

Can Emerging Monkeypox Pose a Global Public Health Threat Like COVID-19?

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Recent years have revealed the emergence and re-emergence of several viral zoonoses, such as Ebola haemorrhagic fever, COVID-19, avian influenza, COVID-19, Crimean-Cong haemorrhagic fever, Monkeypox, Nipah virus disease, Rift Valley fever, Marburg virus disease, Lassa fever, Middle East respiratory syndrome (MERS), Zika virus disease, Hanta virus disease, severe acute respiratory syndrome (SARS), Hendra virus disease, West Nile fever, and swine flu [1-14]. These diseases are significant from public health and economic point of view, and occur in sporadic and epidemic form resulting into high morbidity and mortality in both sexes and all age groups throughout the world. Transmission occurs through various routes like inhalation, ingestion, direct contact, animal bite, blood transfusion, skin injury, and vector bite [1,2]. The clinical symptoms are varied, and hence, the help of the laboratory techniques including virus isolation, immunological and molecular, is needed to make an unequivocal diagnosis of zoonotic diseases [1,2,14]. The early and accurate diagnosis and proper health care are imperative to mitigate the suffering of the affected persons [1,2,14].

A number of drivers, which include urbanization, industrialization, climate change, deforestation, population growth, natural disasters, intensified animal husbandry, economic development, international air travel, war, poverty, antibiotic resistance, and human - wildlife interactions etc. are attributed to the emergence and re-emergence of zoonotic infections [1-3].

The emergence of monkey pox posed a threat to the national and international organizations. The disease is caused by monkeypox virus that was first time reported from laboratory monkey in Denmark, and human in the Democratic Republic of the Congo in 1958 and 1970, respectively [15]. The World Health Organization acknowledged monkeypox epidemic a global public health emergency [16]. Monkeypox has been reported from 120 nations of the world between January 2022 to August 2024 resulting over than 100,000 cases [17]. In this context, Simons [18] described the importance for reinforcement of surveillance system for tracking potential zoonotic threats.

An outbreak caused by severe acute respiratory syndrome (SARS) coronavirus 2 (SARS-CoV-2), a single stranded RNA virus, was emerged for the first time in Wuhan city of China in 2019 [19]. Subsequently, COVID-19 rapidly spread all over China, and also to many countries of the world [6]. It was estimated that more than 775 million cases and 7 million deaths were attributed to COVID-19 from the beginning to 23 June 2024 [20]. SARS-CoV-2 has the potential to cause infections both in humans as well as in animals [6]. It is reported that 9.8 million people in the world received vaccine against COVID-19 [20]. Animals, such as bats, minks, and pangolins are recognized as potential reservoirs [21].

Regarding similarities between monkeypox and COVID-19 both are zoonotic in nature [21], both are caused by virus, both became global in prevalence, and both can be prevented by vaccination. However, distinguishing features include mode of disease transmission as

monkeypox is mainly transmissible to the susceptible individuals by direct contact [11,15,21] while COVID-19 is acquired by respiratory droplet [6,21]. Monkeypox is less communicable when compared to COVID-19 [21]. It is believed that the general public is more concerned about COVID-19 than monkeypox [22].

Zoonoses are primarily animal diseases that are communicable to human beings from a wide variety of animals. The veterinarians are considered as the custodian of animal health. In this context, Pal [1] highlighted on the importance of public health veterinarian in global health. There is a need to undertake further research on the development of safe, effective, and low- cost chemotherapeutic agents that are easily available and affordable by the people of many poor resource countries of the world.

It is concluded that interaction between humans and wild-life should be reduced in order to prevent the threats of zoonotic infections. It is predicted that next pandemic might originate from the wild animals. Early warning systems for quick identification of epidemics of zoonotic diseases of major public health concerns is highly imperative. Moreover, implementation of One Health programme by associating the experts from veterinary, medical and environment (ecosystem) at local, state, national, and international level is imperative to combat the emerging and re-emerging zoonoses.

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