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The Readiness of South Asian Countries Against Marburg Virus Outbreaks: A Perspective

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Abstract

Marburg virus is a deadly and contagious virus that has already become an outbreak in several countries. This letter evaluates the preparedness of South Asian countries for a potential outbreak of the virus, and link it with public health framework, laboratory capacity, surveillance and response system, policy and guideline, and public awareness. It is indicated that the level of preparedness for Marburg virus and other similar diseases in South Asian countries is inadequate, with most countries lacking the necessary framework, policies, and guidelines for effective deterrence and restraint of infectious diseases. There is an urgent need for action to strengthen preparedness and response efforts in the region, including the development of comprehensive policies and guidelines, collaboration between different agencies and departments, and increased public awareness of infectious diseases. [*Bangladesh Journal of Infectious Diseases, June 2024;11(1):83-85*]

Keywords: Marburg virus; infectious disease; public health; preparedness; South Asia

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Introduction

Marburg virus is a deadly contagious virus categorized as a biosafety level 4 (BSL-4) infectious agent. The virus, considered part of the Filoviridae family, was discovered for the first time in 1967. Since then, Marburg virus has caused multiple epidemics, particularly in sub-Saharan Africa, with patient fatality rates varying from 24.0% to 88.0% cases[1].

The World Health Organization (WHO) is deeply committed to averting potential Marburg virus outbreaks by maintaining vigilant surveillance and providing crucial support to countries at risk. This involves offering comprehensive guidance for the effective control of both Ebola and Marburg virus outbreaks, ensuring nations are well-prepared to respond swiftly and effectively[2].

Marburg virus is currently untreatable with noavailable licensed vaccinations or antiviral medications.We aimed to describe the public health framework, laboratory capacity, surveillance and response systems, policies and guidelines, and

public awareness of the Marburg virus and other similar diseases in the South Asia region.

Vulnerability of South Asian Countries to Infectious Diseases

South Asia, a region known for its rich biodiversity, is highly susceptible to contagious diseases due to several variables including destitution, limited asset, inconsistent vaccine accessibility, high populationdensity, and fast urbanization. It is even worse because the region lags other areas in terms of government health spending, with only 1.0% of gross domestic product (GDP) allocated for this purpose[3].These combined elements underscore the intricate web of ecological, socio-economic, and public health factors that necessitate a comprehensive approach to effectively mitigate the threat of Marburg virus emergence and dissemination.

Transmission, Symptoms and Impact of Marburg Virus Outbreaks

The Marburg virus is a single-stranded ribonucleic acid(RNA) virus that can spread to people through exposure to infected animals, particularly fruit bats. The virus can also be transmitted through exposure to infected people'sbody fluids, such as blood, vomit, and feces. Since the virus can incubate for up to twenty-one days, there is a considerable possibility of it spreading around the world because of rising globalization and cross-border travel. The Marburg virus has an incubation period of a couple of days up to three weeks, and symptoms consisted of fever, headache, muscle pain, and vomiting. In severe cases, the virus can cause hemorrhagic fever, which can lead to organ failure and death. The impact of Marburg virus outbreaks on public health and healthcare services is significant, as the virus can spread rapidly and cause high mortality rates[1,4].

Assessment of South Asian Countries Preparedness for Marburg Virus Outbreaks

The evidence highlights a pressing concern regarding the inadequate preparedness of South Asian countries in effectively mitigating the transmission of Marburg virus and related diseases. Insufficient preparedness can be attributed to a lack of comprehensive understanding of the virus transmission dynamics and the critical lessons learned from countries grappling with the virus.Most countries lack the necessary framework and resources to respond to outbreaks of Marburg virus or other similar diseases. They also lack the capacity to diagnose these diseases due to a lack of trained personnel, inadequate laboratory facilities, and limited access to necessary equipment and supplies[5]. Furthermore, most people in the region are unaware of the existence of these diseases and the necessary precautions to prevent their spread[3].

It is evident that timely detection, rapid response, and effective contact tracing play pivotal roles in containing the virus' spread. Countries with successful responses have demonstrated the importance of early case identification, robust surveillance systems, and community engagement, all of which contribute to the prompt isolation of cases and breaking the chain of transmission.

Recommendations for Strengthening Preparedness and Response Efforts in South Asian Countries

In anticipation of the potential emergence and spread of Marburg virus (Marburg) in South Asia, it is imperative to fortify the region's preparedness strategies. Understanding the intricate transmission pathways, pathophysiology, reservoir hosts, vulnerable hosts, viral surface stability, diagnostic capabilities, and efficacious treatment modalities is paramount. The urgency to bridge the current knowledge gaps and comprehend the profound public health implications of zoonotic infections warrants a robust focus on research and monitoring of Marburg. The efforts should have a holistic and proactive basis. Key recommendations to bolster preparedness and response efforts in the region encompass[6].

Public Awareness and Education: Governments should actively disseminate accurate, timely information regarding Marburg and its various transmission modes to the public. A collaborative effort involving community engagement is essential to amplify awareness about preventive measures, emphasizing crucial actions like thorough hand hygiene, avoidance of contact with infected individuals or animals, and prompt medical consultation for suspected symptoms. Engaging community leaders, local healthcare providers, and educating vulnerable populations about Marburg virus can significantly enhance preparedness and response effectiveness.

Enhancing Capacity for Outbreak Response: Governments should invest in enhancing their capacity to mount a swift and effective response to Marburg outbreaks. This encompasses the development and activation of comprehensive

emergency response plans, comprehensive training for healthcare professionals and emergency responders, augmentation of surveillance and monitoring systems, and the establishment of seamless communication systems for effective responses.

Research and Development: Governments and international organizations should prioritize research and development initiatives dedicated to filoviruses, with a specific focus on Marburg. This includes the imperative need to develop precise diagnostic tests, efficacious vaccines, therapeutics, and significant investments in foundational research to deepen our comprehension of the virus and its transmission dynamics.

Conclusion

South Asian countries are not adequately prepared to respond to a potential outbreak of Marburg virus or other similar diseases. The lack of public health framework, laboratory capacity, surveillance and response systems, policies and guidelines, and public awareness are all contributing factors to the region's low level of preparedness. To address these shortcomings, the governments of South Asian countries prioritize investments in public health framework, increase laboratory capacity and access to necessary equipment and supplies, strengthen surveillance and response systems, and develop comprehensive policies and guidelines for disease prevention and control.

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Conflict of Interest
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