Research, Society and Development, v. 12, n. 2, e28112238461, 2023
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Monkeypox: The New Pandemic of 2022

Varíola dos Macacos: A Nova Pandemia de 2022

Viruela del mono: La Nueva Pandemia de 2022

Received: 11/23/2022 | Revised: 12/20/2022 | Accepted: 02/08/2023 | Published: 02/13/2023

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Abstract
This literature review addresses monkeypox, an infectious disease caused by the Monkeypox virus that belongs to the genus Orthopoxvirus and to the family Poxviridae, the same as the human smallpox virus. It had its first case registered in Congo in 1970. After almost 40 years, with no reported case, in 2017 it re-emerged in Nigeria. With the absence of mass vaccination and its transmission occurring through direct contact with people infected through close and prolonged exposure to droplets or other respiratory secretions, this virus has already originated in more than 44 countries, causing a new global pandemic. With a low mortality rate, which can reach between 3% and 6%, its symptoms are very similar to those observed in patients with smallpox, although they are clinically less severe. Thus, the present work aimed to study the characteristics and general aspects of monkeypox, in order to take measures to prevent and promote this disease.
Keywords: Monkeypox; Virus; Disease.

Resumo
Essa revisão de literatura faz uma abordagem sobre a varíola dos macacos, doença infecciosa causada pelo vírus Monkeypox que pertence ao gênero Orthopoxvirus e à família Poxviridae, os mesmos do vírus da varíola humana. Teve seu primeiro caso registrado no Congo em 1970. Após quase 40 anos, sem nenhum caso relatado, em 2017 ele ressurgiu na Nigéria. Com a ausência da vacinação em massa e tendo sua transmissão ocorrendo pelo contato direto com pessoas contaminadas através de exposições próximas e prolongadas com gotículas ou outras secreções respiratórias, esse vírus já se espalhou por mais de 44 países, ocasionando uma nova pandemia mundial. Com uma baixa taxa de mortalidade, podendo chegar entre 3% e 6%, tem seus sintomas muito semelhantes aos observados em pacientes com a varíola, embora eles sejam clinicamente menos graves. Desta forma, o presente trabalho teve como objetivo estudar as características e os aspectos gerais do Monkeypox, para assim tomar medidas de prevenção e promoção dessa doença.
Palavras-chave: Varíola dos macacos; Vírus; Doença.

Resumen
Esta revisión bibliográfica aborda la viruela del simio, una enfermedad infecciosa causada por el virus de la viruela del simio que pertenece al género Orthopoxvirus y a la familia Poxviridae, lo mismo que el virus de la viruela humana. Tuvo su primer caso registrado en Congo en 1970. Después de casi 40 años sin ningún caso reportado, en 2017 reapareció en Nigeria. Con la ausencia de vacunación masiva y su transmisión por contacto directo con personas infectadas por exposición cercana y prolongada a gotitas u otras secreciones respiratorias, este virus ya se ha extendido a más de 44 países, provocando una nueva pandemia mundial. Con una baja tasa de mortalidad, que puede alcanzar entre el 3% y el 6%, sus síntomas son muy similares a los observados en pacientes con viruela, aunque clínicamente menos severos. Así, el presente trabajo tuvo como objetivo estudiar las características y aspectos generales de la viruela del simio, con el fin de tomar medidas para prevenir y promover esta enfermedad.
Palabras clave: Viruela del simio; Virus; Enfermedad.

1. Introduction

Smallpox is an infectious disease, prescribed in Brazil by French colonists in the year 1555, and since then several protected global outbreaks have been seen over time. It has the characteristics of being transmitted through droplets of saliva, or sneezing, from person to person, through the Orthopoxvirus, and may present various symptoms such as fever, skin eruptions isolated by bubbles with secretions, which, when hatched, release a transparent liquid highly infectious. However, from time to time, these viruses undergo testing to be able to infect other species of animals, establishing a potential risk factor for local or worldwide transmission.

Monkeypox is considered a zoonosis in which the virus (Monkeypox) is transmitted to humans through contaminated animals, including squirrels, Gambian rats and voles. The first case was reported in Congo in 1970, and it re-emerged in Nigeria in 2017, after 40 years without any cases. In the present day, the transmissibility of this electrical mutation, now where it is known, forty-four countries, with increasing numbers, thus establishing a new pandemic.

Currently, reports of the disease continue to grow and rapidly restrict themselves, mainly in underdeveloped countries. Thus, the objective of this study is easily to carry out a literature review with the purpose of better describing the disease, with all its characteristics, and also explaining its forms of transmission, thus being able to promote a greater knowledge on the subject.

2. Methodology

For the construction of this Literature Review, searches were carried out using descriptors in PUBMED Central, BVS/BIREME, Web of Science, Scielo, The Cochrane Library, Google Scholar and books on the subject, classified as gray literature,through fundamental knowledge (whitmore,2005).descriptors”Monkeypox”,”virus”,”disease and monkeypox”.the available articles published in Portuguese, English and Spanish, which addressed the subject of the study and which were published in the last ten years. Exclusion was based on articles that were not available in full for free, on those that did not mention the clinical and epidemiological aspects of monkeypox, in addition to those that appeared duplicated in different databases.

3. Literature Review

Historically, human smallpox has a very close relationship with Monkeypox, since they have a common genetic component. This factor is fundamental for the evolution, proliferation and development of Monkeypox, in which, due to the absence of traditional vaccination against smallpox, it managed to evolve and become the newest pandemic that affects humanity.

During the evolutionary process of this new pandemic, the invasion of the biome in question constitutes a fundamental element for the transmission of this relatively new disease. The contact of human beings with the forest environment necessarily favors greater exposure to contaminating factors from animals. A population increase implies: invaded physical environmental

space, increased food supply, and, in many cases, establishment of exposed sewers in the open, a fact that facilitates the transmission of various types of diseases (ANVISA,2022).

Monkeypox is caused by the zoonotic Orthopoxvirus, which is very similar to human smallpox. Laboratory diagnosis is the main component for the identification and epidemiology of the disease.

Geographically, most human infections have been reported and recorded in Central Africa, in rural areas with widespread environmental encroachment and the presence of precarious infrastructure. From the perspective of epidemiology, increased attention is required for monitoring and recording the numbers of infected people and fatal victims resulting from the disease. In this sense, Monkeypox is transmitted to humans when they have contact with infected animals, not necessarily monkeys. Transmission can be initiated by small mammals such as rodents (Breman et al, 1980).

Some cases have shown that the virus can also be transmitted through direct and indirect contact with blood, body fluids, respiratory droplets, droplets and fomites, such as towels and bed linen.

Most cases of Monkeypox are a mild disease with a fatality rate of around 3% to 6%, with palliative care such as antivirals (for example, tecovirimat, brincidofovir, cidofovir) but the most indicated antiviral for more severe cases is tecovirimat and, intravenous vaccine immunoglobulin are available as treatments (Monkeypox infections in animal, 2022).

Antivirals may be recommended in severe illness, immunocompromised patients, pediatrics, pregnant and lactating women, complicated lesions, and when lesions appear near the mouth, eyes, and genitals. These are the main countermeasures against monkeypox.

In view of this, there is not enough information available on the clinical use against monkeypox vaccine during the lactation period. The Monkeypox vaccine does not replicate as it does not live. According to the Center for Control and Prevention in the United States, they state that if vaccination against Monkeypox is required by pregnant women in the postpartum period, there is no reason to prevent vaccination for these people (Pinkstone et al, 2022).

In classical human Monkeypox virus disease, it has the following symptoms: prodrome, headache, myalgia and/or lymphadenopathy develops 4 to 17 days after exposure. This is followed by a characteristic painful or itchy maculopapular rash that progresses to vesiculopustular lesions. They are very restrictive and possibly umbilicated and can spread over the face, mouth, trunk and extremities (including the palms of the hands and soles of the feet). And the disease lasts from 2 to 4 weeks with low mortality (UNAIDS, 2022).

Additional outbreaks of Monkeypox occurred among laboratory monkeys in consecutive years, with a massive outbreak at Rotterdam Zoo among anteaters and various primates in 1964. Human cases of Monkeypox were reported in West and Central Africa in the 1970s, particularly among children presenting diffuse vesiculopustular rash, lymphadenopathy, and fever.

Monkeypox virus infection is preferably detected by a positive PCR test of swabs or scabs from skin or mucosal lesions. A positive serum or CSF PCR test is also confirmatory. Viral culture is less sensitive but can sometimes help with confirmation. A positive anti-orthopox virus IgM test in serum or CSF may be suggestive of recent MPV infection, although it may not be able to differentiate between recent vaccination and other viral infections caused by Orthopoxvirus. An anti-orthopox IgM test can also be negative in those who are unable to mount an antibody response but who still have Monkeypox infection. Other infections such as syphilis, varicella zoster, herpes simplex, molluscum contagiosum or acute HIV can resemble Monkeypox (McCollum et al, 2015).

Based on the paragraph above one should first avoid contact with people with suspected Monkeypox to prevent monkeypox infection while they are imminently infectious. Those with suspected or confirmed Monkeypox infection, have to isolate themselves at home or in another place where they can cover arms and legs, thus reducing the risk of contagion, wear a mask around other people, wash and disinfect their hands after touching the lesions and not share any personal objects. At present,

healthcare professionals are advised to use droplet precautions, which include basic care, private rooms, use of a surgical mask, and rigorous transport of patients with confirmed or suspected Monkeypox infection (Sousa et al, 2022, Minhaj, 2022)

4. Discussion

In the past, Monkeypox was classified as an endemic viral zoonosis that reached countries in Central and West Africa, but since the eradication of smallpox in 1980, there has been an exponential growth, resulting in an unprecedented epidemiological pattern in human history and, consequently, in the most recent classification of Monkeypox as a pandemic viral zoonosis, but despite having low pandemic potential, the population needs to remain alert. The recent SARS-Cov-2 pandemic serves as an example, where it spread quickly, afflicting several families, leaving the stigma of socially unwanted memories and memories, such as isolation/social distancing, which contributed to the alert and concern in the opinion public health, given the threat of new global health emergencies. However, the international scientific community has been warning due to notifications of outbreaks of the disease in non-endemic areas, the recurrent number of cases related to the new outbreak of monkeypox (MV)(Brasil,2022)

Therefore, prevention and promotion measures are of paramount importance for the population to understand the infection. Among the preventive measures are frequent hand hygiene and avoid contact with infected patients and animals. , fever, headache and body aches, back pain, chills, tiredness, swollen glands that commonly precede the characteristic rash of the disease, and skin sores (rashes), however the rashes, which go through different phases. They start out red and without volume, then gain volume and bubbles, before forming the shells. These wounds are different from those seen in chickenpox, scabies, syphilis, herpes and other diseases. Clinical care must be optimized to the maximum to alleviate symptoms, manage complications and prevent sequelae over time (SMS-SP,2022)

Immunosuppressed patients can worsen violently as the days go by, causing serious conditions related to the onset of pneumonia, sepsis, encephalitis (inflammation of the brain) and eye infection, which can even lead to blindness. in the population, and reliable information on how the virus can overlap in the population, monkeypox is transmitted through close contact with skin lesions, respiratory secretions or objects used by a person who is infected (Parker, et al, 2012, Lopera, et al, 2015)

Thus, unlike COVID-19, in which there is airborne transmission through small droplets suspended in the air, the current understanding regarding monkeypox is that the virus that causes the disease is spread through close contact with an infected person, which can pass the virus through the characteristic lesions on the skin or through large scattered droplets expelled through the respiratory system, such as those present in sneezes. This implies a population protagonism in the performance of preventive acts, in addition to basic rules such as the use of masks, social distancing and hand hygiene, techniques that are highlighted by health surveillance (Catalent Pharma Solutions, 2018)

Therefore, the highest number of infected cases reported by Monkeypox were concentrated in the group of men who have sex with men, the director of the World Health Organization (WHO) advised that this public should consider reducing, at this time, the number of partners sexual intercourse to decrease the risk of exposure, although it is not a proven factor, the WHO has admitted that prolonged intimacy during sex appears to be the main condition that facilitates the transmission of monkeypox during sex. Monkeypox is not a sexually transmitted infection (STI), however it can be spread through intimate contact during sexual intercourse when there are active rashes. However, the disproportionate number of cases among the population of gay men and other men who have sex with men (MSM) led the WHO to issue recommendations aimed exclusively at this population (World Health Organization,2022).

Another relevant coefficient is the administration of human smallpox vaccines that can act against monkeypox. Initial data indicate that the immunizer produced by Bavarian Nordic is 85% effective against monkeypox. In addition, basic attention such as avoiding sharing objects, including bed linen and towels, touching objects and fabrics (clothes, sheets or towels) that

were used by a person infected with the virus and that were not disinfected is a potential route of contagion. This is because pus and crusts from lesions may be present on these surfaces. Covering arms and legs in crowds Before going to an event, it is recommended to analyze how much the occasion will involve skin-to-skin contact with people. However, participants should be aware of activities (such as kissing and sharing drinks and cigarettes) that can spread Monkeypox (ECDC,2022).

Be aware of the symptoms and seek medical attention, as Invasion period (lasts between 0 to 5 days) is characterized by fever, severe headache, swollen lymph nodes, back pain, muscle aches and lack of energy. The increase in "bumps" is a feature that differentiates Monkeypox from other diseases that may initially appear similar to the virus, such as measles. Rash: Usually starts within 1 to 3 days after the onset of fever. Sores tend to be more concentrated on the face and extremities than on the trunk. They mainly affect the face, the palms of the hands and soles of the feet, the oral mucous membranes, the anus and the genital regions. The sores start out as flat, reddish spots and usually evolve into larger blisters, which then fill with a yellowish fluid, form a "scab" and fall off. Very infectious, they are the main means of transmission of the disease in the current outbreak (Guarner et al,2004)

According to the WHO, at the present time, the public health risk at the global level is assessed as moderate, considering that many cases of MV are frequently reported in non-endemic and endemic countries, currently. , as epidemiological information is still restricted, the real number of cases is probably underestimated, the exact amount of infected is not known exactly. Until then, the current risk to human health and the general public remains low, the risk for public health it may become high if this virus explores and establishes itself in countries where there is no reported frequency of cases, as a generalized human pathogen. However, there is a risk for health professionals that there may be contact with a patient infected, if they do not use adequate prevention measures or using personal protective equipment (PPE) when necessary, to avoid transmission and may decrease contagion. Rapid identification of new cases is essential for outbreak control, close contact with infected people should be avoided as much as possible is the most relevant risk factor for monkeypox virus infection (CDC, 2022).

5. Conclusion

In view of this, it can concluded that monkeypox is a disease with great pandemic potential, and it is extremely important to take some precautions to prevent the proliferation of the Monkeypox virus, consequently increasing its transmission, and because of this, it is important to avoid close contact with people who are sick or who show signs of the disease. It is essential to avoid contact and have sex with infected people. In addition, it is important not to share cups, cutlery or other personal objects as well. It is also necessary not to handle towels, clothes or bedding of people with monkeypox. Another preventive way of is to always ensure that your hands are clean. Therefore, it is fundamental to reduce the contamination of monkeypox, preventing more people from suffering from the outcome of this virus.

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