



News and events

Public Health Updates

Nipah 2.0: The virus reiterates back in Kerala

*Dr. Monalisha Sahu**

The deadly Nipah virus has returned again haunting Kerala after one year of its ordeal in month of June last year when mortality rate was seen to be as high as 91% claiming 21 lives out of 23 infected(1). Human Nipah virus (NiV) infection is an emerging zoonotic disease which is bat borne and highly lethal. It belongs to the genus henipaviruses of family Paramyxoviridae which includes Hendra and Nipah viruses. Nipah virus infection in humans causes a range of clinical presentations, varying from asymptomatic infection (subclinical) to acute respiratory infection, encephalitis and myocarditis, eventually leading to death (2). The incubation period (interval from infection to the onset of symptoms) is believed to range from 4 to 14 days. However, an incubation period as long as 45 days has been reported. The case fatality rate is estimated at 40% to 75% but it can vary by outbreak depending on local capabilities for epidemiological surveillance and clinical management.

A 23-year-old student admitted to a private hospital in Ernakulum, Kerala on May 30, 2019 tested positive for the virus on June 4, 2019 by National Institute of Virology (NIV) Pune(3). Eventually prompt preventive actions like setting isolation wards, tracing the contacts, alerting the hospitals, setting up helpline numbers were taken by the Kerala Government to contain the spread of infection. The student had reportedly travelled to four districts namely Ernakulum, Thrissur, Kollam, and Idukki recently and had come in contact of almost 400 people. The 311 people who had come in close contact with the student were kept in isolation and the state government also put the four districts on high alert and advised people to take precautions instead of spreading panic and false rumours(4).

In the whole process three health-care workers and a fellow student, who had come into contact with the patient also exhibited some symptoms (fever and sore throat) for the disease and were quarantined and treated. Though last year it was confirmed that the index

*** Assistant Professor, Department of Health Promotion & Education
All India Institute of Hygiene and Public Health, Kolkata, West Bengal,
E- mail: drmonalisha@outlook.com**

case a 26-year old man in Kerala's Kozhikode district had contracted it after consuming a fruit partially eaten by a bat, the source of infection in the index case (student) this year still remains unknown. The transmission to 18 contacts last year and the three health-care workers this year has been only through the human-to-human route (5).

The Nipah virus was first detected by Dr. Kaw Bing Chua in year 1999 from a Malaysian village of Kampung Sungai Nipah (after which it has been named later) in a large outbreak of 276 reported cases of encephalitis among pig rearers and exporters in Malaysia and Singapore from September 1998 to May 1999 (6). That outbreak had claimed 105 lives that year and total devastation of piggery industry because of mass slaughter of pigs as the infection first was contracted by pigs and subsequently transferred to the workers. It was followed by another outbreak of encephalitis in Meherpur district of Bangladesh and Siliguri district of West Bengal in 2001 followed by Nadia districts of West Bengal in year 2007. During the outbreak in Siliguri, 33 health workers and hospital visitors became ill after exposure to patients hospitalized with Nipah virus illness (7-9). Between 1998 and 2015, over 600 cases have been recorded across the world, according to the WHO. Since 2001 Nipah related deaths have been reported almost annually in South East Asia especially in Bangladesh. Fruit bats (*Pteropus medius*) is the confirmed host in Bangladesh and is now a confirmed host in India too (1). Fruit bats-the natural hosts of the virus, are common across South East Asia. The virus is released via their saliva, urine, and excreta even in absence of any symptoms. The practice of collection and consumption of raw date palm sap (potentially contaminated by fruit bats) is one of the main reasons behind spread of the disease in South East Asia.

The reiteration of NiV in Kerala strongly suggests that the virus is in circulation in fruit bats in the country. The virus isolated from four people and three fruit bats (*Pteropus medius*) last year from Kerala clearly indicated that the carrier of the Nipah virus which caused the outbreak was the fruit bat (10). However, involvement of other bat species also as reservoir hosts of henipaviruses cannot be completely denied.

The 2018 annual review of the WHO R&D Blueprint list of priority diseases indicates that there is an urgent need for accelerated research and development for the Nipah virus. Last year artificial intelligence (AI) helped an international group of scientists to identify bat species with the potential to host Nipah virus. Currently there is no known treatment or vaccine available for either people or animals and treatment is limited to supporting care. Ribavirin, an antiviral, may have a role in reducing mortality among patients with encephalitis caused by NiV (11). However, Intensive supportive care with treatment of symptoms is the main approach to managing the infection in people. Mass awareness and practice of preventive and precautionary measures are demand of the hour. As Nipah virus outbreaks in animals have preceded human cases; the key to the problem lies in the holistic One Health approach by establishing an effective animal health/wildlife surveillance system and developing linkages between the human health, animal husbandry, agriculture, and environment sectors to detect new cases by providing early warning for veterinary and human public health authorities.

Reference

1. Plowright RK, Becker DJ, Crowley DE, Washburne AD, Huang T, Nameer PO, et al. (2019) Prioritizing surveillance of Nipah virus in India. *PLoS Negl Trop Dis* 13(6): e0007393. <https://doi.org/10.1371/journal.pntd.0007393>
2. WHO. Blueprint for R&D preparedness and response to public health emergencies due to highly infectious pathogens. Workshop on Prioritization of Pathogens. 2015, December.
3. ProMED-mail.Nipah virus - India (05): (Kerala) suspected. ProMED-mail <http://www.promedmail.org/post/20190622.6532121> Accessed 10 July 2019; 2019.
4. The Hindu. Editorial: Caught napping: on Nipah outbreak in Kerala. 6th June 2019. <https://www.thehindu.com/opinion/editorial/caught-napping/article27527406.ece> Accessed 10 July 2019; 2019.
5. Arunkumar G, Chandni R, Mourya DT, Singh SK, Sadanandan R, Sudan P, et al. Outbreak Investigation of Nipah Virus Disease in Kerala, India, 2018. *The Journal of infectious diseases*. 2018. pmid:30364984
6. Chua KB, Goh KJ, Wong KT, Kamarulzaman A, Tan PSK, Ksiazek TG, et al. Fatal encephalitis due to Nipah virus among pig-farmers in Malaysia. *The Lancet*. 1999;354:1256–59.
7. Luby SP, Hossain MJ, Gurley ES, Ahmed B-N, Banu S, Khan SU, et al. Recurrent zoonotic transmission of Nipah virus into humans, Bangladesh, 2001–2007. *Emerging infectious diseases*. 2009;15(8):1229. pmid:19751584
8. Chadha MS, Comer JA, Lowe L, Rota PA, Rollin PE, Bellini WJ, et al. Nipah virus-associated encephalitis outbreak, Siliguri, India. *Emerging infectious diseases*. 2006;12(2):235. pmid:16494748
9. Harit A, Ichhpujani R, Gupta S, Gill K. Nipah/Hendra virus outbreak in Siliguri, West Bengal, India in 2001. *Indian Journal of Medical Research*. 2006;123(4):553. pmid:16783047
10. Arankalle VA, Bandyopadhyay BT, Ramdasi AY, Jadi R, Patil DR, Rahman M, et al. Genomic characterization of nipah virus, west bengal, India. *Emerging infectious diseases*. 2011;17(5):907. pmid:21529409
11. Kumar C, Sugunan AP, Yadav P, Kurup K, Aarathie R, Manickam P, et al. Infections among Contacts of Patients with Nipah Virus, India. *Emerg Infect Dis*. 2019;25(5):1007-1010. <https://dx.doi.org/10.3201/eid2505.181352>