MedCrave
Step into the World of Research

Nursing and Care Open Access Journal

Mini Review

Open Access

CrossMark

Unmasking nipah: India's battle against an emerging pathogen

Abstract

The emergence of the Nipah virus as an infectious disease threat necessitates a thorough examination of India's multifaceted response. This commentary delves into India's tenacious battle against the Nipah virus, offering a detailed exploration of its response efforts, key lessons, and an extensive set of future recommendations. As a zoonotic pathogen originating in fruit bats, the Nipah virus presents a profound challenge to healthcare systems, demanding a comprehensive and adaptable strategy.

Volume 10 Issue 1 - 2024

Majani Edward,[1] Emele Arthur Hayford,[2] Ally Mwambela,[1] Alex Madimo[1]

[1]St. Francis University, College of Health and Allied Sciences, Tanzania

[2]Accra Technical University, Ghana

Correspondence: Majani Edward, Research Project Manager, St. Francis University, College of Health and Allied Sciences, Tanzania, Email majanimedwar@gmail.com

Received: February 03, 2024 | **Published:** February 12, 2024

Introduction

The 21st century witnessed the most pathogenic and contagious virus outbreaks of zoonotic origin, including severe acute respiratory syndrome coronavirus (SARS-CoV), Ebola virus, Middle East respiratory syndrome coronavirus (MERS-CoV), Zika virus, H1N1 Influenza, Marburg virus and currently deadly Nipah virus amidst COVID-19 pandemic.1 Nipah virus (NiV) is an emerging highly virulent zoonotic virus belonging to the genus Henipavirus of the family Paramyxoviridae which causes a range of clinical presentations, from asymptomatic infection (subclinical) to acute respiratory infection and fatal encephalitis. The World Health Organization estimates the Nipah virus's fatality rate to be between 40 to 75 percent and has listed it as a priority disease because of its epidemic potential.[2] The stain identified in Kerala, known as the Bangladesh strain, has a high mortality but is less infectious, Indian media reported. The mortality rate among those who contract the virus is high as there is no vaccine or medicine available to treat the infection. Treatment is limited to managing symptoms and supportive care. The Nipah virus outbreak in India is significant due to the virus's potential for rapid spread since fruit bats (Pteropus genus) which are natural reservoirs of the virus are widely distributed throughout Asia, leading to frequent spillover events, high mortality rates, lack of specific treatments or vaccines, and potential for nosocomial (hospital-based) outbreaks.[3] It poses a significant threat to public health, necessitating public health measures like quarantine, isolation, and public education to control and prevent further spread. Globally, it raises concerns about emerging zoonotic diseases and the need for international cooperation to monitor, respond, and mitigate such outbreaks to safeguard global health. The outbreak of the Nipah virus underscores the critical importance of global preparedness, one health approach, and proactive public health measures to mitigate emerging infectious diseases and safeguard human health.[4] Early detection and efficient response are also crucial in managing these outbreaks and preventing large-scale epidemics.

Recent nipah outbreak 2023

In the southern Indian state of Kerala, the bat-borne Nipah virus has infected six people - two of whom have died -since it emerged in late August. 2023 More than 700 people, including healthcare workers, have been tested for infection over the past week. State authorities have closed some schools, offices, and public transport networks.[5] The Nipah outbreak is the fourth to hit Kerala in five years — the most recent one was in 2021. Although such outbreaks usually affect a relatively small geographical area, they can be deadly, and some scientists worry that increased spread among people could lead to the virus becoming more contagious.[5] There are currently no specific drugs or vaccines available for Nipah virus infection although WHO has identified Nipah as a priority disease for the research and development blueprint as a global call to suppress Nipah impact worldwide.[6]

India's response and containment efforts

Containing the virus requires a complex strategy. Rapid action and high-level political commitment have been demonstrated. The quick response, coordinated by a diverse team of professionals and actively supported by the Kerala Chief Minister and Union Health Minister, emphasizes how crucial leadership is in handling such crises. This reaction placed a high priority on thorough surveillance, infection control, and rapid information transmission. Containment was achieved as a result of the healthcare staff's steadfast commitment. Campaigns to raise public awareness of health issues and community involvement stand out as essential elements of the plan. These programs were crucial in spreading truthful information and battling false information.

The general population was informed about the virus's propagation and symptoms using a range of communication outlets and community involvement initiatives. Although Nipah does not spread through the air, officials have adopted a proactive stance by creating containment zones, encouraging mask use as a precaution, and increasing awareness of symptoms. Local authorities are receiving help from multidisciplinary central teams. These teams, which included professionals from diverse sectors, ensured efficient coordination and response. The One Health strategy, which addresses both human and animal health, has been crucial in limiting outbreaks that have occurred following earlier ones.[7] Research is being done to create vaccinations and treatments. Preventive steps are essential, such as using good hygiene and avoiding contact with potential carriers. Public awareness programs encourage safe behaviours and eliminate myths, as demonstrated by Bangladesh's initiatives.[8]

Lessons learned and future recommendations

Various lessons have been learned from this outbreak. The outbreak has made us aware that is crucial to launch prompt and successful public health awareness programs. During such outbreaks, these efforts are crucial for spreading factual information, dispelling myths, and encouraging community involvement. Second, the Nipah Virus outbreak made it clear how important international cooperation and data sharing are for tackling issues with global health security. Since diseases have no national boundaries, sharing information and experiences is essential for a successful response. Last but not least, the ongoing attempts to develop therapies and vaccinations for the Nipah Virus highlight the necessity of continuing research funding to improve our preparation for new infections. These lessons stress the need for a proactive and cooperative strategy to lessen the effects of upcoming infectious disease epidemics. A diversified strategy is necessary to improve readiness and response to epidemics like the Nipah Virus. To identify possible epidemics early, there must be investments in advanced early warning systems that include data analytics and predictive modeling. To quickly locate the sources of zoonotic diseases, a "One Health" strategy that integrates human, animal, and environmental health surveillance systems needs to be strengthened (4). Also, adaptable vaccine platforms, international medical supply stockpiles, and long-term community involvement programs when established, will improve readiness to fight subsequent outbreaks. Second, international cooperation is crucial. To fully understand the behavior of these diseases, open disease surveillance networks and interdisciplinary research collaborations are required.

These strategies should be complemented by ethical standards and public-private partnerships. Furthermore, we recommend enhanced Surveillance by strengthening national and regional disease surveillance networks through the integration of advanced technologies and cross-border information sharing, ensuring early detection and containment of outbreaks. Prioritize research and development efforts to create novel antiviral drugs and vaccines, fostering global collaboration to accelerate progress. Additionally, establishing specialized public health emergency response teams, continuously training healthcare workers, and implementing knowledge-sharing platforms to bolster outbreak response capabilities. Regular Preparedness Drills by conducting routine public health drills and simulations, assessing readiness, and identifying areas for improvement in real time. Lastly, establishing global collaborative frameworks by fostering international collaboration by establishing global frameworks for information exchange, resource allocation, and joint research, fortifying global health security. By comprehensively implementing these recommendations, India and the international community can fortify their defenses against emerging infectious diseases like the Nipah virus, ensuring a more robust and coordinated response to safeguard public health on a global scale.

Conclusion

India's formidable response to the Nipah virus outbreak serves as an instructive case study for addressing emerging infectious diseases. The lessons drawn from this battle underscore the critical importance of rapid, transparent, and consistent communication during crises. Moreover, it emphasizes the urgent need for sustained investments in healthcare infrastructure, particularly in regions prone to zoonotic diseases.

Acknowledgments

None.

Conflicts of interest

The authors declare that there are no conflicts of interest.

References

1. Kaliappan A, Kaliappan V, Lakshmi JT, et al. Nipah amidst Covid-19 pandemic, another re-emerging infectious disease of pandemic potential – a narrative review. *Maedica*. 2022;17(2):464–470.
2. Nipah virus. 2018.
3. Gazal S, Sharma N, Gazal S, et al. Nipah and hendra viruses: deadly zoonotic paramyxoviruses with the potential to cause the next pandemic. *Pathogens*. 2022;11(12):1419.
4. Singhai M, Jain R, Jain S, et al. Nipah virus disease: recent perspective and one health approach. *Ann Glob Health*. 2021;87(1):102.
5. Evirgen F. Transmission of Nipah virus dynamics under caputo fractional derivative. *J Comput Appl Math*. 2023;418:114654.
6. Halpin K, Rota PA. A review of Hendra virus and Nipah virus infections in man and other animals. *Zoonoses: Infections Affecting Humans and Animals*. 2023;1(17):1493–1508.
7. Singhai M, Jain R, Jain S, et al. Nipah virus disease: recent perspective and one health approach. *Ann Glob Health*. 2021;87(1):102.
8. Urmi TJ, Dewan SMR, Rahman JM, et al. Development of preventive measures and treatment strategies against Nipah virus is a timely need: Bangladeshi perspective. *Clini Pathol*. 2023;16.