New Nipah case report in Kerala

Sources:


On June 4th, the Kerala government announced a new case of Nipah virus infection. The patient is a 23-years-old male college student from Kochi's Ernakulam district who sought medical assistance for fever. The test performed at the National Virology Institute in Pune confirmed the infection and the patient is currently admitted in a private hospital in an isolation ward.

Three hundred sixteen people have been identified so far by the government as possible contacts of the index case patient and are under investigation; 33 have been put in the high-risk category. Seven symptomatic cases have received a negative result and four discharged. Isolation wards have been set up at the Kalamassery Medical College Hospital and at medical colleges in Calicut, Thrissur and Kottayam. A prompt response of the local health authorities in Kerala has been set-up to contain the spread of the infection, particularly, in the health care setting. An epidemiological program of active surveillance of bats, pigs and other animals was started in the areas of Thodopuzha and Vadakkekara, close the youth's residence.

Nipah virus

Nipah virus, along with Hendra virus (HeV), is a member of genus Henipavirus, belonging to the Paramyxoviridae family and causing a zoonotic infection. Flying foxes, fruits bats are considered the natural reservoir for this infectious agent. The virus was encountered in a wide range of mammalian hosts, such as pigs, horses, cats and dog which can be asymptomatic or develop a mild to moderate illness unlike humans who can develop a deadly disease.

The incubation time varies from 5 to 21 days. The infected patients initially show influenza-like symptoms such as fever, nausea, sore throat, myalgia and headache; subsequently, they develop
more severe manifestations as an atypical pneumonia with respiratory distress and cough or, more frequently, an acute and rapidly progressive encephalitis with a high mortality rate.

Previous Nipah outbreaks

The first infection cases were observed in Malaysia and Singapore between 1998-1999, among pig farmers who had experienced a direct contact with infected animal respiratory fluids. Several outbreaks have been registered in Bangladesh since 2001 and sporadic outbreaks (2001, 2007 and 2018) have been reported in India. The consumption of fruit or fruit products, such as date palm sap, contaminated by infected bats urine and stool, has been identified as the main route of infection transmission and no intermediate hosts have been identified in Bangladesh and India, while direct horse-to-human transmission have been described during an outbreak occurred in 2014 in the southern part of Philippines.) Strong evidence for human-to-human transmission comes from the observations made during the outbreaks occurred in Bangladesh and India, while the same was not observed in the Malaysian outbreak. However, the risk for inter-human transmission increases with close and prolonged exposure to infected patients and their body fluids, being respiratory secretions the highest contagious fluids. Relatives, partners and room-mates are therefore considered as the subjects with the highest risk.

In 2018 in Kerala, India, 23 Nipah virus infection cases (18 laboratory confirmed) were identified between the 2nd and the 28th of May. After a first community acquired case, probably transmitted through the contact with an affected bat, nineteen patients (primary cases) were directly infected by the index case, while the last three people developed their infection subsequently, after a contact with primary cases (secondary cases). The first subjects who subsequently developed symptoms of infection were those who had experienced a longer exposure to the patient's respiratory secretions, such as his father and his brother, who were visiting the case index during hospital admission, and the patients who were admitted in the same room of the case index at hospital 1.

Differently the mother of the index case, despite having had a close and prolonged contact with her sick son, did not become ill. This might be explained by the fact that she had covered her nose with a long scarf because of the bad smell of the hospital, thus reducing her direct contact with the infected respiratory fluids.

The risk of infection in health-care workers is estimated to be low, but it might increase, if adequate infection control measures are not taken and hand hygiene is not respected; three health-care workers have been infected during the 2018 Kerala outbreak.
Mortality related to Nipah virus infection outbreaks is very variable, but usually high: during the first epidemic in Malaysia in 1998, registered mortality did not exceed 40%, while it reached 94.4% of the laboratory confirmed cases (17/18 patients), during the 2018 Kerala outbreak. The analysis of nucleotide sequences revealed the existence of 2 main viral genotypes, the first (genotype M) circulating in Malaysia and Cambodia and the second (genotype B) discovered in India and Bangladesh. A different level of pathogenicity of the 2 viral genotypes could underlie the higher mortality rate registered in India and Bangladesh.

**List of Blueprint priority diseases**

On February 2018, Nipah virus has been identified by WHO as one of the eight pathogens with the potential to cause an epidemic event with global public health risk and for which, given the absence of efficacious drugs and/or vaccines, additional research and development are urgently required.

Emanuele Nicastri*, Samir Al Moghazi*, Nicola Petrosillo^, Eskild Petersen^  
*National Institute for Infectious Diseases “L. Spallanzani”, IRCCS, Rome, Italy  
^ESCMID Emerging Infections Taskforce (EITaF)