Predictors of Treatment With Tecovirimat and Hospitalization Among People With Mpox and HIV

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BACKGROUND

The 2022-2023 mpox outbreak disproportionately impacted people with HIV (PWH).

PWH with low CD4 counts or unsuppressed viral load may be at higher risk of severe outcomes from mpox, but the evidence base for treatment thresholds is sparse.

We examined demographic and clinical characteristics of PWH with mpox in the Center for AIDS Research (CFAR) Network of Integrated Clinical Systems (CNICS) cohort

- **CNICS is a prospective observational cohort study of adult PWH in clinical care at academic institutions across the US**

OBJECTIVES

Among PWH with mpox in the CNICS cohort:

1. **Identify characteristics associated with receipt of tecovirimat prescription**
2. **Identify characteristics associated with higher probability of hospitalization**

METHODS

MPOX CASE IDENTIFICATION

- **PWH in care at one of 9 CNICS sites, AND**
  - **Positive mpox PCR value, OR**
  - **Documented mpox diagnosis or tecovirimat prescription, *without* negative mpox PCR**

ANALYSIS

- **Generalized linear models with Poisson distribution and robust variance, adjusted for age and CNICS site**
- **Outcomes:**
  - **Tecovirimat prescription**
  - **Hospitalization within 2 weeks of mpox diagnosis**
- **Examined most proximal CD4 count, HIV viral load, ART status prior to mpox diagnosis**

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RESULTS

Characteristics of PWH With Mpox Across 9 CNICS Sites June 1, 2022 – May 31, 2023; N=413

Demographic Characteristics	***n***	***%***
Geographic Region		
West Coast	280	67.8
Southeast	96	23.2
Northeast and Midwest	37	9.0
Race/Ethnicity		
White, non-Hispanic	131	34.1
Black, non-Hispanic	114	27.6
Hispanic or Latinx	124	30.0
Another race, non-Hispanic	29	7.0
Age; *med, IQR*	39	33 – 46
Male sex assigned at birth	413	100.0
Trans women	6	1.5
Clinical Characteristics		
CD4 Count		
≥500	249	60.3
350 – 499	69	16.7
200 – 349	54	13.1
<200	26	6.3
HIV Viral Load		
Undetectable (<50)	315	76.3
Detectable	85	20.6
ART Status		
On ART	381	92.3
Not on ART	24	5.8
Mpox laboratory confirmed by PCR	316	76.5
Tecovirimat prescribed	168	40.7
Received ≥1 smallpox/mpox vaccine prior to mpox diagnosis	52	12.6
Hospitalized within 2 weeks of mpox diagnosis	34	8.2

- **Of 34 PWH hospitalized with mpox, all were prescribed tecovirimat; only 2 PWH received tecovirimat prior to hospital admission**
- **Two PWH hospitalized with mpox received mpox vaccine prior to hospital admit date**
- **Race/ethnicity were not associated with either hospitalization or tecovirimat prescription**

CNICS CFAR Network Of Integrated Clinical Systems

UNIVERSITY of WASHINGTON

PWH with CD4<200 were twice as likely to receive treatment with tecovirimat than those with CD4≥500

PWH with mpox with lower CD4 count were more likely to be hospitalized than those with CD4≥500

Detectable HIV viral load and not being on ART were associated with 2-fold and 4-fold higher probability of hospitalization, respectively

Characteristics Associated With Tecovirimat Prescription

	aPR	***95% CI***	***p***
CD4 Count			
≥500	Ref.	--	--
350 – 499	1.05	0.75 – 1.47	0.8
200 – 349	1.07	0.74 – 1.54	0.8
<200	2.02	1.51 – 2.70	<0.001
HIV Viral Load			
Undetectable	Ref.	--	--
Detectable	1.22	0.94 – 1.57	0.1
ART Status			
On ART	Ref.	--	--
Not on ART	1.04	0.70 – 1.54	0.9

Characteristics Associated With Hospitalization

CD4 Count			
≥500	Ref.	--	--
350 – 499	1.99	0.84 – 4.68	0.1
200 – 349	3.17	1.43 – 7.02	0.004
<200	2.62	0.80 – 8.60	0.1
HIV Viral Load			
Undetectable	Ref.	--	--
Detectable	2.68	1.36 – 5.28	0.004
ART Status			
On ART	Ref.	--	--
Not on ART	4.20	2.02 – 8.73	<0.001

All models adjusted for age, CNICS site
aPR: adjusted prevalence ratio; 95% CI: 95% confidence interval

CONCLUSION

Associations between detectable viral load, lack of ART, CD4≤350, and hospitalization suggest immunologic risk of severe mpox outcomes may extend beyond those with CD4<200. Our data support expanding routine tecovirimat treatment to PWH with CD4 between 200-350 presenting with non-severe mpox disease given the elevated risk of hospitalization.