Combination of Extended Antivirals with Antiretrovirals for Severe Mpox in Advanced HIV Infection

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BACKGROUND

- During the 2022-2023 global mpox outbreak, approximately 50% of individuals with mpox had concomitant HIV infection, which was associated with worse outcomes[1-3]
- People with advanced HIV infection and mpox have a higher morbidity and mortality in comparison to individuals with well controlled HIV on antiretroviral therapy (ART) with high CD4 counts[3-5]
- There are no clinical trials to date evaluating treatment of mpox in people with advanced HIV infection
- We present a case series of four people with advanced HIV and severe mpox treated with extended course of tecovirimat, cidofovir and ART

METHODS

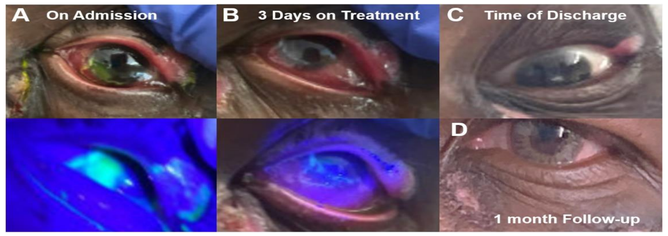
- We identified people with advanced HIV and persistent/ worsening mpox under the care of HIV providers at the Hospital of the University of Pennsylvania or Penn Presbyterian Medical Center initially hospitalized between September 1st 2022 and December 31st 2022
- We retrospectively collected demographics, HIV and mpox clinical data documented in electronic record

RESULTS

- We summarize the demographic and clinical characteristics of the four patients in **Table 1**
- **Figure 1** shows findings of keratitis and conjunctivitis in a person with severe recurrent mpox after 3 weeks of oral tecovirimat therapy
- **Figure 2** demonstrates tongue, perioral, and facial mpox lesions i

Retrospective case series of 4 people living with advanced HIV and severe mpox treated with prolonged antiretroviral therapy, tecovirimat and cidofovir demonstrating clinical recovery. These cases suggest the safety and potential effectiveness of extended anti-mpox combination therapy and the multifaceted challenges contributing to severe mpox including difficulty with adherence to medications in setting of housing instability and food insecurity with inadequate nutritional intake for oral tecovirimat absorption.

Figure 1. Keratitis and Conjunctivitis in a Person with Mpox



A) admission with mpox+ eye swab, (**B**) after 3 days of tecovirimat, trifluridine and acyclovir/valacyclovir (with fluorescein stain images at bottom), (**C**) at time of discharge, 11 days from admission and (**D**) at 1 month follow-up visit

Figure 2. Tongue, Perioral and Facial Mpox Lesions



Table 1. Summary of Demographic and Clinical Characteristics of Individuals Living with Advanced HIV and Mpox at Penn during 2022-2023

Case	Age and Sex	Presentation and Factors Affecting Recurrence	HIV VL and CD4 from Start → End	Mpox Treatment	HIV Treatment
1	40s M	Recurrent mpox ulcers with keratitis and conjunctival lesions due to inadequate caloric intake for PO absorption and difficulty with ART adherence. HSV1/2+ from eye swabs	VL 43,100→65 copies/ml CD4 53→61 cells/mm^3	PO/IV tecovirimat (16 weeks), IV cidofovir (9 doses over 4 months), GTT trifluridine (3 weeks)	BIC/FTC/TAF with DRV/COBI →DOR
2	50s M	Recurrent mpox lesions related to inconsistent housing and lack of wound care. Wound infection with MRSA	VL 2,104→138 copies/ml CD4 41→71 cells/mm^3	PO tecovirimat (5 weeks, then lost to follow-up), partial IV cidofovir (1 dose)	BIC/FTC/TAF
3	30s M	Recurrent mpox ulcers due to difficulties with caloric intake and adherence to medications	VL 0→0 copies/ml CD4 <35→65 cells/mm^3	PO/IV tecovirimat (8 weeks), IV cidofovir (16 doses over 7 months)	BIC/FTC/TAF → CBG/RPV and LEN
4	30s M	Multiple mpox skin lesions and dysphagia. COVID+. New diagnosis of HIV	VL 217,000→0 copies/ml CD4 0→83 cells/mm^3	PO tecovirimat (6 weeks), IV cidofovir (6 doses over 3 months)	BIC/FTC/TAF

Abbreviations: VL viral load. PO oral. IV intravenous. GTT eye drops. B/FTC/TAF bictegravir/emtricitabine/tenofovir alafenamide. DRV/COBI darunavir/cobicistat. DOR doravirine. CBG/RPV cabotegravir/rilpivirine. LEN lenacapavir. TMP-SMX trimethoprim-sulfamethoxazole. ACV/VACV: acyclovir/valacyclovir.

CONCLUSIONS

- People with advanced HIV and severe mpox in our case series had poor response to initial 14-day course of tecovirimat
- Combination therapy with tecovirimat, IV cidofovir and ART resulted in clinical resolution of persistent mpox lesions
- Our patients that received a long course of cidofovir (up to 16 doses over 7+ months) did not experience impaired renal function
- Mpox serology guided discontinuation of anti-mpox therapy in one case
- Factors contributing to severe mpox included difficulty with adherence to ART, housing instability, and food insecurity
- Our cases concur with current CDC recommendations[6] advocating combination antivirals for individuals with advanced HIV infection and mpox
- These cases highlight the importance of ART. None of the patients experienced IRIS
- Limitations include small sample size, as well as the retrospective and anecdotal nature of the case series

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