Study Reveals Novel Monkeypox Symptoms and Transmission Routes

Most cases in the ongoing outbreak have been among gay and bisexual men and are largely associated with sex.

July 23, 2022 By Liz Highleyman

The ongoing monkeypox outbreak differs in several ways from historical patterns previously seen in African countries where the virus is endemic, according to the largest case series to date, published this week in The New England Journal of Medicine (NEJM).

“This truly global case series has enabled doctors from 16 countries to share their extensive clinical experience and many clinical photographs to help other doctors in places with fewer cases,” said lead study author Chloe Orkin, MD, of Queen Mary University of London. “We have shown that the current international case definitions need to be expanded to add symptoms that are not currently included, such as sores in the mouth, on the anal mucosa and single ulcers. Expanding the case definition will help doctors more easily recognise the infection and so prevent people from passing it on.”

???? Published today in @NEJM to aid #monkeypox diagnosis:

A global collaborative case series led by @ShareEastLondon @QMUL describing 528 confirmed infections from 43 centres in 16 countries + an image library.@rcgp @RCPhysicianshttps://t.co/PhholOPHMK @JohnPThornhill????

— Chloe Orkin (@profchloeorkin) July 21, 2022

Almost all cases so far have been among gay, bisexual and other men who have sex with men, and most transmission has been associated with sexual activity. But experts fear that if the outbreak is not promptly managed, the virus could spread beyond this group and may become endemic in more countries.

“Given the global constraints on vaccine and antiviral supply for this chronically underfunded, neglected tropical infection, prevention remains a key tool in limiting the global spread of human monkeypox infection,” Orkin added.

The current monkeypox outbreak outside endemic countries was first reported in the United Kingdom in early May. As of July 22, the Centers for Disease Control and Prevention (CDC) has identified nearly 3,000 cases in all but six states. Worldwide, there are now more than 16,500 cases in countries that have not historically reported monkeypox. On July 23, the World Health Organization declared monkeypox to be a public health emergency of international concern.

Case Demographics

Orkin and a large group of colleagues contributed data on 528 confirmed monkeypox cases in 16 countries between April 27 and June 24.

All but one were men, and the remaining individual identified as transgender. There were no women in this case series, though several dozen women with monkeypox have been reported by individual countries, including eight in the United States. There were also no children in this series, but a handful of cases have been identified, including two reported yesterday in the U.S.

Three quarters of the identified cases were white, 12% were Latino, 5% were Black and 4% were mixed race. The median age was 39 years. Of note, 56 people were older than 50, and 9% had previously received a smallpox vaccine, showing that prior vaccination is not fully protective.

Just over 40% were living with HIV, and among those who were HIV-negative or had an unknown status, 57% were using pre-exposure prophylaxis (PrEP).

Almost all HIV-positive men (96%) were on antiretroviral treatment, with a majority taking integrase inhibitors. Most had well-controlled HIV: 95% had an undetectable viral load (less than 50), and the median CD4 count was high, at 680. The proportion of HIV-positive people in this report appears to be higher than the HIV rate among men who have sex with men overall. It is not known whether having HIV might be associated with greater susceptibility to monkeypox.

The good news is that HIV-positive people with monkeypox did not have worse outcomes. "Whilst people with HIV account for more than 40% of cases so far, it is reassuring that HIV status was not linked with monkeypox severity,” said Laura Waters, MD, chair of the British HIV Association.

Monkeypox Transmission

Almost all individual in this case series said they were gay (96%), 2% were bisexual and 2% identified as heterosexual. According to the study authors, “Transmission was suspected to have occurred through sexual activity” in 95% of these cases.

The monkeypox virus is transmitted through close physical contact, including skin-to-skin contact, kissing and respiratory droplets at close range, but it does not spread through the air over longer distances, like the coronavirus that causes COVID-19. Monkeypox can potentially spread via clothes, bedding or surfaces that have been in contact with fluid from lesions, but this appears to be much less common. It is not yet known whether monkeypox is directly sexually transmitted through semen or vaginal fluid, but it does spread via contact with sores during sex.

Before the current outbreak, monkeypox was not thought to be easily transmitted from person to person, but gay men’s sexual networks have provided a fortuitous niche for rapid transmission. In fact, “sexual close contact” was by far the most common suspected route of transmission in this case series (95%). About a quarter had close contact with a person known to have monkeypox. Nonsexual close contact and household contact were each suspected in 1% of cases, while 3% had an unknown transmission route.

People with monkeypox had numerous sexual risk factors. Among those who received sexually transmission infection (STI) screening, 29% tested positive, with syphilis, gonorrhoea and chlamydia being most common. The median number of sex partners was five in the previous three months. One in five reported “chemsex” (using recreational drugs during sex), and 32% reported attending sex venues during the previous month. About a quarter reported recent foreign travel, mostly to European countries.

Symptoms and Treatment

Most people with monkeypox were diagnosed at HIV clinics, sexual health clinics or emergency departments. Only 23 had a clear enough exposure history to determine incubation time, which ranged from three to 20 days. Most (97%) had positive skin or anogenital lesion swabs and 26% had positive nose or throat swabs. In addition, some had positive PCR tests of blood (7%), urine (3%) and semen (5%) samples.

However, noted John Thornhill, PhD, of Barts NHS Health Trust and Queen Mary University of London, “this may be incidental as we do not know that [the virus] is present at high enough levels to facilitate sexual transmission.”

Almost everyone with monkeypox (95%) developed a rash or lesions, including 73% with anal or genital lesions, 55% with lesions on the trunk or limbs, 41% with mucosal lesions (mostly anal, throat or both), 25% with facial lesions and 10% with lesions on their palms or soles; however, 28 people did not develop lesions. In addition, 75 (14%) reported proctitis, or rectal inflammation. Other common symptoms included fever (62%), swollen lymph nodes (56%), fatigue (41%), muscle aches (31%), headache (27%) and sore throat (21%).

The report, which is available for free online, includes numerous photographs of patients' lesions.

Some people presented with symptoms not recognized in current medical definitions of monkeypox, including single genital lesions and sores on or inside the mouth or anus. In some cases, these symptoms resemble those of common STIs, which could lead to misdiagnosis, and some people had both monkeypox and STIs.

Interestingly, according to the latest report from the U.K. Health Security Agency, some of the 13 women diagnosed with monkeypox in the United Kingdom had symptoms similar to those of men who have sex with men. If women have genital and throat lesions, they may be acquiring the virus via sex too.

In the NEJM case series, 70 people (13%) were hospitalized, mostly for management of severe rectal pain (21 people), soft tissue infections (18 people) or a sore throat that made it difficult to swallowing (5 people). Several men with monkeypox who have shared their stories in the press or on social media have described severe anal or throat pain.

Only a small number of people (5%) received antiviral treatment; two each were given tecovirimat (TPOXX) and cidofovir (Vistide), and one received vaccinia immune globulin (antibody therapy). TPOXX has been difficult to obtain in the United States, requiring extensive paperwork, though the CDC and the Food and Drug Administration recently took steps to streamline access.

No deaths were reported in this case series. To date, there have been five monkeypox deaths this year, all of them in African countries.

"The findings of this study, including the identification of those most at risk of infection, will help to aid the global response to the virus," the study authors said. "Public health interventions aimed at this high-risk group could help to detect and slow the spread of the virus. Recognising the disease, contact tracing and advising people to isolate will be key components of the public health response."

Click here to read the NEJM report.
Click here for more news about monkeypox.

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http://beta.docker.hepmag.com/article/study-reveals-novel-monkeypox-symptoms-transmission-routes