DOI: 10.1002/jmv.27745

LETTER TO THE EDITOR

JOURNAL OF MEDICAL VIROLOGY WILEY

Concern over Nipah virus cases amidst the COVID-19 pandemic in India

Nipah virus, a member of the paramyxoviridae family, is classified as a "virus of concern" by the World Health Organization (WHO).[1,2] Nipah virus is usually reported in Southeast Asia due to the geographical prevalence of its natural host, the *Pteropus* fruit bat.[1,3] It is a zoonotic infection transmitted by direct contact with infected animals or via bodily secretions such as bat blood, saliva, and urine. The virus also demonstrates human–human transmission.[4] Nipah virus infection generally affects the central nervous system in human hosts, causing inflammation of brain parenchyma (encephalitis) and can also cause respiratory symptoms.[3] Initial symptoms include fever, headache, later progressing to drowsiness, altered mental status, coma, and even death.[5] As reported by Kenmoe et al. Nipah virus encephalitis has a pooled case fatality rate of 61%.[6] The current management includes symptomatic treatment due to lack of specific pharmacological treatment for Nipah virus.

The first outbreak of the Nipah Virus was reported in India, in 2001.[7] Since then, similar outbreaks have been reported in India in 2007, 2018, and 2019.[1] A new case was reported in Kerala, India, in September 2021.[8] Following this report, the Federal Health Minister dispatched an inter Central team to mitigate further spread. Multidisciplinary team of public health officials, infectious disease experts were deployed in India to help local state officials investigate and respond to the cases.[8]

The Nipah virus has been designated a global epidemic by the WHO due to the high fatality, its highly contagious nature, the potential of human exposure, and the lack of a vaccine. It has also

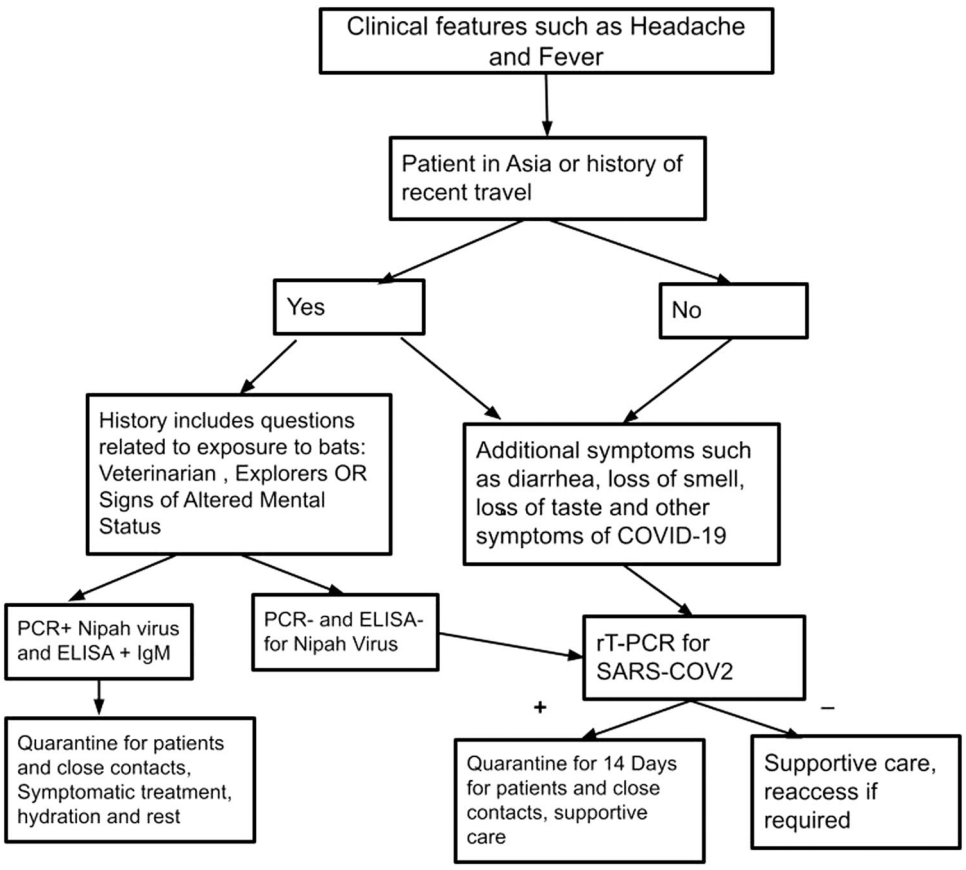

FIGURE 1 Possible screening and diagnostic suggestions for early diagnosis and management of Nipah virus infections. ELISA, enzyme-linked immunosorbent assay; PCR, polymerase chain reaction

been put on the list of outbreak risks regarded as a primary consideration in research & development activities.[7] Nipah virus has a high mutation rate which allows it to adapt to different surroundings, infect new hosts, create new virulence factors, bypass human immune systems, and/or accelerate its transmissibility.[9] The diversity of surroundings and hosts may further accelerate the mutation rate of RNA viruses, explaining new cases in pandemics such as COVID-19. Compared to COVID-19, however, the prevalence of the Nipah virus is much lower. Current policies and healthcare resources have been largely redirected to curb the spread of COVID-19. With public health attention and scientific intrigue focused around COVID-19, reports of Nipah virus, a Stage IV biosafety hazard, are very concerning. It is a matter that warrants further investigation and policy by public health authorities to mitigate the spread.

Implementation and adherence to policies such as regular testing for healthcare professionals, regular screening for individuals presenting with possible symptoms of Nipah virus as part of history taking, and strict quarantine policies in regions of the outbreak can help in early detection and treatment.

Contact tracing and quarantine for close contacts who are possibly exposed shall aid in breaking the transmission cycle for Nipah virus. An increase in resources directed towards public health policy to generate advertisements and radio broadcasts can help develop public interest and awareness about the risks of the viral outbreak and its impact on the general public's health (Figure 1).

Encouraging research on targeting Nipah virus proteins involved in fusion and infection of host cells could lead to the development of treatment specific for the Nipah virus.

Long-term surveillance for the emergence of new variants and possible spillover can help prevent future outbreaks. Stricter implementation of preventive measures to reduce COVID-19 case-load will also reduce the strain on the healthcare industry. This may allow more efficient control of other infectious diseases such as the Nipah virus, which, if not contained, can pose a severe threat to health and healthcare systems. If COVID-19 has taught humanity anything, it is to be vigilant and invest in public health as an individual and society because no one is safe until everyone is.

AUTHOR CONTRIBUTIONS

Conceptualized the topic, coordinated reading, writing and editing: Abdullahi T. Aborode, Wireko A. Awuah, Toufik Abdul-Rahman. *Contributed to reading, writing, editing the original draft and critical revision*: Aashna Mehta. *Contributed to various aspects of reading, data collection, writing the original draft and implementing changes for critical revision under the supervision of Aashna Mehta, Adullahe T. Aborode*: Esther P. Nansubuga, Mrinmoy Kundu, Manas Pustake, Qasim Mohammed, Tillewein H.

ACKNOWLEDGMENTS

Authors have no funding to declare.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

Abdullahi T. Aborode[1]
Andrew A. Wireko[2]
Aashna Mehta[3]
Toufik Abdul-Rahman[2]
Esther P. Nansubuga[4]
Mrinmoy Kundu[5]
Manas Pustake[6]
Qasim Mehmood[7]
H. Tillewein[8]

[1]*Healthy Africans Platform, Research and Development, Ibadan, Nigeria*
[2]*Faculty of Medicine, Sumy State University, Sumy, Ukraine*
[3]*Faculty of Medicine, University of Debrecen, Debrecen, Hungary*
[4]*Faculty of Medicine, University of Leeds, Leeds, UK*
[5]*Institute of Medical Sciences and SUM Hospital, Bhubaneswar, India*
[6]*Department of Internal Medicine, Grant Government Medical College and Sir JJ Group of Hospitals, Mumbai, India*
[7]*Faculty of Medicine, King Edward Medical University, Lahore, Pakistan*
[8]*Department of Public Health, Southern Illinois University, Carbondale, Illinois, USA*

Correspondence
Aashna Mehta, Faculty of Medicine, The University of Debrecen, Ibadan, Hungary.
Email: aash.m19@icloud.com and aashna.m19@gmail.com

ORCID

Andrew A. Wireko http://orcid.org/0000-0003-2380-2949
Aashna Mehta http://orcid.org/0000-0003-2226-0906

REFERENCES

1. World Health Organization. Nipah virus disease, India. http://www.who.int/emergencies/disease-outbreak-news/item/nipah-virus-disease-India
2. Thiagarajan K. Why the world should be more than a bit worried about India's Nipah virus outbreak. *NPR, September*. Accessed December 11, 2021;12:2021. https://www.npr.org/sections/goatsandsoda/2021/09/12/1035571714/why-the-world-should-be-more-than-a-bit-worried-about-indias-nipah-virus-outbrea
3. Jones I. Nipah virus: could it cause the next pandemic? The conversation. Accessed December 11, 2021. https://theconversation.com/nipah-virus-could-it-cause-the-next-pandemic-170243
4. Ministry of Health and Welfare, Government of India. COVID-19 India. Accessed December 10, 2021. https://www.mohfw.gov.in
5. Centers for Disease Control and Prevention. Nipah virus (NiV). Accessed December 11, 2021. https://www.cdc.gov/vhf/nipah/symptoms/index.html
6. Kenmoe S, Demanou M, Bigna JJ, et al. Case fatality rate and risk factors for nipah virus encephalitis: a systematic review and meta-analysis. *J Clin Virol*. 2019;117:19-26. doi:10.1016/j.jcv.2019.05.009

7. Anderson DE, Islam A, Crameri G, et al. Isolation and full-genome characterization of Nipah viruses from bats, Bangladesh. *Emerg Infect Dis*. 2019;25:166-170. doi:10.3201/eid2501.180267
8. Government of India. Activities undertaken by the expert central technical team in Kerala for management of Nipah Virus disease. Accessed May 4, 2021. https://pib.gov.in/Pressreleaseshare.aspx?PRID=1533243
9. Kulkarni S, Volchkova V, Basler CF, Palese P, Volchkov VE, Shaw ML. Nipah virus edits its P gene at high frequency to express the V and W proteins. *J Virol*. 2009;83(8):3982-3987. doi:10.1128/JVI.02599-08