



Rising Concern of Monkeypox as a Viral Zoonosis After COVID-19 Era

Masoud Mardani ¹ and Bita Pourkaveh ^{2,*}

¹Infectious Diseases and Tropical Medicine Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

²Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

*Corresponding author: Department of Biology and Anatomical Sciences, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran. Email: bitapourkaveh@yahoo.com

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Based on the last issue of the World Health Organization (WHO), 6027 monkeypox cases have been laboratory confirmed in 59 countries with up to 3000 of cases in 2022 summer ,98% of the person were gay or bisexual men among them 41% had human immunodeficiency virus (HIV). Africa, as an endemic region for monkeypox, has reported three mortalities. No death has been reported from the virus in the United States and other parts of the world. Monkeypox stands for a probable public health problem requiring appropriate attention for the prevention of an outbreak (1).

Monkeypox, a zoonotic viral disease, is brought about by a double-stranded enveloped deoxyribonucleic acid virus, a member of *Poxviridae* under the umbrella of the *Orthopoxvirus* genus, which includes smallpox. The main transmission route of monkeypox is through direct contact with animals via bodily fluids, blood, aerosol, or infected lesions. Another transmission route might be via human-to-human close contact or respiratory secretions, analogous to smallpox regarding clinical characteristics and creation of serologically cross-reactive immunity. According to the WHO, the primary transmission is through male-to-male close physical contact, bringing about the latest flow; nevertheless, male-to-male close physical contact has not yet been confirmed as a transmission route and is under investigation (1, 2).

Prior to the start of manifestations, such as fever, headache, cough, and pathognomonic lymphadenopathy, an incubation duration of 7 - 21 days is reported for monkeypox, with a skin rash on the face and extremities coming after, primarily with the subsequent 1 to 3 days of fever (3).

A definitive vaccine or drug has not been prescribed for monkeypox; it is treated as a syndrome through the management of symptoms and prevention or improvement of

complications. Nonetheless, a licensed vaccine, JYNNEOS® (Smallpox and Monkeypox Vaccine, Live, Nonreplicating) in some countries (e.g., the United States), has been recommended for vaccination of individuals at risk before exposure for occupational exposure to *Orthopoxviruses*. Other vaccines are currently under evaluation according to previous data and efficacy.

Based on the evidence, the protection of the smallpox vaccine is 85% against monkeypox. Furthermore, tecovirimat is licensed by the European Medicines Agency as an antiviral agent for smallpox and for monkeypox in 2022, according to animal and human investigations. Nevertheless, it is preferred to adopt preventive health measures (e.g., avoiding an infected animal or human contact and good hand hygiene). In this time of pandemics, although monkeypox has a mild clinical course and low transmission rate, it should be treated as a potential threat to public health, requiring appropriate control and examination (1, 2).

To date, the occurrence of monkeypox has been reported in numerous countries in Europe and the United Kingdom, Spain, and Portugal. Additionally, confirmed cases are observed in North America, Canada, and the United States. In addition to Europe, Israel and Australia have also reported suspected and confirmed cases. Furthermore, there are confirmed cases in Mexico and Argentina, and suspected cases in Ecuador and Bolivia, estimated at 506 cases, 421 of whom were confirmed cases (83%). Monkeypox cases have also been reported from Latin America (4, 5).

The administration of the smallpox vaccine is generally recommended to prevent the transmission of the monkeypox virus. The aforementioned vaccine, with 85% of cross-protection against monkeypox, is the only option to respond to the challenge of the happening out-

breaks. Despite no particular treatments for monkeypox, the smallpox vaccine is recommended by the Centers for Disease Control and Prevention as postexposure prophylaxis for high-risk contacts within 4 days and up to 14 days of contact; nevertheless, taking into account the 4 to 14 days after exposure date, vaccination possibly decreases monkeypox's symptoms; nonetheless, it does not prevent the disease. Along with the smallpox vaccine, immune globulin is at hand and is possibly utilized as prophylaxis for severely immunocompromised cases; however, the benefits of immune globulin are still uncertain. Antiviral agents that are approved for the treatment of smallpox (e.g., tecovirimat and brincidofovir) have the potential to be used for monkeypox treatment (6).

At present, contact precautions should be maintained by residents and travelers from endemic areas and regions with reported monkeypox cases, besides health staff caring, particularly for male patients that have sex with male individuals, indicating a possible risk of sexual transmission. Nevertheless, other factors are possibly associated with the predilection of cases in this particular at-risk group requiring additional epidemiologic evaluations. With the consideration of the remarkable knowledge gap in monkeypox, there is an apparent requirement for increasing the previous limited global scientific studies carried out on this reemerging zoonosis, as lately shown (7).

Several pandemics of the 21st century, such as severe acute respiratory syndrome, influenza, Middle East Respiratory Syndrome, and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)/coronavirus disease 2019, indicated an everlasting risk of pandemics. Despite the impossibility of predicting the occurrence of pandemics, there is an urgent need for the reduction of vulnerability to infection with any of the aforementioned pathogens. against the latest monkeypox outbreak that involves numerous countries needs worldwide cooperation and the adoption of the most appropriate policies implemented during the latest SARS-CoV-2 pandemic.

Footnotes

Authors' Contribution: It was not declared by the authors.

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