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LETTER TO THE EDITOR

Monkeypox 2022: What clinicians in the dialysis community should do

To the Editor:

In 2022, monkeypox outbreaks were reported in non-endemic countries affecting thousands of individuals. With majority of cases in Europe, the majority of those were related to men who have sex with men (MSM) without travel history to endemic areas.[1] In the United States (US), cases are rapidly increasing, and most cases are found in major metropolitan areas.[1] Though there have not been any reports of outbreaks in hemodialysis centers, it is important for clinicians caring for dialysis patients to be aware of the virology, transmission, management, and prevention of the infection as an outbreak could be swift.

Similar to Europe most of the reported cases in the US also lack travel to endemic areas and involve in MSM patients, raising concerns for the possibility of sexual transmission even though traditionally monkeypox has not been considered a sexual transmitted disease.[2] Transmission occurs from direct contact with skin lesions or from respiratory droplets during kissing or face to face contact, which can occur during intimate or sexual activity. Indirect transmission through fomites such as bed linens, towels, and sex toys has been also reported.[2] It should be noted that unlike SARS-CoV-2 which is a respiratory virus, monkeypox is not, therefore it does not cause air-borne transmission. While monkeypox can be transmitted via respiratory secretions, it primarily spreads from prolonged direct contact with bodily fluids from patients who are infected.[2] To reduce the possibility of spread in dialysis centers, patients with suspected monkeypox infection should receive dialysis in a separate room in a similar fashion to the management of coronavirus disease 2019 (COVID-19).

Symptoms of monkeypox usually appear within 6–13 days of exposure; however, it can be as high as 21 days, often begin with 1–3 days of non-specific prodromal symptoms that include myalgias, chills, and malaise or even an asymptomatic presentation.[2] Following the development of fever, the rash begins on the face and moves centrifugally to concentrate on the arms, legs, and face within 1 day. The painful rash moves and evolves uniformly through four stages over a week: macular, papular, vesicular, pustular developing the characteristic umbilication. The rash then crusts over becomes itchy and last between 14 and 21 days.[2] In contrast to this current outbreak, the rash occurred near the anus or genitalia without affecting the whole body and progressing through the four stages at different rates. With the initial lesions surrounding the anus or genitalia, other disease processes such as herpesvirus, syphilis, or other poxviruses should be ruled out. It is important to note that a person is considered infectious starting 5 days prior to the onset of lesions and is infectious until lesions have healed and a new layer of skin has appeared. Severe complications include encephalitis, pneumonia, and retropharyngeal abscess. The mortality rate has been less than 1% in this current outbreak outside of Africa.[3]

Clinically suspected monkeypox virus is confirmed with a polymerase chain reaction (PCR) test by swabbing samples from skin lesions. The positive tests should be reported to the Center for Disease Control (CDC) for further characterization.

Overall, monkeypox is a self-limiting disease; however, severe cases or immunocompromised patients may qualify for antiviral therapy in consultation with the local department of health or CDC. Currently, there is no treatment approved for monkeypox infection in human. However, there are three antivirals that may be used for monkeypox infection and are available from the Strategic National Stockpile (SNS) (Table 1). Tecovirimat is effective in nonhuman primates against monkeypox virus and is efficacious in humans.[2,4] Tecovirimat is available in both oral and intravenous (IV) formulations. Oral formulation must be taken 30 min before or after meal as with food with at least ~600 kcal or ~25 g fat to improve absorption. For intravenous formulation, similar to remdesivir, tecovirimat has poor water solubility; therefore, it has to be compounded with a solubilizing agent. Each 200 mg of tecovirimat is compounded with 8 g of hydroxypropyl-B-cyclodextrin. Although the medication labeling suggests caution in patients with impaired kidney function due to the concerns of toxicity from cyclodextrin accumulation, in a healthy human study, no side effects were observed after parenteral administration of

