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Diagnosis and Management of Monkeypox: A Review for the Emergency Clinician

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INTRODUCTION

Orthopoxviruses are a family of large, complex DNA viruses known to infect a wide range of animals, including humans. The most notorious member of this family is the variola virus, which causes Smallpox. While Smallpox has been eradicated through a global vaccination campaign, other Orthopoxviruses, such as monkeypox and cowpox, continue to pose a threat [1,2]. Understanding the causes of orthopoxvirus infections is crucial for devising effective prevention and control strategies. In this article, we will explore the primary causes of orthopoxvirus infections, including their reservoirs, modes of transmission, and factors that contribute to their emergence and spread. Orthopoxviruses have diverse reservoirs that play a vital role in their persistence and transmission. The primary natural reservoir for Smallpox was humans, with no known animal host. However, the related monkey pox virus maintains natural cycles in non-human primates, particularly in Central and West African rainforests. Other animal reservoirs for Orthopoxviruses include rodents, squirrels, rabbits, and domesticated animals like cats and cows. For instance, cowpox virus, historically associated with bovines, can also infect rodents and other small mammals. Smallpox primarily spreads through direct contact with infected individuals. Inhalation of respiratory droplets containing the virus is the most efficient mode of transmission. Close and prolonged face-to-face contact with an infected person greatly increases the risk of transmission. Zoonotic transmission of Orthopoxviruses is a significant concern. Monkey pox, for instance, can be transmitted from animals to humans through contact with infected animals, their body fluids, or contaminated materials. Hunting, handling, and consuming bush meat from infected animals are common risk factors in areas where monkey pox is endemic. Orthopoxviruses can survive on various surfaces, such as bedding, clothing, or contaminated objects, and retain their infectivity for extended periods. Direct contact with contaminated fomites can lead to infection [3,4].

DESCRIPTION

In healthcare settings, transmission of Orthopoxviruses can occur through contact with infected patients or contaminated medical equipment. Strict infection control measures, including isolation and personal protective equipment, are necessary to prevent nosocomial outbreaks. Since the eradication of Smallpox, routine vaccination against Orthopoxviruses has ceased in many countries. This decline in immunity increases the vulnerability of populations to potential outbreaks and allows the emergence of new cases. Deforestation, urbanization, and expansion of agricultural activities can lead to increased contact between humans and wildlife. This interaction creates opportunities for cross-species transmission, potentially introducing new Orthopoxviruses into human populations. International travel and trade contribute to the global spread of Orthopoxviruses. Infected individuals may carry the virus across borders, leading to localized outbreaks in susceptible populations. Orthopoxviruses have been weaponized in the past, and concerns remain regarding their potential misuse. The intentional release of Orthopoxviruses could result in large-scale outbreaks and pose a significant public health risk. Vaccination remains the most effective strategy for preventing orthopoxvirus infections. While the Smallpox vaccine is no longer administered universally, it is still available for individuals at high risk, such as laboratory workers and healthcare personnel [5]. Developing and deploying vaccines against other Orthopoxviruses, like monkeypox, is an ongoing research priority.

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CONCLUSION

Orthopoxviruses continue to pose a threat to global health, despite the eradication of Smallpox. Understanding the causes of orthopoxvirus infections is crucial for developing effective prevention and control strategies. Reservoirs, modes of transmission, and factors contributing to their emergence and spread play significant roles in shaping the epidemiology of these viruses. By implementing robust surveillance systems, maintaining high vaccination coverage, and promoting public awareness, we can mitigate the risk of orthopoxvirus outbreaks and protect human populations from these infectious diseases.

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CONFLICT OF INTEREST

The author's declared that they have no conflict of interest.

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