

Nipah outbreak in Kerala India: The next COVID?

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Introduction

The RNA Nipah/ Hendra virus NiV is part of the paramyxoviridae family, more specifically a genus of Henipavirus. Nipah virus was first discovered in 1999 and is a zoonotic disease which is foremost believed to have been transmitted from the porcine populous of Malaysia and Singapore to humans. The animal host reservoir for Nipah virus is the fruit bat.¹

Although the Nipah virus was initially discovered in Malaysia and Singapore, few outbreaks have occurred within their borders, the Indo-Bangladesh regions suffer from outbreaks more commonly. India has however had more than four Nipah outbreaks in the last 5 years alone. The most recent outbreak of Nipah has occurred in September of this year with 2 lives being claimed to date.²

India and Nipah virus's history

India's first Nipah virus outbreak was recorded in 2001 in West Bengal, namely in a small town named Siliguri. This initial outbreak caused 66 people to be infected, ultimately 45 of the cases suffered from fatal infections. The case fatality rate for the initial outbreak was quantified to be (CFR): 68%. The second outbreak of the infamous Nipah virus occurred in 2007 in the Nadia district which was once again located in the locality of West Bengal. This outbreak recorded a total of 5 cases with a resultant 100% case fatality rate. The third outbreak occurred in Kerala, namely in Kozhikade and Malappuram in 2018 with a total of 23 cases and 17 deaths. The case fatality rate equating to 91%. The fourth outbreak once again occurred in Kerala, but namely in Ernakulum in 2019. Fortunately, only one case was registered with no fatality being recorded. The fifth outbreak occurred in Kozhikode, Kerala in 2021. A single case was registered, unfortunately this sole case succumbed to the virus.^{3,4}

The current outbreak of Nipah in India was recorded between the 12th and 15th of September 2023. The index case developed a pneumonia and subsequently developed (ARDS) acute respiratory distress syndrome, after which they succumbed to the disease. The outbreak yet again occurred in the state of Kerala, with a total of 6 cases being confirmed, all of whom were close contacts to the first case. The 6 cases ages ranged between 9 to 45 years and were located more specifically to the Kozhikade district. This outbreak very similarly mirroring that of the 2021 outbreak. To date 2 deaths have been confirmed. No source of the infection has been identified as yet. The local authorities are working diligently to contain the outbreak with over 1288 contacts being traced. All high-risk contacts have been quarantined for a period of 21 days. Mask wearing is compulsory in public spaces and various containment zones have been installed in 9 of the villages. The second death in this recent September outbreak also succumbed due to a pneumonia induced by the viral infection.^{5,6}

Signs and symptoms of Nipah infection

The disease caused by the Nipah (NiV) virus can range from mild to severe. The case fatality rate associated with Nipah virus is high and a pooled average thereof equates to 61%.⁷

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As with most viral infections the initial symptoms begin within the first two weeks of viral

exposure and are a fever, headache and malaise. Additionally, the disease also presents with signs of upper respiratory tract infections (URTIs), coughs dysphagia and even respiratory difficulties. The spectrum of presentation may become more severe with some cases presenting with symptoms of encephalitis. Disorientation, altered sensorium, confusion and even comas.⁸

The mainstay symptom clusters of Nipah Virus:

- Fever
- Vomiting
- Sore throat
- Myalgia/Arthralgia
- Vertigo
- Seizures
- Disorientation
- Malaise
- Cough
- Confusion
- Diarrhea

Treatment, post-exposure-prophylaxis and prevention of Nipah virus

The unfortunate reality with Nipah virus is that no specific treatment is available, and supportive treatment is syndromic such as rehydration, rest and the management of concomitant complications is the mainstay modus operandi. Novel immunotherapies such as monoclonal antibodies are under development as possible specific treatment modalities for cases infected with the virus. The prevention of the transmission of the virus remains the most suitable and foolproof method of the control thereof. Some trials have explored the possibility of using 3 drugs as a possible post exposure prophylaxis against the infection namely: m102.4 monoclonal antibody Favipiravir and Ribavarin. Not enough data is present at this time and further studies must be undertaken before the drugs can be proven as effective and safe. Epidemiological control methods such as quarantine, contact tracing, closing of schools, local legislation, mask wearing, hand washing and prevention of super-spreader events in high-risk areas are proving to be effective in containing the transmission of Nipah. India in this regard is displaying how basic epidemiologic principles when put into action effectively can curb the spread thereof.^{9,10}

WHO Risk assessment

The local risk of Nipah in the Indo-Bangladesh region is high; despite the rigorous effort being made by the local and state authorities, the level of education and general awareness of the severity of the disease remains low. The risk to the international community is however significantly lower, due to the hosts of the virus being non-endemic in many countries, furthermore the outbreaks have only occurred exclusively inside of the Indo-Bangladesh, Malaysian and Singapore zones.¹¹

Expert opinion

The Nipah virus outbreak currently occurring in India is being well managed by local authorities. The “normalization” of mask wearing and quarantine as well as the restriction of movement initiated by the COVID-19 virus will aid authorities in initializing and containing the transmission of the virus through containment strategies. As such the restrictions implemented by the government for the containment of the Nipah virus will not be novel or foreign

endeavors to the local populous, thus providing a better likelihood of the success in the containment thereof. It is paramount that further studies are undertaken to synthesize a treatment for the disease as it has an alarmingly high rate of mortality. The global populous can however rest assured that at this point in time the Nipah virus does not have an elevated risk of pandemic perpetuation.

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