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INFECTIOUS DISEASES REVIEW

AN OVERVIEW OF MONKEYPOX OUTBREAK

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Abstract
The proceeding 2022 multicountry epidemic of Monkeypox emerges as a global health concern. The first death outside of Africa appeared in Brazil on July 29, 2022, and the first death in Europe occurred in Spain on July 29, 2022. As a result, the World Health Organization announced the monkeypox epidemic as a global public health emergency on July 2022. Therefore, we aimed to present a review in light of contemporary facts. We conducted a review of current details on Monkeypox. Close contact is the best-known risk factor for human-to-human transmission; a pregnant woman can pass the virus to the fetus. The approximative incubation period is 10-14 days. Prodromal symptoms are fever, malaise, chills, and lymphadenopathy. Then clinicians observe that rash develops in most patients. Monkeypox usually takes 2-4 weeks on its own. The plurality of monkeypox patients recovers without treatment. However, some patients with complications may need treatment. Children, pregnant women, and immunocompromised individuals may develop a longer disease because of eye infections, pneumonia, and encephalitis. Physicians use anamnesis, clinical signs, and laboratory tests to diagnose infection. Infected animals and patients should be quarantined. There is no specific vaccine still. Nevertheless, the smallpox vaccine protects 85% against monkeypox, according to early reports. Antiviral drugs, Tecovirimat, Cidofovir, Brincidofovir, and Human Vaccinia Immune Globulin, can potentially treat. Our review centers on clinical knowledge for the efficacious management, prevention, and guidance of monkeypox responders and patients globally.

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INTRODUCTION AND HYPOTHESES

While the effect of the COVID-19 pandemic, which shook the whole world, has not passed, we are faced with a possible second epidemic. The monkeypox virus (MPV) is the other etiological agent. MPVs are not new; it was first discovered in 1958 [1]. On May 6, 2022, a monkeypox outbreak in the United Kingdom (UK) was confirmed, originating from a British national who had previously traveled to Nigeria, where the disease is endemic [2]. Monkeypox is a zoonotic disease caused by the MPV, closely related to the causative virus of smallpox [3]. The World Health Organization (WHO) declared the monkeypox outbreak a Public Health Emergency of International Concern (PHEIC) on July 23, 2022. This decision was made after reviewing cases from more than 70 countries, most of which are non-endemic, many with mild non-specific clinical presentations without clear epidemiological links [4].

This paper aimed to provide researchers with a holistic source of information about the disease at the onset of a potentially major outbreak. The term “monkeypox” was searched on the Web of Science, PubMed, and Scopus databases. This text discusses general information about monkeypox, its history, origin and spread, transmission routes, clinical features, epidemiology and pathogenesis, diagnosis, treatment, and prevention.

HISTORY

Smallpox was a disease of great importance to humans until 1977, when it was eradicated; after the eradication, some other human poxviruses came to the fore, and monkeypox received the most attention. This may be because the clinical presentation is almost identical to smallpox, and variola provides high protection against monkeypox infection by vaccination [5]. The first isolation of the MPV occurred in 1958 at the Statens Serum Institut in Copenhagen, Denmark, with the detection of a non-fatal smallpox-like disease in two Macaca Cynomolgus monkeys arriving from Singapore to Copenhagen, 51 to 62 days after the animals came to Copenhagen similar eruptions occurred [6]. According to the literature, smallpox outbreaks can be seen from time to time among primates, and the clinical features of monkeypox were first described in 1960. Monkeypox was detected in 7 primates in 1968, and one was confirmed by virus isolation [7, 8]. The first detection of monkeypox in humans was in a 9-month-old boy in Zaire (the Democratic Republic of the Congo (DRC)) in 1970 [9]. The first human case outside of Africa was seen in the United States in 2003 with the importation of animals from Ghana [10]. According to the genetic sequence of the MPV, two different variations were detected: West Africa and Central Africa. However, the fatality rate in cases in the Central African type reaches 11%, and human-human transmission is observed [11].

In the first epidemiological studies conducted since the first human monkeypox case, 47 were detected in Sub-Saharan Africa until 1979. Ten human MPV cases were observed in West African countries from 1970 to 1986, and 394 patients were seen in Central African countries [5, 9]. The disease is less severe in the West African type, and individuals vaccinated against smallpox have also been observed to have fewer lesions and less severe disease. Between 1981 and 1986, the WHO focused on surveillance efforts to address the MPV's clinical, epidemiological, ecological, and biological characteristics [5]. Mathematical models implied that the MPV could not be transmitted indefinitely from person to person without an additional entry from zoonotic hosts. The longest-known chain of infection showed only four generations of human-to-human transmission, and the WHO surveillance program ended in 1986, reducing MPV surveillance in Africa after 1990 [12-15].

After WHO's surveillance program ended, 13 cases were reported between 1986 and 1992, no patients were reported between 1993 and 1995, and more than 500 suspected cases of MPV were reported between 1996 and 1997, with only a few confirmed in vitro [16, 17]. Although no case report of suspected monkeypox was published until 2001, when 31 cases were detected, from this date, the unpublished data of the NKR Ministry of Health revealed 1265 cases, 215 of which were sampled between January 1, 1998, December 31, 2002. And 88 of the samples were taken by PCR, and culture results were found compatible with monkeypox [14]. As part of the national disease surveillance program of the DRC Ministry of Health, 2734 suspected cases were reported between January 2001 and December 2004, and samples were taken from only 136 patients due to the civil war, and 37.5% of them were positive for MPV [18].

Between September and December 2005, 10 confirmed, nine probable, and 30 suspected monkeypox cases were reported in Sudan, the first to occur in the African dry savanna outside the tropical rainforest, the traditional

habitat of MPV. It is important because of its characteristic of being contagious and the definition of human-to-human transmission for up to 5 generations [19, 20]. Between November 2005 and 2007, 760 cases of monkeypox were described in the DRC [21, 22]. Between 2010 and 2018, approximately 18,000 unnumbered cases of MPV were detected in the DRC, an endemic monkeypox region. A minimum of 68 patients, of which at least 29 have been confirmed in the Central African Republic, 16 cases with one confirmed case in Cameroon, 244 cases with 101 confirmed in Nigeria, two confirmed cases in Liberia, at least 2 cases in Sierra Leone (2 confirmed), 98 cases were detected in the Republic of Congo, 9 of which were confirmed [22, 23].

After monkeypox was seen in Nigeria 39 years after the last reported case in September 2017, monkeypox was observed in the UK in 2018 by two people who traveled to Nigeria. A healthcare worker was again infected with the nosocomial infection in Nigeria in 2018. In addition, a returnee detected the first monkeypox case in Israel [3, 24, 25]. Since the detection of the first case of monkeypox 2022 in the UK in early May 2022, cases have started to be reported from many countries where monkeypox is not endemic. Until July 29, 2022, 72 were in non-endemic countries and 7 in countries with a previous case of monkeypox. Twenty-two thousand four hundred eighty-five cases of monkeypox were reported, including 22.485 cases of monkeypox, 22.141 of which were detected in countries where no cases of monkeypox were previously reported [26]. During this period, five deaths due to monkeypox occurred in African countries, the first death outside of Africa occurred in Brazil on July 2022, and then the first death in Europe occurred in Spain on July 29, 2022 [27, 28].

ORIGIN AND SPREAD OF MPV

MPV from the Orthopoxvirus family was identified as a vesicula-pustular rash illness and explored in 1958 among captured monkeys hauled to Denmark from Africa at a time when they were often used for research purposes about safety testing of both live attenuated and inactivated poliovirus vaccines [6]. Monkeys are animal host reservoirs of Monkeypox. The virus was earlier identified as Monkeypox, although the name “monkeypox” is improper [29]. Animals that mainly harbor the virus include infected wild animals. Rodents (rats, squirrels, and dormice) and giant pouched rats, chased for food, are Monkeypox's most extensive animal reservoirs [30]. Since 1968, eight outbreaks in primate colonies have been characterized, and an outbreak was also detected in a European zoo. Then an epidemic was described in which several species were infected. Specialists did not detect human infections associated with these outbreaks [7]. The foremost human case of the virus was determined in 1970, during a period of intensified smallpox surveillance via the WHO-sponsored endeavors in Western Africa and the Congo Basin, September 1, 1970. Until 1971, 9 of 1177 examples transmitted to the WHO-Collaborating Centers for MPV were positive: all were single cases from a typical non-human animal source. Of the 54 human disease cases detected between 1970 and 1979, 5 isolated potential examples of secondary human-to-human transmission were documented [23, 31].

TRANSMISSION ROUTES

The ways to spread MPV:

1. Zoonotic transmission (Animal-human) arises through consumption, direct contact, bite, or laceration, usually a rodent or a primate, mainly a host of the virus [32]. Living in forested or lately deforested locations, no smallpox vaccination, handling or consuming animal reservoirs, and resting on the floor (in endemic regions), practices such as consumption, hunting, and handling were implicated as primary risks [33]. By now, humans have generally contracted the disease from infected wild animals found in the rainforests of West and Central Africa.
2. Human-to-human transmission. Close physical contact is the best-known risk factor for person-to-person transmission [30]. It is likely through close contact, biological fluids, large respiratory droplets, and contaminated materials such as clothes and bedding of an infected patient. Prolonged face-to-face contact is required for transmission through respiratory droplets. However, sexual transmission is still unclear. Monkeypox has not so far been classified as an STD, although many recent cases have been identified as predominantly men having sex with men [34]. Direct contact during sex is considered a transmission route. Direct contact way also puts healthcare employees, family members, and other close contacts of patients at considerable risk.
3. The virus can pass to the fetus by the vertical route. Thus, it can lead to congenital Monkeypox [33].

EPIDEMIOLOGY AND PATHOGENESIS

The first official case in history emerged in the 1970s when it was reported on a nine months baby boy in Zaire. But monkeypox is thought to infect humans for thousands of years in sub-Saharan Africa [14]. Until

1980, 59 cases were described in Africa. The mortality rate in these cases was 17% [16]. The first epidemic description was made in the United States in 2003, after cases related to prairie dogs and Gambian opossums brought from Ghana. Monkeypox is transmitted through infected animal bites and body secretions. Although it is seen in squirrels, mice, and monkeys, its reservoir is unclear [35]. Human-to-human transmission occurs through close contact with bodily fluids or infected skin lesions. In cases where mucosal integrity is impaired, the risk of direct or indirect transmission increases [36]. Individuals without personal protective equipment can be transmitted through droplets in face-to-face conversations longer than 3 hours in a closed room [37]. The longest transmission chain from person to person has been determined as six generations [38]. As a result of the studies conducted on the cases in the USA in 2003, the duration of infection by the MPV in humans was determined as 6-13 days, but it was shown that it could be seen between 5-21 days [39]. In 2022, the WHO accepted many African countries, especially Nigeria, Cameroon, and Congo, as endemic places for monkeypox and reported 1238 cases and 57 deaths in these countries between January and May. According to today's current data, cases have started to be seen in non-endemic countries, especially in the USA, England, Portugal, Italy, and Canada. As of August 2022, there are more than 2000 confirmed cases of monkeypox in the world [33]. In today's epidemic, person-to-person transmission is thought to be mainly through close contact and sexual contact. The modeling method evaluation identifies monkeypox as a potential epidemic agent with R0>1 [37].

CLINICAL FEATURES

The clinical picture of MPV is similar to smallpox. The main distinguishing feature is early lymphadenopathy. Lymphadenopathy was seen in 90 percent of unvaccinated patients and may be submandibular, cervical, or inguinal [40]. Lymphadenopathies are firm, tender, and sometimes painful [31]. The approximate incubation period is 10-14 days, after which prodromal symptoms with fever, malaise, chills, and lymphadenopathy are observed in most patients before the rash develops [5, 39, 41]. There is no significant difference between the clinical features of the disease and age and gender, and there are studies that divide the disease's clinical course into two groups: pre-eruption and eruptive period [11]. Simultaneous rashes occur 1-3 days after fever and lymphadenopathy. Although these rashes mainly start on the trunk, they can spread to the soles and palms of the feet, mouth, mucous membranes, tongue, genital areas, and the whole body with a centrifugal pattern depending on the severity of the disease [14, 40]. In the first week of the rash, the patient is considered contagious and should be isolated until all crusts are removed and the PCR result is negative [14, 40]. The mean diameter of skin lesions is around 0.5-1 cm, and the clinical course is similar to smallpox. In 2-4 weeks, the lesions progress from macules to papules, vesicles, and pustules, followed by crusting and peeling [40]. A second febrile episode after skin lesions become pustular has been linked to worsening the patient's overall condition [5]. Observation of the rash may cause it to be confused with other exacerbated diseases, and the most common misdiagnosis (approximately 50%) is varicella (VZV). It isn't easy without testing [22, 42-44]. Other symptoms of monkeypox include headache, backache, sore throat, cough, and shortness of breath [14]. In the USA, all 32 patients with lab-confirmed MPV had a rash. At the same time, all but one reported at least one other clinical sign or symptom, such as fever, respiratory symptoms, and lymphadenopathy [45]. Monkeypox usually takes 2-4 weeks on its own. Still, children younger than eight years old, pregnant women, and immunocompromised individuals may have a longer disease process due to complications from pneumonia, encephalitis, and eye infections [46]. While unvaccinated patients experience more severe complications and sequelae than vaccinated patients, complaints such as secondary infection in the lung, vomiting, and diarrhea may also be observed [11, 44]. Pit scarring is infection survivors' most common long-term sequelae [44]. Death usually occurs of illness in the next week [40].

DIAGNOSIS

The anamnesis, clinical symptoms, and laboratory tests are used to diagnose MPV infection [1]. Clinicians should investigate suspected cases of monkeypox for travel and sexual history, as well as close contact with anyone with a similar rash or suspected or confirmed monkeypox infection [47]. Multiple vesiculopustular rashes on the skin and enanthemas on the mouth and tongue are typical hallmarks of monkeypox disease [48]. The patient's immunization and medical and epidemiological information can be used. In addition to these, genetic, phenotypic, and immunological methods are available to analyze specimens and determine MPV [2]. Although this information facilitates the diagnosis of the disease, the gold test is Polymerase Chain Reaction [44]. But high-quality technology Real-Time PCR is difficult to access in low socioeconomic countries [2]. To diagnose monkeypox, health professionals must collect the appropriate specimen and send it to the laboratory [33]. Samples may be taken from lesions or biopsies for genetic testing [2]. Immunohistochemical methods can be used to detect virus antigens. The Elisa test shows

IgM or IgG antibodies against MPV in the blood for about 5-8 days after the rash develops [49]. Histology of samples can show acanthosis, basal vacuolization, keratinocyte necrosis, and lymphohistiocytic infiltrate [29].

TREATMENT

In Monkeypox disease, most patients can recover from the disease in 2-4 weeks without the need for medical treatment. Nevertheless, treatment should be planned considering the patient's clinical needs to alleviate symptoms and reduce complications and possible long-term sequelae risk. When necessary, analgesic, anti-pyretic, hydration, and skin care should be applied as supportive. Since smallpox and monkeypox are genetically similar, drugs and vaccines that are effective in smallpox can be used in monkeypox. Antiviral drugs, Tecovirimat, Cidofovir, Brincidofovir, and in some cases, Human Vaccinia Immune Globulin (VIG), can be used to treat [50]. Tecovirimat is a Food and Drug Administration (FDA) -approved antiviral agent for smallpox disease. Although it has not yet received FDA approval for monkeypox, it is effective in monkeypox disease in animal experiments [51]. Tecovirimat inhibits the viral envelope protein VP37 on the surface of orthopox viruses, preventing the virus from reproducing and spreading in the infected host [50]. Although Tecovirimat is approved by FDA for smallpox in Adult and pediatric populations over 3 kg, monkeypox has been approved by EMA for use in pediatric populations over 13 years of age with adults. It is available in IV and oral forms [52, 53]. Adverse effects of Tecovirimat; include headache, nausea, vomiting, abdominal pain, loose bowel movements, and pain or swelling at the IV infusion site [54, 55]. Cidofovir is a nucleotide analog and acts by selectively inhibiting viral DNA synthesis. Effective against most DNA viruses, including Ortopox viruses. However, the FDA has approved it for use only in treating cytomegalovirus retinitis in patients with AIDS. In addition, since it has been found to be embryotoxic in animal experiments, its use in pregnant women is not recommended. IV form is available. Neutropenia decreased ocular pressure, and nephrotoxicity are critical adverse effects [51, 56].

Brincidofovir is an oral lipid prodrug of cidofovir. In 2021, the FDA approved the treatment of smallpox disease. Advantages over cidofovir; It can be used orally instead of IV, has higher bioavailability, and has lower nephrotoxicity. It can also be used for CMV and BK virus, Adenovirus, and Ebstein-Barr virus (EBV). Its adverse effects are reported as diarrhea, nausea, vomiting, abdominal pain, elevated transaminase, and bilirubin [51, 57]. Human Vaccinia Immune Globulin (VIG) is a purified hyperimmune globulin. The FDA approved it in 2005 to treat complications of the Vaccinia vaccine. These are vaccinatum eczema, progressive vaccinia, severe generalized vaccinia, infections in people with skin conditions, and vaccinia virus-induced aberrant infections. It is administered IV and provides passive immunization [50, 58].

As a result, the majority of monkeypox patients recover without treatment. Some patients may need treatment. Patient groups that may have treatment indications:

1) Those with serious diseases (hemorrhagic disease, confluent lesions, sepsis, encephalitis).
2) Patients at high risk (Patients with immunodeficiency, especially children under eight years of age, pregnant and breastfeeding women, those with atopic dermatitis and other active exfoliative dermatological conditions, and people with one or more complications).
3) Those who are accidentally exposed to MPV implantation.

Management should be done by considering the patients' risk status and treatment needs [47, 54].

PREVENTION

To prevent the emergence and spread of monkeypox, the first thing to do is to prevent the transmission of the virus from reservoirs to humans. In areas where MPV is endemic, direct contact with rodents and primates, their blood, and undercooked meat should be avoided. Infected animals should be quarantined for at least six weeks from the last exposure date. Close contact with infected people should be avoided to prevent human-to-human transmission. Healthcare workers should use protective equipment (gloves, surgical masks, and protective clothing) and be trained in isolation practices. For the virus not to cause new infections, hands should be washed frequently and adequately with soap. There is no specific vaccine against MPV yet. However, it has been reported that the smallpox vaccine protects 85% against MPV [59]. There are two approved vaccines for smallpox and MPV; the ACAM2000® vaccine is the second generation, live replicating vaccinia virus, JYNNEOSTM (also has equivalent names as IMVANEX, IMVAMUNE, MVA-BN), and the third generation, non-replicated orthopoxvirus [60]. The FDA approves JYNNEOSTM and the European Medicines Agency (EMA) to prevent smallpox and MPV in high-risk adults 18 years and older. ACAM2000® is not implemented in endemic areas and is not open to the public. Both vaccines have not yet been approved for the general population [29, 44, 50, 61]. ACAM2000® vaccine is a single-dose percutaneous multi-punching technique

using a bifurcated needle. JYNNEOSTM vaccine is administered subcutaneously in two doses, 28 days apart [50]. Direct contact with body fluids or contaminated materials of an individual with symptomatic monkeypox, being in the same room or being closer than six ft., are considered high-risk, and prophylaxis is recommended [62]. For postexposure prevention, the first dose of the vaccine should be given within the first four days after exposure. If the vaccine is provided in the 4-14 day period, it cannot prevent the onset of the disease but can reduce the symptoms [63]. A series of protections, including vaccination of close contacts, may be the main preventive measure for the disease [64, 65]. Vaccination is recommended for selected individuals at risk of occupational exposure to orthopox viruses. ACAM2000® is contraindicated in the presence of atopic dermatitis, immunosuppression, heart disease, pregnancy, or breastfeeding. In these conditions, the JYNNEOSTM vaccine can be used [50].

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AUTHOR CONTRIBUTIONS
EK, OA, and MŞ conceived the design of this study. MMB, CK, MMK, MŞ, EK, BFK, YS drafted the manuscript. EK, BFK reviewed and revised the manuscript. All authors read and approved the final manuscript.

CONFLICTS OF INTERESTS
All authors have completed the ICMJE Disclosure Form (http://www.icmje.org/disclosure-of-interest/; available on request from the corresponding author). All authors declare that there are no potential conflicts of interest.

DISCLAIMER
No part of this review is copied or published elsewhere in whole or in part.

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МАЙМЫЛ ШЕШЕГІНІҢ ӨРШУІНЕ ШОЛУ

Түйіндеме

2022 жылы жалғасып жатқан маймыл шешек індеті жаһандық денсаулық сақтау мәселесіне айналуда. Африкадан тыс алғашқы өлім Бразилияда 2022 жылдың 29 шілдесінде тіркелді, ал Еуропадағы алғашқы өлім Испанияда 2022 жылдың 29 шілдесінде орын алды. Нәтижесінде, Дүниежүзілік денсаулық сақтау ұйымы 2022 жылдың 1 шілдесінде маймыл шешек індетін жаһандық қоғамдық денсаулық сақтау саласындағы төтенше жағдай деп жариялады. Біз маймыл шешегі туралы қазіргі мәліметтеріне шолу жасадық. Тығыз байланыс вирустың адамнан адамға берілуінің ең танымал тәуекел факторы екені анықталды; жүкті әйел вирусты ұрыққа бере алады. Болжалды инкубациялық кезең 10-14 күн болып табылады. Қызба, әлсіздік, қалтырау және лимфаденопатия продромальды белгілері болып табылады. Дәрігерлер науқастардың көпшілігінде бөртпе пайда болатынын байқайды. Маймыл шешегі әдетте 2-4 аптадан кейін жойылады. Көптеген науқастар емделусіз қалпына келеді, бірақ асқынулары бар кейбір науқастар емдеуді қажет етуі мүмкін. Балаларда, жүкті әйелдерде және иммунитеті төмен адамдарда ауру ұзаққа созылуы мүмкін. Инфекцияны диагностикалау үшін дәрігерлер анамнезді, клиникалық белгілерді және зертханалық зерттеулерді қолданады. Жұқтырған жануарлар мен науқастар карантинге жатқызылуы керек. Әзірге нақты вакцина әлі жоқ. Дегенмен, алғашқы мәліметтерге сәйкес, шешекке қарсы вакцина маймыл шешегінен 85% қорғайды. Емдеу үшін Тековиримат, Цидофовир, Бринцидофовир және адамның иммуноглобулин шешек вакцині сияқты вирусқа қарсы препараттарды қолдануға болады. Бұл шолу маймыл шешегімен ауыратын науқастарға көмек көрсететін адамдар үшін тиімді басқару, алдын алу және басшылыққа алу үшін клиникалық білімге бағытталған.

Түйін сөздер: маймыл шешегі, індет, ақпарат, шолу.

Дәйексөз үшін: Кая Э., Шахин М., Солак Й., Акар О., Куш С., Куш М.М., Бейоглу М.М., Кочигит Б.Ф. Маймыл шешегінің өршуіне шолу. Медициналық гипотеза мен этиканың Орта Азиялық журналы 2023:4(1):13-21. https://doi.org/10.47316/cajmhe.2023.4.1.01

ОБЗОР ВСПЫШКИ ОСПЫ ОБЕЗЬЯН

Резюме

Продолжающаяся в 2022 году эпидемия оспы обезьян становится глобальной проблемой здравоохранения. Первая смерть за пределами Африки зарегистрирована в Бразилии 29 июля 2022 года, а первая смерть в Европе произошла в Испании 29 июля 2022 года. В результате Всемирная организация здравоохранения 1 июля 2022 года объявила эпидемию оспы обезьян глобальной чрезвычайной ситуацией в области общественного здравоохранения. Мы провели обзор текущих сведений об оспе обезьян. Было выявлено, что тесный контакт является наиболее известным фактором риска передачи вируса от человека человеку; беременная женщина может передать вирус плоду. Ориентировочный инкубационный период составляет 10-14 дней. Продромальными симптомами являются лихорадка, недомогание, озноб и лимфаденопатия. Клиницисты наблюдают, что у большинства пациентов появляется сыпь. Оспа обезьян обычно проходит через 2-4 недели. Многие больные выздоравливают без лечения, однако некоторым пациентам с осложнениями может потребоваться лечение. У детей, беременных женщин и лиц с ослабленным иммунитетом заболевание может развиваться более длительно. Для диагностики инфекции врачи используют анамнез, клинические признаки и лабораторные тесты. Зараженные животные и больные должны быть помещены на карантин. Специфической вакцины до сих пор нет. Тем не менее, согласно ранним сообщениям, вакцина против оспы защищает от оспы обезьян на 85%. Противовирусные препараты, такие как Тековиримат, Цидофовир, Бринцидофовир и человеческий иммуноглобулин осповакцины, потенциально могут использоваться для лечения. Данный обзор сосредоточен на клинических знаниях для эффективного ведения, профилактики и руководства для лиц, оказывающих помощь пациентам с оспой обезьян.

Ключевые слова: оспа обезьян, вспышка, информация, обзор.

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