Characteristics of Patients Living with HIV (PLWH) and HIV Treatment Outcomes in Community Practices in Southern vs Non-Southern US Regions

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1. BACKGROUND

This study evaluated individual characteristics and antiretroviral therapy (ART) prescribing for people with HIV (PWH) seeking care at practices in southern vs non-southern US regions.

2. METHODS

PWH (>18 years old) starting a new ART between January 2015-September 2019 with viral load at first regimen prescription (baseline), and ≥6 months of prior ART history (if not treatment-naive), were selected from Trio Health HIV EMR database.

Comparisons of baseline characteristics were conducted via chi-square for categorical variables and t-test for continuous variables.

Multivariate logistic regression with binary outcome “viremic at last observation” estimated the associations of covariates among those with viral load recorded ≥12 months after baseline (n=12,689).

Regions were defined per US Census and sample availability (South included: TX, FL; Non-South: IL, NM, CA, PA).

3. RESULTS

Of 20,271 PWH, 14,645 (72%) were treatment-experienced, 7,302, 50% in South) and 5,626 (28%) treatment-naïve (3,071, 55% in South) [Figure 1].

FIGURE 1. PATIENT SELECTION

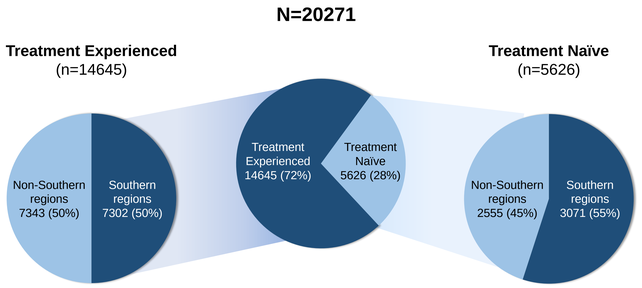


TABLE 1: PATIENT DEMOGRAPHICS

n (%) unless specified		Treatment Naïve (N=5626)			Treatment Experienced (N=14645)		
		Southern (n=3071)	Non-Southern (n=2555)	p-value	Southern (n=7302)	Non-Southern (n=7343)	p-value
Age, mean (SD)		39.1 (12)	37.4 (11.9)	**<0.001**	47.4 (11.9)	46.6 (12.1)	**<0.001**
Age >50		651 (21)	448 (18)	**0.001**	3160 (43)	3091 (42)	0.148
Male		2290 (75)	2005 (78)	**<0.001**	5748 (79)	5877 (80)	**<0.001**
Race	**White**	1461 (48)	1035 (41)	**<0.001**	3934 (54)	3946 (54)	**<0.001**
	Black	1218 (40)	990 (39)		2256 (31)	1920 (26)	
	Other	223 (7)	140 (5)		493 (7)	402 (5)	
	Unknown	169 (6)	390 (15)		619 (8)	1075 (15)	
Payer Type	**Commercial**	1014 (33)	1618 (63)	**<0.001**	3543 (49)	5296 (72)	**<0.001**
	Medicare	171 (6)	186 (7)		1177 (16)	988 (13)	
	Medicaid	121 (4)	243 (10)		306 (4)	397 (5)	
	Other	648 (21)	477 (19)		899 (12)	622 (8)	
	Unknown	1117 (36)	31 (1)		1377 (19)	40 (1)	

Baseline characteristics of treatment-naïve and treatment-experienced groups differed by region [Table 1-2].

Among treatment-experienced, 83% were suppressed at baseline in South vs. 91% in non-South (p<0.001); after ≥12 months, suppression rates were 85% vs. 91%, p<0.001, respectively.

Among treatment-naive with ≥12 months of follow-up, 72% were suppressed in South, 76% in non-South (p=0.008).

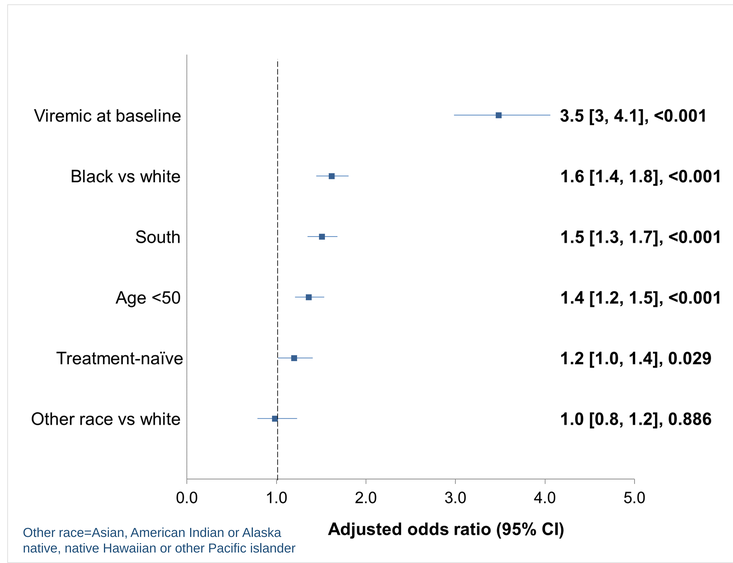
Treatment-experienced individuals in the South were less likely to be on a single-tablet regimen than non-South (60% vs. 62%, p=0.021), no differences by region among treatment-naïve (59% vs 58%, p=0.470).

TABLE 2: BASELINE CLINICAL CHARACTERISTICS

n (%) unless specified		Treatment Naïve (N=5626)			Treatment Experienced (N=14645)		
		Southern (n=3071)	Non-Southern (n=2555)	p-value	Southern (n=7302)	Non-Southern (n=7343)	p-value
Charlson Comorbidity Index, mean (SD)		3.5 (3.2) n=3071	4.3 (2.9) n=2555	**<0.001**	5.3 (2.9) n=7302	5.5 (3) n=7343	**<0.001**
Hemoglobin, mean (SD)		13.8 (2) n=2484	13.9 (1.9) n=1639	0.571	14.4 (1.7) n=6055	14.6 (1.7) n=5799	**<0.001**
Platelets, mean (SD)		131.8 (119.5) n=2528	205.9 (101.9) n=1513	**<0.001**	147.5 (116.8) n=6026	224.5 (77.5) n=5771	**<0.001**
Protein Urine, mean (SD)		10.1 (17) n=932	11.2 (17.7) n=783	0.200	7.9 (11.5) n=3409	11.4 (20.9) n=2392	**<0.001**
BMI	**Underweight**	132 (5) n=2697	84 (4) n=2394	**<0.001**	181 (3) n=6574	127 (2) n=7017	**<0.001**
	Normal	1189 (44) n=2697	1156 (48) n=2394		2099 (32) n=6574	2665 (38) n=7017	
	Overweight	825 (31) n=2697	758 (32) n=2394		2475 (38) n=6574	2680 (38) n=7017	
	Obese	551 (20) n=2697	396 (17) n=2394		1819 (28) n=6574	1545 (22) n=7017	
CD4 <200 cells/ml		488 (22) n=2177	308 (27) n=1161	**0.008**	343 (6) n=5885	262 (5) n=4854	0.335
eGFR	**<60**	82 (3) n=2516	79 (3) n=2483	**0.004**	636 (10) n=6278	629 (9) n=7222	**<0.001**
	60-89	592 (24) n=2516	489 (20) n=2483		2676 (43) n=6278	2759 (38) n=7222	
	90+	1842 (73) n=2516	1915 (77) n=2483		2966 (47) n=6278	3834 (53) n=7222	
FIB-4	**<1.3**	1052 (43) n=2444	967 (64) n=1519	**<0.001**	2645 (44) n=6009	3558 (65) n=5463	**<0.001**
	1.3-3.25	308 (13) n=2444	278 (18) n=1519		1028 (17) n=6009	1472 (27) n=5463	
	>3.25	1084 (44) n=2444	274 (18) n=1519		2336 (39) n=6009	433 (8) n=5463	
Hyperglycemia (glucose ≥1.1 g/l)		93 (11) n=875	200 (16) n=1277	**0.001**	278 (18) n=1508	978 (21) n=4595	**0.018**
Triglycerides ≥1.5 g/l		561 (33) n=1721	334 (29) n=1135	0.074	1802 (42) n=4338	1814 (39) n=4693	**0.005**
Hypertension (≥130 mmHg systolic, ≥90 mmHg diastolic)		297 (12) n=2494	185 (10) n=1775	0.131	778 (12) n=6342	403 (10) n=4167	**<0.001**
HDL-cholesterol <40 mg/dl males, <50 mg/dl females		727 (48) n=1509	753 (48) n=1561	0.973	1611 (38) n=4289	1762 (35) n=5099	**0.003**
Arteriosclerotic Cardiovascular Disease (ASCVD) risk >7.5%		96 (20) n=486	74 (31) n=235	**0.001**	877 (36) n=2461	645 (46) n=1406	**<0.001**
Suppressed at baseline		0 (0)	0 (0)	N/A	6083 (83)	6686 (91)	**<0.001**
Cardiovascular Disease (CVD)		534 (17)	1077 (42)	**<0.001**	2330 (32)	3411 (46)	**<0.001**
Diabetes		64 (2)	91 (4)	**0.001**	542 (7)	618 (8)	**0.026**
Hypertension		331 (11)	281 (11)	0.792	1672 (23)	2035 (28)	**<0.001**
Renal		40 (1)	36 (1)	0.730	511 (7)	457 (6)	0.059

In the logistic regression accounting for race, gender, age, practice region, treatment status, and baseline viral suppression, individuals younger than 50, black or African American vs. white, treated in South region, treatment-naive, or viremic at baseline were more likely to be viremic after ≥12 months. Final model is shown in Figure 2.

FIGURE 2. PREDICTORS OF VIREMIA AT 12 MONTHS



Other race=Asian, American Indian or Alaska native, native Hawaiian or other Pacific islander

4. LIMITATIONS

Limitations of this study are typical of retrospective observational studies: subjects were non-randomized, observers were non-blinded, and some subgroups are small in sample size.

Viral suppression rates at 6 and 12 months since baseline were evaluated regardless of regimen.

Data is limited to treatment centers captured in the Trio database and may not represent treatment patterns and patient characteristics in the entire US. All patients were treated at nationally qualified health centers.

5. CONCLUSION

These data suggest population differences and treatment disparities between Southern and other US regions. Policy makers should examine structural and societal reasons for these disparities in an effort to reduce or eliminate them.

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