



A SHORT REVIEW ON CHANDIPURA VESICULOVIRUS INFECTION

R.S.Tale*, N.P.Sawadkar*, A. R. Lahane, A.L. Lahane, S.K.Mohrur, Dr. Nandu Kayande,

Department of Pharmacy,

Dr. R. N. Lahoti Institute of Pharmaceutical Education and Research Center, Sultanpur, Dist:- Buldhana, MH

Abstract

In the era of many infectious diseases chandipura vesiculovirus infection. recently captured the attention of all healthcare system and public as well. This virus contributing for many premature deaths due to acute encephalitis syndrome. The chandipura vesiculovirus infection., was first isolated in 1965, from the blood of two adults with a febrile illness in a village in Nagpur, Maharashtra. The virus is reportedly named after the village it was isolated from. The other instance when the virus was isolated in human beings was in 1980, in Madhya Pradesh from a patient with acute encephalitis, The chandipura vesiculovirus infection. has been found to mostly affect children under the age of 15, predominantly in rural locations. In the 2003 outbreak, the age of the affected children in Andhra Pradesh was between 9 months and 14 years. This virus belongs to family to family rhabdoviridae, genus vesiculovirus. It is characterized by bullet shaped particle. This article gives short review of the chandipura vesiculovirus infection disease causes, symptoms and preventing tips.

Key Words:- Chandipura virus, rhabdoviridae, , acute encephalitis syndrome, CHPV etc.

Introduction

It is a viral infection first outbreak of febrile illness was reported in 1965 in Chandipura Village of Nagpur district of Maharashtra state. Thereafter, few outbreaks occurred in Andhra Pradesh, Maharashtra & Gujarat[1]. This virus was named after the site of first isolation from chandipura. This virus remains largely neglected till 2003 when it shocks back into prominence when it was identified to be associated with an epidemic of acute encephalitis syndrome in young childrens in Andhra Pradesh. There were approximately 329 cases with 183 fatalities; other incident was occurred in gujrat with a fatality rate of 78%. Another epidemic was reported in 2007 in Nagpur with a high case fatality rate of 40%. [2] This virus belongs to family Rhabdoviridae, genus Vesiculovirus. It is characterized by bullet shaped particles, 150-165 nm long, 50-60 nm wide, showing distinct surface projections 9-11 nm in size & a stain-filled canal at the base of the virus particles. [1] The virus is vector-borne, with the likely vector believed to be the female Phlebotomine sandfly, insects that are prevalent in the early monsoon period. A 2016 paper, 'Changing clinical scenario in Chandipura virus infection', published in The Indian Journal of Medical Research, also pointed to the role of Sergentomyia sandflies. It said several species of mosquitoes replicated and transmitted the virus experimentally, and among the different mosquito species studied, Aedes aegypti, (which also transmits dengue), was found to be highly susceptible and could transmit the virus more efficiently than others, under laboratory conditions. However it said no isolation of the virus from the mosquito had been reported as of then.[3] CHPV was earlier believed to be limited to Asia. But in recent years CHPV has been reported in western Africa. CHPV is a negative sense, single stranded enveloped RNA virus. [2]

Causes

The Chandipura Virus is believed to be zoonotic, meaning it originates within animal populations and can be transmitted to human populations. Human infections may occur through direct or indirect contact with sandflies, ticks, and mosquitoes. Phlebotomine sand flies are considered as one of the important vectors of the CHPV. Among the sand flies, Phlebotomus papatasi is one of the most common anthropophilic and domiciliary species prevalent in several parts of India. CHPV is disseminated to salivary gland within 4-5 days of infection and is then transmitted to other vertebrate hosts by crossing salivary gland barrier in the next 24 hours when an infected vector bites a human or other vertebrate The exact animal reservoirs and modes of transmission are still being investigated, thus highlighting the need for ongoing research and surveillance.[2,5]

Symptoms

The chandipura vesiculovirus infection is an encephalitis-causing virus, which means the infection leads to an inflammation or swelling of the brain tissue. The symptoms of the chandipura vesiculovirus infection range from mild respiratory distress to more severe complications. Common initial symptoms include:

- rapid onset of fever
- the fever is followed by vomiting
- altered sensorium (a change in mental status or consciousness)
- convulsions, diarrhoea
- neurological deficit (examples include an inability to speak, loss of balance, vision changes)
- meningeal irritation (signs may include headaches, neck stiffness, photophobia and seizures). [3]

After that during the outbreak in Gujarat, blood samples were taken from healthy individuals. Results showed that more than 10% of children had IgM antibodies to CHPV, indicating recent exposure to the virus and milder forms of the disease, sub-clinical or as self resolving pyrexia. Encephalitis cases caused by CHPV occur only among children. Suspected cases of CHPV infection occur usually in less than 15 year olds with the acute onset of fever and altered sensorium including coma or seizures in the absence of common aetiology like malaria, tuberculosis and other common bacterial causes. Death usually ensues within a few hours to 48 hours of hospitalization. Manifestations may range from subclinical infection to high- grade fever to acute encephalitis. Rash has been reported with serous transudate and hyper pigmentation on healing. Hepatomegaly with deranged liver function tests has been reported. Neurological manifestations include abnormal plantar reflex, brisk deep tendon reflexes, pupillary abnormalities, tonal abnormalities and seizures. Other manifestations include respiratory distress, bleeding tendencies or anaemia. Routine haematological, biochemical and cerebrospinal fluid analysis in most cases were within normal limits. Anaemia, leucocytosis and disseminated intravascular coagulopathy have also been reported. [2]

Management and Prevention

There is no specific antiviral therapy available to fight against CHPV. Emergency treatment is aimed at protecting the neurons against further ischemia to minimize neurologic sequel. It includes good nursing care of the comatose patients at the earliest in the nearest hospital. Symptomatic treatment involves use of decongestants such as mannitol and furosemide to reduce cerebral oedema and raised intracranial pressure. Prevention is the best method to suppress CHPV infection. Containment of disease transmitting vectors, maintaining good nutrition, health, hygiene and awareness in rural areas will help in curbing the menace of CHPV. Thus, to control virus transmission some immense preventive measures need to be attempted until a good anti-CHPV agent is developed. [2] Several key practices are used to prevent the Chandipura vesiculovirus infection.

- Hygiene practices: Washing hands regularly with soap and water, especially after handling animals or being in potentially contaminated environments.
- Avoidance of wildlife: Minimizing contact with wild animals and their habitats, particularly in coastal areas where the virus is prevalent.
- Personal protective equipment: When handling potentially infected animals or their tissues, wear appropriate protective gear such as gloves and masks to reduce the risk of transmission.
- Vector control: Given the potential role of insects in transmitting the virus, using insect repellents and mosquito nets can help mitigate exposure.[5]

Conclusion

Nowdays chandipura vesiculovirus infection is becomes a threat to human health as the mortality rate is higher in the children so it is required to study on this viral infection on large scale. We have reviewed its origin, life cycle, target population, as well as our efforts to prevent, manage and eradicate it. Strengthening surveil-lance in areas such as tropical countries for estimating diseaseburden of CHPV is very needful and important. It is very important to make special efforts on study of this virus infection to avoid the mortality rate. This article gives short review for general information of chandipura vesiculovirus infection.

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