

Nipah Virus Infection: A New Challenge for Health Care Services and Health Care Personnel

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Abstract

Nipah virus infection is highly fetal zoonotic, communicable and viral infection. The causative agent of Nipah virus infection is Nipah Virus which causes severe respiratory and Neurological disorders in humans. Flying foxes are natural reservoir of Nipah virus infection. The Transmission of Nipah virus occurs via direct contact with Human to Human or Animals to Human from infected person or animals (pigs and Fruits bats). Nipah virus spread through respiratory droplets and Nasal secretion of infected person or animals and through eating contaminated fruits and juices with secretion of infected animals. Confirmation of Nipah virus infection can be done with the help of clinical diagnosis on the basis of clinical signs and symptoms and through lab investigations through Virus culture, Urine, Spinal Fluid, Nasal & respiratory secretion & contaminated fruits. Nipah virus is global threat for health security and Alarming for health care sector with 40–75% of fatality rate on human beings which become public health concern and WHO listed Nipah virus infection in Blueprint priority disease category. At present there is no specific and effective vaccine and treatment available for Nipah virus infection. Preventive measures such as isolation, public education Campaigns and increase Awareness regarding Nipah virus infection can reduce the morbidity and mortality rate of Nipah infection.

Keywords: Nipah Virus; Infection; Fruit bat; Human; Awareness.

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Introduction

Nipah virus (Niv) infection is highly infectious, emerging zoonotic, communicable and Viral Infection belonging to class of RNA virus that causes lethal Respiratory and Neurological

disorders in humans. In 1999 Nipah virus infection was first identified in Malaysia and got its name from Village Kampung Sungai Nipah, Malaysia where it found.¹ Recently Nipah virus infection outbreaks have created panic situation in the public especially in India. With 40–75% fatality rate in humans it becomes public health concern. The ICMR confirmed that fruit bats were the source of the Kerala outbreak after isolating the virus from them.² WHO has listed the virus in its Blueprint priority disease category, At present there is no treatment available for management of Niv Infection and it is tough task and huge challenge for health care personnel to manage Niv infection without confirmed, effective and specific drugs.³ In 2001 the First case of Nipah Virus infection was reported in India at Siliguri, West Bengal. There 66 cases found positive with Nipah virus infection and 45 (68%) people were died due to Nipah Virus

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infection. In 2007 Nipah Virus infection attack occurred in Nadia, West Bengal where 5 people tested positive with Nipah Virus Infection & all of five people died and mortality rate was 100%.⁴ There were 19 cases reported of Nipah virus infection in May 2018 at Kerala out of 19 reported cases 17 people died due to Nipah virus Infection including a Nurse Mrs. Lini Puthussery & all 17 people death happened from the two districts of Kozhikode and Malappuram in Kerala with 88% mortality rate.⁵ Recent & Second attack of Nipah virus occurs in Kerala on June 3, 2019, where a 23 year-old college student was found positive for Nipah virus. No causalities regarding Nipah virus infection has been reported in second attack of Nipah virus infection till date.^{6,7} According to National center for Diseases Control Nipah virus disease is not a major outbreak and only local occurrence.⁸ Nipah virus is a lethal viral infection. The causative agent of Nipah virus infection is Nipah virus which belongs to RNA paramyxovirus. Flying fox (Fruit bats) are the natural reservoir of Nipah Virus infection. Outbreak of Niv infection occurs during the months of December–May. Incubation period of Niv infection is 4 to 18 days. The exact pathogenic mechanisms of Nipah virus is still not clear yet. It believed that Nipah virus primarily enter into the blood vessels and cause vasculitis resulting in perivascular cellular infiltration, inflammation and necrosis which causing severe vascular damage. Nipah virus infection spread through respiratory droplets, throat or nasal secretion from infected Animals or person with direct exposure. Direct contact with infected person or infected animals such as bats, pigs etc and consumption of contaminated raw dates palm sap fruits with infectious bats excretions can lead to transmission of Nipah virus infection. Risk factor includes close proximity through touching, Feeding and attending virus infected person & virus can survive for days in sugar rich solutions. A person suffering from Niv infection has clinical manifestations like high fever, sore throat, myalgia, headache, vomiting, cough, and breathlessness. In later stage of the disease patient may complaints of confusion/Altered consciousness, neck rigidity, photophobia, disorientation, seizures and coma. Diagnosis of Nipah virus infection can be done through Non specific and specific diagnosis. Non specific Diagnosis includes History taking, physical examination and sign & symptoms of Niv infection initially.^{9,10} Confirmed Diagnosis of Nipah virus infection done based on Molecular detection of Viral RNA & Igm Antibody by Polymerase chain reaction (PCR) assay, Throat swab collection, urine

sample, blood examination, CSF Examination and ELISA Test. At present there is no confirmed effective and specific treatment available for Nipah virus infection in humans & only supportive care is recommended for treatment of Nipah Virus infection. However Ribavirin an Antiviral drug recommended in among patient with encephalitis caused by Nipah virus to reduced mortality. Symptomatic and supportive treatment should be start immediately in all clinically suspected cases & ensure patient isolation. Early detection & Isolation of patients with separate ward facilities.^{7,11} Monitor the patients for pulmonary and neurological signs at early stage of Niv infection. Early implementation of infection control precautions which will minimize spread of infection. Barrier nursing must be used e.g. PPE. Patients are advice to drink plenty of fluids. Paracetamol is can use for fever, myalgia, Headache. Aspirin is strictly contraindicated in patient with Nipah virus infection cases due to its potential complication. No relatives of patients are to be allowed in isolation ward. Reinforce standard infection control precautions for all those entering the room must use hand washing practices, high efficiency masks, goggles, gloves, cap and shoe cover. No specific therapy or treatment currently available for Niv infection only intensive care monitoring and prevention is the only cure. Education Campaigns may be helpful to increase awareness of risk for Nipah Virus infection in Community and promote appropriate care setting behavior. Avoid consuming unwashed fruits or fruits that have fallen on the ground or partially eaten fruits as these may be contaminated with Nipah virus during bat feeding. Use PPE for safety. Follow standard infection control producer during handling patients and sample. Wash hands with soap and water after coming in contact with a sick person or animal. Avoid drinking date palm sap. Avoid entering into abandoned wells. Maintain personal hygiene and proper hand washing habits. Consume only well cooked and clean homemade food. Advise the people to get early contact with doctor if they feel the signs and symptoms of Niv.^{12,13}

Conclusion

Nipah virus infection is highly contagious and an emerging infectious disease of public health caused by Nipah virus. Transmission of Nipah Virus Infection occurs via direct exposure with infected animals to Human and infected Human to Human. Nipah Virus Infection cause severe Respiratory and neurological problems in Humans. Recent outbreak of Nipah Virus infection in India is Alarming and is

also global threat for Health security because Nipah Virus infection has 40–75% Fatality rate in Human beings because there is no Confirmed Specific and effective Vaccine and treatment available for Management of Nipah Virus Infection. It tough task & Huge challenge to Health care personnel to treat and manage Nipah Virus infection without available of confirmed specific and effective treatment. There is no specific vaccine available against the infection. There is need to enhance the general public Awareness and Knowledge through public education Campaigns regarding Nipah virus infection which will facilitate in improving awareness and knowledge of general public about prevention and reduce the transmission of Nipah virus infection and there is also need to more research about Nipah Virus infection.

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