory support, and prevention of secondary infections²⁴. No vaccine is available for humans. Though several and different approaches and researches are being pursued in the development of a vaccine in the human body that may prove valuable for use by targeted populations. Continue research are holding for the investigations include live attenuated vaccines, and vaccines with recombinant subunit, vectorized vaccines, DNA vaccines with constructs that express the WNV E Protein, live recombinant vaccines. The use of steroids, seizure medications, or osmotic agents are never used in the management of WNV encephalitis.²⁵

CONCLUSION:

WNV remains a threatening remark to both the public and animal health. It can effect both young and elders, especially to immune compromised individuals. WNV has no specific treatment. The only measure to decrease the morbidity and mortality are prevention and control. For identifying the virus diagnostic test are very important. As there is no specific medicines or treatment against this disease, the world will face a major problem in the upcoming years, so there is an urgent need for more research and this virus and treatment of WNV infection.

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