

Nipah Virus (NiV) Infection- A new outbreak in India

Sankalp Yadav^{1,*}, Gautam Rawal², Mohammad Atif³

^{1,3}General Duty Medical Officer II, Dept. of Medicine & TB, Chest Clinic, Moti Nagar, North Delhi Municipal Corporation, New Delhi, ²Associate Consultant, Respiratory Intensive Care, Max Super Specialty Hospital, New Delhi, India

***Corresponding Author:**

Email: drsankalpyadav@gmail.com

Abstract:

The recent reports of Nipah virus (NiV) infection resulting in a number of deaths have created panic and fear among the general public. The resource poor overpopulated countries like Bangladesh, India and Malaysia are hit by this virus infection a number of times in the past. The turmoil resulted due to the deadly infection has affected the tourism industry and has instilled fear among the local population. The infection was localized to the western part of India in the two past outbreaks, but this time it has affected the southern tip of India. The NiV is spread by the fruit eating bats either through aerosol mode or by consumption of the fruits infected with the bat saliva/urine. In the current paper the authors highlight this relatively new viral infection and emphasize on the proactive efforts to fight the spread of such deadly infections.

Keywords: Nipah virus; Viruses; Pteropus; Zoonoses.

The resource poor countries have always been at risk of a number of new infections [1]. And these infections in such overpopulated countries with meager annual health budget expenditure have a devastating effect on the public health [2]. A relatively new infection named Nipah Virus (NiV) infection has come into the news recently from Kerala in India [1]. The infection has made a grave situation in the affected areas which is a tourist destination and has led to mortality in the northern Kerala's Kozhikode [1,3].

NiV is a rapidly emerging zoonosis with a propensity to cause serious disease in both human and animals [1]. The virus belongs to the genus Henipavirus in the family Paramyxoviridae [4]. The Nipah virus has a tendency to adapt or mutate, like the H1N1 virus [3]. The fruit bats of the Pteropodidae family, Pteropus genus are the natural hosts for the disease [1,4]. However, pigs have also been reported to be the intermediate hosts [1]. The disease was first identified to be associated with NiV in Kampung Sungai Nipah, Malaysia in the year 1998 [1]. The first reports of direct human infection came in the 2004 from Bangladesh after consumption of the date palm sap contaminated by fruit bats [1]. And the first reports of human to human transmission came from a hospital in India [1,5]. India has been affected by the virus twice in the past first the year 2001 in Siliguri, West Bengal when 66 cases were found with 44 deaths and in the year 2007 in Nadia, West Bengal with 100% mortality (5 cases all died) [5-7].

In NiV infection the patient develops signs and symptoms post exposure and incubation period of about four days to two months with more than 90% of patients giving a history of two weeks or less [5]. The patient with NiV infection shows a number of clinical features which occur from day 3-14, like fever, headache, drowsiness, mental confusion, disorientation, coma, vomiting and even deaths [5]. Reports of acute

respiratory syndrome to fatal encephalitis are also well documented [1,5]. However, in some cases the patient was asymptomatic [5]. The virus spreads very fast and has a mortality of about 45-75% [8].

The virus can infect intermediate animal hosts like pigs and other domestic animals due to spillover from bats and thus can cause the disease in them [2,4]. Besides, humans may also become infected with NiV through aerosol by intruding into bat roosting caves or via direct contact with bats, such as catching bats or been bitten by bats [2]. The virus can be detected by molecular assays such as real-time RT-PCR, immunohistochemistry or virus isolation [4]. Currently there is no vaccine available for the NiV both in humans or in animals and the primary treatment available for humans is an intensive supportive care [1]. However, reports of successful in vitro use of Favipiravir as an antiviral agent against henipaviruses have given some hope and needs further evaluation in humans [8].

NiV is a highly pathogenic zoonotic virus of bat origin and have caused several outbreaks with a public health scare leading to a remarkable economic and social impact on the highly populated countries of Asia [4]. In the current scenario a new infection occurring time and again has put the whole health care system at an alert. There is a requirement of proactive measures to be followed so that the deadly virus should be controlled before it could lead to the public health issue. Besides, currently the infection is confined to the southern India, but if not controlled at this stage it can lead to devastation throughout the country.

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