

## Nipah Virus

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### Introduction

Nipah Virus (NiV): a single- stranded RNA virus

Family: *Paramyxoviridae*

Species: *Nipah virus*

Genus: *Henipavirus*<sup>1</sup>

### Origin

Kampung Sungai Nipah, a place of Malaysia where pig farmers became ill with encephalitis in 1998 and the virus was named over Sungai Nipah as Nipah Virus (NiV).<sup>2,3</sup>

### History

Recently epidemic of NiV at Kerala has terrified the World. But it was 2001 late January to mid-February, whole Siliguri of West Bengal was terrified with an out break of a zoonotic disease which took over 45 lives in only 10 days.<sup>4</sup> It was an outbreak of febrile illness associated with altered sensorium.<sup>5</sup> Almost all of the victims were members of the hospital staff or had attended to or visited patients in a particular hospital. Out of 61 identified adult cases of encephalitis, 45 died showing too high a fatality rate of 74% at Siliguri.<sup>4</sup> Nipah virus was implicated as the cause of a highly fatal (case-fatality ratio 38%–75%), febrile human encephalitis in Malaysia and Singapore in 1999 and in Bangladesh during the winters of 2001, 2003, and 2004.<sup>5</sup>

NiV infection in humans has a range of clinical presentations, from asymptomatic infection to acute respiratory syndrome and fatal encephalitis. NiV is also capable of causing disease in pigs and other domestic animals. There is no vaccine for either humans or animals. The primary treatment for human cases is intensive supportive care.<sup>3</sup>

### Key Facts

- NiV infection in humans causes a range of clinical presentations, from asymptomatic infection (subclinical) to acute respiratory infection and fatal encephalitis.
- The case fatality rate is estimated at 40% to 75%. This rate can vary by outbreak depending on local capabilities for epidemiological surveillance and clinical management.
- NiV can be transmitted to humans from animals (such as bats or pigs), or contaminated foods and can also be transmitted directly from human-to-human.
- Fruit bats of the Pteropodidae family are the natural host of Nipah virus.
- There is no treatment or vaccine available for either people or animals. The primary treatment for humans is supportive care.
- The 2018 annual review of the WHO, list of priority diseases indicates that there is an urgent need for accelerated research and development for the Nipah virus.<sup>3</sup>

## Transmission

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Various mode of transmission was found in different countries which had an attack of Nipah Virus.

- Direct contact with sick pigs or their contaminated tissues (Singapore, Malaysia).
- Consumption of fruits or fruit products (such as raw date palm juice) contaminated with urine or saliva from infected fruit bats (Bangladesh and India)
- Human-to-human transmission of Nipah virus has also been reported among family and care givers of infected patients and health care personnel.<sup>3</sup>

Kerala's young nurse Lini Puthussery, died of Nipah virus on May 21. Lini, a 28 year old mother of two young boys got infected by patient. Lini had been treating a family of three who had been diagnosed with the virus - she is believed to have spent the entire night caring for them. She was treated at the Kozhikode Medical college hospital and died there. The World Health Organization has paid glowing tributes to her.<sup>6,7</sup>

## Signs & Symptoms

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Human infections range from asymptomatic infection to acute respiratory infection (mild, severe), and fatal encephalitis.

- Initially develop symptoms including fever, headaches, myalgia (muscle pain), vomiting and sore throat.
- Followed by dizziness, drowsiness, altered consciousness, and neurological signs that indicate acute encephalitis. Some people can also experience atypical pneumonia and severe respiratory problems, including acute respiratory distress. Encephalitis and seizures occur in severe cases, progressing to coma within 24 to 48 hours.<sup>3</sup>

## Incubation Period

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- Incubation period generally vary from 4 to 14 days. However, it may be as long as 45 days has been reported.<sup>3</sup>

## Diagnosis

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Nipah virus infection can be diagnosed with clinical history during the acute and convalescent phase of the disease. The main tests used are real time polymerase chain reaction (RT-PCR) from bodily fluids and antibody detection via enzyme-linked immunosorbent assay (ELISA). Other tests used include polymerase chain reaction (PCR) assay, and virus isolation by cell culture.<sup>3</sup>

## Treatment & Prevention

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There are currently no drugs or vaccines specific for Nipah virus infection although WHO has identified Nipah as a priority disease for the WHO Research and Development Blueprint. Intensive supportive care is recommended to treat severe respiratory and neurologic complications.<sup>3</sup>

If an outbreak is suspected, the animal premises should be quarantined immediately. Restricting or banning the movement of animals from infected farms to other areas can reduce the spread of the disease. As Nipah virus outbreaks have involved pigs and/or fruit bats, establishing an animal health/wildlife surveillance system is important for early detection and isolation.<sup>3,8</sup>

## Government concern on Health workers in Kerala

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In appreciation of exemplary service of health workers in containing the deadly Nipah virus outbreak, the Kerala government on 27<sup>th</sup> June 2018 decided to give an additional increment to about 61 government health personnel in Kozhikode and Malappuram districts. The decision in this regard was taken at a cabinet meeting chaired by Chief Minister Pinarayi Vijayan. The government's gesture was in recognition of the valuable service rendered by the health personnel, who fought the virus without caring for their own personal safety. Four assistant professors, 19 staff nurses, 7 nursing assistants, 17 cleaning staff, 4 hospital attenders, two health inspectors, 3 lab technicians are among the 61 persons who will be entitled to the additional

increment, a government press release said. Besides, 12 junior residents, 3 senior residents would be given a one-sovereign gold medal. An award in memory of nurse Lini Puthussery, will be instituted for the best nurse in the government sector.<sup>9</sup>

## References

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1. Nipah virus. Medical Dictionary. [Internet]. 2018 [Cited 2018 June 23]. Available from: <https://www.merriam-webster.com/medical/Nipah%20virus>
2. Nipah Virus (NiV). Centers for Disease Control and Prevention. CDC twenty four seven. Saving Lives, Protecting People. [Internet]. 2018 [Cited 2018 June 24]. Available from: <https://www.cdc.gov/vhf/nipah/index.html>
3. Nipah virus. [Internet] 30 May 2018 [Cited on 25th June 2018]. Available from: <http://www.who.int/news-room/fact-sheets/detail/nipah-virus>
4. Sarkar D. India's first Nipah virus victim town Siliguri under panic after Kerala outbreak. [Internet]. Updated: May 24, 2018 [Cited 2018 June 24]. Available from: <https://economictimes.indiatimes.com/news/politics-and-nation/indias-first-nipah-virus-victim-town-siliguri-under-panic-after-kerala-outbreak/articleshow/64310262.cms>
5. Mandeep S. Chadha, James A. Comer, Luis Lowe, Paul A. Rota, Pierre E. Rollin, William J. Bellini et. al. Nipah Virus-associated Encephalitis Outbreak, Siliguri, India. *Emerg Infect Dis.* 2006; 12(2): 235–240. doi: 10.3201/eid1202.051247
6. WHO pays tribute to Kerala nurse who died of Nipah. [Internet] PTI. Jun 05, 2018 [Cited 2018 24 June]. Available from: <https://economictimes.indiatimes.com/news/politics-and-nation/who-pays-tribute-to-kerala-nurse-who-died-of-nipah/articleshow/64465036.cms>
7. Lini Puthussery: India's 'hero' nurse who died battling Nipah virus. [Internet]. 22 May 2018 [Cited 2018 June 23]. Available from: <https://www.bbc.com/news/world-asia-india-44207740>.
8. Nipah virus infection. [Internet] [Cited 2018 June 23]. Available from: [https://en.wikipedia.org/wiki/Nipah\\_virus\\_infection](https://en.wikipedia.org/wiki/Nipah_virus_infection)
9. Nipah virus: 61 Kerala health officials from Kozhikode, Malappuram to get additional increment for their service. Firstpost. [Internet] Updated Date: Jun 27, 2018 14:42 PM. [Cited on 2018 June 27]. Available from: <https://www.firstpost.com/india/nipah-virus-61-kerala-health-officials-from-kozhikode-malappuram-to-get-additional-increment-for-their-service-4608781.html>