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HIV-Infected Transgender Women Frequently Take Antiretroviral Therapy and/or Feminizing Hormone Therapy Differently Than Prescribed Due to Drug-Drug Interaction Concerns

HM Braun[1,2], J Candelario[3], CL Hanlon[4], ER Segura[2,5] JL Clark[2], JS Currier[2], JE Lake[2,6]

Correspondence:
Jordan Lake, MD Msc
Jordan.E.Lake@uth.tmc.edu
6431 Fannin St. | MSB 2.112
Houston, TX 77030

[1] University of California, San Francisco, CA USA [2] SAPHIR, University of California, Los Angeles, CA, USA [3] APAIT, Special Service for Groups, Los Angeles, CA, USA
[4] Dartmouth College, Hanover, NH, USA [5] Escuela de Medicina, Universidad Peruana de Ciencias Aplicadas, Lima, Peru [6] McGovern Medical School at UTHealth, Houston, TX USA

Background

- Feminizing hormone therapies (HT) are critical to harmonizing gender identity and expression for transgender women (TW), and antiretroviral therapy (ART) is essential for HIV-infected individuals.
- Both HT and ART have potential side effects, and drug-drug interactions (DDI) may exist between some ART and HT.[1,2]
- Despite a 34-times greater prevalence of HIV infection among TW in the US,[3] transgender people have lower healthcare utilization rates[4] and may seek gender-affirming therapies outside of supervised medical settings.[5,6]

Study Design

Aim: To assess knowledge of and concern about HT and ART side effects and DDIs, including effects on treatment adherence, among HIV-infected TW in Los Angeles, CA.

Study Design: Cross-sectional survey from a study on contributions of HIV and HT to cardiovascular risk among TW

Eligibility Criteria:

- Self-identified TW
- Age ≥18 years (or 17 years with parental consent)
- HIV-infected TW were required to be on ART and have HIV-1 RNA<50 copies/mL

Study Site: APAIT, a community-based AIDS service organization in Los Angeles, CA

Data Collection: Participants self-reported sociodemographics, medical history, healthcare access and knowledge of ART and HT side effects and ART-HT DDIs.

Data Analysis:

- Primary outcome: self-reported history of HT or ART use differently than prescribed due to concerns for ART-HT DDI (HIV-infected TW only)
- Descriptive statistics summarized sociodemographics, healthcare access, and knowledge of ART and HT side effects and ART-HT DDIs.
- Generalized linear models identified factors associated with imperfect HT and/or ART use.

Results

Table 1: Demographic and Clinical Characteristics of TW

	All (n=87)	HIV Serostatus	
		HIV-uninfected (HIV-, n=40)	HIV-infected (HIV+, n=47)
Age (in years)*	45.3 ± 10.8	42.6 ± 11.6	47.5 ± 9.7
Living with HIV	47 (54%)	N/A	100%
Race/Ethnicity			
Hispanic	54 (62%)	26 (65%)	28 (60%)
Black/African American	15 (17%)	5 (13%)	10 (21%)
Multiracial	11 (13%)	3 (8%)	8 (17%)
Asian, Alaskan Native/American Indian, White, Other	7 (8%)	6 (15%)	1 (2%)
Substance Use (last 90 days)*	32 (37%)	10 (25%)	22 (47%)
Alcohol Use (last 90 day)	43 (49%)	19 (48%)	24 (51%)
Current Tobacco Use	31 (36%)	12 (30%)	19 (40%)
History of AIDS diagnosis (HIV+ only)	N/A	N/A	22 (47%)
Current CD4+ T lymphocyte count (cells/μL, HIV+ only)	N/A	N/A	555 ± 271
History of Hypertension	27 (31%)	9 (23%)	18 (38%)
History of High Cholesterol	14 (16%)	9 (23%)	5 (11%)
History of Diabetes	17 (20%)	8 (20%)	9 (19%)
Ever had surgery to feminize body (n=81)	17 (21%)	10 (26%)	7 (16%)

Data presented as number (percent) or mean ± standard deviation. Percentages may not total 100 due to rounding.
*statistically significant ($p<0.05$) between HIV-infected and HIV-uninfected TW

Table 2: Engagement in Healthcare among TW

	All (n=87)	HIV Serostatus	
		HIV- (n=40)	HIV+ (n=47)
Communication with Healthcare Provider			
Discussed potential HT side effects with their provider (n=73; n=32 HIV- & n=41 HIV+)	50 (69%)	25 (78%)	25 (61%)
Concerned for ART-HT interactions (HIV+ only; n=42)	-	-	24 (57%)
Discussing ART-HT interactions concerns with provider (HIV+ only; n=43)	-	-	21 (49%)
Health Insurance Coverage			
MediCal (California's Medicaid Program)	39 (45%)	14 (35%)	25 (53%)
Medicare	5 (6%)	4 (10%)	1 (2%)
Dual MediCal-Medicare coverage or Private plan	20 (23%)	9 (23%)	11 (23%)
No healthcare insurance	23 (26%)	13 (33%)	10 (21%)
Feminizing HT Use			
Current use	56 (64%)	25 (63%)	31 (66%)
HT acquisition outside of medical system (n=55; n=23 HIV- & n=32 HIV+)	14 (25%)	3 (13%)	11 (34%)
Planning future use	17 (20%)	10 (25%)	7 (15%)
No current or planned use	14 (16%)	5 (13%)	9 (19%)
Unsupervised Injections for Body Modification (n=81; n=38 HIV- & n=43 HIV+)	11 (14%)	5 (13%)	6 (14%)

Data presented as number (percent).

Table 3: Treatment Regimen and History of HT-ART Use among HIV-Infected TW

	HIV+ (n=47)
Antiretroviral Therapy	
NRTI	46 (98%)
Tenofovir[b]	37 (79%)
Abacavir[b]	11 (23%)
NNRTI	13 (28%)
PI	15 (32%)
INSTI	19 (40%)
HT and/or ART taken differently than prescribed due to DDI concern (n=43)	17 (40%)
ART use different than prescribed	12 (28%)
HT use different than prescribed	12 (28%)

[b]Participants were able to report therapy with both tenofovir and abacavir.

Table 4: Participant Characteristics Associated with Imperfect Use of HT or ART

Variable	Category label/units	Unadjusted PR (95% CI)	p
Age	Years	0.99 (0.95 – 1.02)	0.54
Race	Hispanic	1.03 (0.48 – 2.18)	0.94
	Black	0.81 (0.30 – 2.22)	0.68
	Multiracial	1.35 (0.60 – 3.04)	0.48
HT use	Not currently on HT	Ref	Ref
	Currently on HT	0.55 (0.27 – 1.11)	0.10
Substance use (last 90 days)	None	Ref	Ref
	Drug use	1.92 (0.87 – 4.25)	0.10
Alcohol Use (last 90 days)	None	Ref	Ref
	Alcohol use	1.92 (0.87 – 4.25)	0.10

Data presented as number (percent), unless specified.
NRTI=nucleoside reverse transcriptase inhibitor, PrEP=pre-exposure prophylaxis, NNRTI=non-NRTI, PI=protease inhibitor, INSTI=integrase inhibitor

Conclusions

- TW expressed concerned about potential ART and HT side effects and DDIs, but often did not discuss these concerns with their healthcare provider(s).
- These concerns contributed to HT and/or ART use differently than prescribed in 40% of HIV-infected TW.
- These results support previous research identifying fear among TW that ART limits the feminizing effects of hormones,[7] and raise clinical concern as 1) sub-optimal ART adherence increases the risk of developing ART resistance and virologic failure,[8,9] and 2) intermittent HT use may cause sub-optimal feminization and/or increased risk of HT side effects.[10]
- No studies specifically address DDI between ART and the HT doses used for feminizing HT in TW. More data is needed before providing clinical recommendations to providers.
- As higher HT adherence and access to transgender-specific healthcare are associated with higher ART adherence,[11,12] our data suggests a need for comprehensive care programs for HIV-infected TW, including clinical integration of HT and ART services.
- Future research will address ART-HT DDIs and side effect profile risk for TW, and investigate approaches to mitigate risk.

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