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Human Monkeypox Outbreak in the Non-endemic Countries- Should We be Concerned?

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When the world seems to be recovering from the Covid-19 pandemic, emerging reports of Human monkeypox spreading to non-endemic countries resulted in another wave of global panic. Monkeypox is an orthopoxvirus in the same genus as variola (causative agent of smallpox) and vaccinia viruses (the virus used in the smallpox vaccine). Epidemiologic, animal, and molecular evidence suggests that there are two distinct strains of monkeypox in different geographic regions of Africa, as suggested by The strain isolated from West Africa is less virulent and lacks several genes present in the strain from Central Africa. Virulence differences between monkeypox virus isolate from West Africa and the Congo Basin.[1] The natural reservoir of monkeypox has not yet been identified, though rodents are the most likely. After the eradication of smallpox in 1980, smallpox vaccination was stopped globally, thus making monkeypox the most important orthopoxvirus for public health.

A team of Danish scientists first discovered monkeypox in 1958, and the first human case was detected in a child in the Democratic Republic of the Congo in 1970.[2] Monkeypox is endemic to countries in Central and West Africa, especially in the Democratic Republic of the Congo, the Central African Republic and the Cameroon. It is transmitted to humans through close contact with an infected person or animal or with material contaminated with the virus. Human-to-human transmission occurs by close contact with lesions, body fluids, respiratory droplets, and contaminated materials such as clothes and linen. Transmission via respiratory droplet particles usually requires prolonged face-to-face contact; so healthcare workers, household members, and other close contacts of active cases remain at greater risk.[3] In May 2022, an outbreak in non-endemic countries appears to be associated with close contact related to sexual activity, although the exact mechanism of transmission has not yet been confirmed.[4]

Between 1970 and 1980, only 59 cases of monkeypox were reported. A population-based surveillance study from 2005 to 2007 reported that 20-fold increase in incidence of monkeypox infection occured compared with that seen in the 1980s in the Democratic Republic of the Congo. 760 laboratory-confirmed human monkeypox cases were identified from 2005 to 2007. This study supported concerns of increased instances of human monkeypox due to the lack of prior smallpox vaccination, as persons with a history of smallpox immunization had a fivefold lower risk of monkeypox infection compared with unvaccinated persons.[5]

Travel to endemic countries or contact with imported animals wewre the main causes of monkeypox cases in the non-endemic areas.[3] In 2022, the WHO reported that monkeypox was endemic in several African countries, including Benin, Cameroon, the Central African Republic, the Democratic Republic of the Congo, Gabon, Ivory Coast, Liberia, Nigeria, Sierra Leone, and South Sudan. From January to May 2022, most suspected cases of monkeypox occurred in the Democratic Republic of the Congo, with 1284 cases and 58 deaths reported.[4]

An unprecedented outbreak of monkeypox in nonendemic countries was first reported in Europe in May 2022. As of 22 June 2022, 3413 laboratory confirmed cases and one death had been reported to WHO from 50 countries/territories in five WHO Regions. In Asia, confirmed cases are reported from Singapore and the Republic of Korea.[4]

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The incubation period of monkeypox is usually between 6 to 13 days but can range widely from 5 to 21 days. Clinical features are like smallpox but less severe. The illness has two phases: the invasion period, lasting from 0-5 days, is characterized by fever, intense headache, lymphadenopathy, back pain, myalgia, and intense asthenia. Lymphadenopathy is a distinctive feature of monkeypox, unlike chickenpox, measles, and smallpox.[3] Confirmation of the diagnosis is done by PCR. Serology and antigen detection methods are not recommended, as all orthopoxviruses are serologically cross-reactive.[3] Complications of monkeypox can include pneumonitis, encephalitis, sight-threatening keratitis, and secondary bacterial infections.[6]

Treatment includes supportive care and antiviral therapy. Most patients have mild diseases and recover without medical intervention. Antiviral treatment against monkeypox is recommended for patients with severe illness or those at risk of severe disease, i.e., patients with immunosuppression, malignancy, advanced HIV infection, pregnant or breastfeeding mother, age < years. At this time, tecovirimat is the treatment of choice, although some experts may suggest dual therapy with tecovirimat and cidofovir in patients with severe disease.[7]

Published mortality rates vary substantially due to case selection and observer bias. Reported case fatality rates of outbreaks in the Congo Basin ranged widely from 1% to 10%[8], and the virus clade circulating in this region appears to be associated with higher virulence.[9] In contrast, the West African clade, which is responsible for recent outbreaks in Nigeria, is associated with an overall lower mortality rate of less than 3%.[10]To date, most reported deaths have occurred in young children and people with HIV.[11]

Prior smallpox vaccination with vaccinia virus has a significant protective effect against the acquisition of monkeypox virus and may ameliorate the clinical manifestations of this infection; however, immunity wanes over time. In September 2019, a Modified Vaccinia Ankara (MVA) vaccine (sold under the trade name Jynneos in the United States) was approved for the prevention of smallpox and monkeypox. This vaccine can also be used for post-exposure prophylaxis of monkeypox.[12]

Because of the rapid spread of monkeypox in many nonendemic countries, some public health officials expected that World Health Organization (WHO) would declare it a Public Health Emergency of International Concern (PHEIC). But, after a meeting behind closed doors, a WHO expert panel announced on 25 June that the rapidly growing monkeypox epidemic does not yet warrant that status. Many virologists and epidemiologists criticized the decision; they think that by delaying the declaration of PHEIC, WHO is repeating the same mistake of Covid-19. In addition, the global population born after 1980 did not receive smallpox vaccination, so they have no protection against monkeypox. Global availability with equitable distribution of the MVA vaccine might be helpful to abort this outbreak before it becomes much more widespread.

References

1. Chen N, Li G, Liszewski MK et al.Virology. 2005;340(1):46.
2. Marennikova SS, Seluhina EM, Mal'ceva NN, Cimiskjan K, Macevic GR. Isolation and properties of the causal agent of a new variola-like disease (monkeypox) in man. Bull World Health Organ. 1972; 46: 599-611.
3. WHO fact sheet-Monkeypox.
4. World Health Organization. Multi-country monkeypox outbreak in non-endemic countries: situation update. Accessed on 27th June 2022.
5. Rimoin AW, Mulembakani PM, Johnston SC et al. Proc Natl Acad Sci U S A. 2010;107(37):16262. Epub 2010 Aug 30.
6. Huhn GD Bauer AM Yorita K et al. Clinical characteristics of human monkeypox, and risk factors for severe disease. Clin Infect Dis. 2005; 41: 1742-1751.
7. Grosenbach DW, Honeychurch K, Rose EA, et al. Oral Tecovirimat for the Treatment of Smallpox. N Engl J Med 2018; 379:44.
8. Beer EM Rao VB. A systematic review of the epidemiology of human monkeypox outbreaks and implications for outbreak strategy. PLoS Negl Trop Dis. 2019; 13e0007791
9. Likos AM Sammons SA Olson VA et al. A tale of two clades: monkeypox viruses. J Gen Virol. 2005; 86: 2661-2672
10. Likos AM Sammons SA Olson VA et al. A tale of two clades: monkeypox viruses. J Gen Virol. 2005; 86: 2661-2672
11. Beer EM Rao VB. A systematic review of the epidemiology of human monkeypox outbreaks and implications for outbreak strategy. PLoS Negl Trop Dis. 2019; 13e0007791
12. US Food and Drug Administration. FDA approves first live, non-replicating vaccine to prevent smallpox and monkeypox. https://www.fda.gov/news-events/press-announcements/fda-approves-first-live-non-replicating-vaccine-prevent-smallpox-and-monkeypox

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