Differences between individuals currently taking integrase inhibitor (INSTI)-based therapy and those not taking INSTIs in the era of INSTIs as recommended first-line therapy

Poster 2492

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Background

- In 2017, DHHS changed treatment guidelines to recommend **only** agents from the INSTI class as initial therapy for most patients with HIV, based on efficacy and tolerability data
- Although the guidelines apply to initial regimen, the recommendation may have led clinicians to reconsider the regimens of antiretroviral therapy (ART)-experienced patients on non-INSTI regimens
- Multiple factors are considered in whether to switch ART: clinician/patient preference, comorbidities, tolerability, previous adherence and resistance history

Objectives

- To examine patient factors associated with currently taking an INSTI-based regimen

Methods

Study design and eligibility criteria

- Cross-sectional analysis
- Data source: the DC Cohort, an observational longitudinal cohort of PLWH at 14 sites in Washington, DC
- At least 18 years old as of June 30th, 2018
- Participants in the sample were actively enrolled in the DC Cohort and had ≥1 encounter between 4/1/17 and 3/1/18
- On ART

Outcome variables

- Currently, previously, or never on an INSTI

Independent variables

Demographics, clinical characteristics, alcohol/tobacco use, HBV/HCV status and HIV-related variables (recent CD4 and HIV RNA, presence of resistance mutations) extracted from Electronic Medical Records

Statistical analysis:

- Descriptive statistics: Chi-square and Fisher's Exact tests for categorical variables and Wilcoxon Rank Sum tests for continuous variables
- Multivariable multinomial logistic regression , adjusted for covariates as shown in Table 2

Results

Table 1. Demographic characteristics, by history of INSTI use, DC Cohort, 2017-2018

Characteristic	Currently on INSTI (n=2,978)	Previously on INSTI (n=307)	Never on INSTI (n=1,299)	p-value
Gender				**0.0011**
Male	2,089 (70.1)	192 (62.5)	899 (69.2)	
Female	833 (28.0)	104 (33.9)	351 (27.0)	
Transgender: male-to-female	54 (1.8)	11 (3.6)	46 (3.5)	
Transgender: female-to-male	2 (0.1)	0 (0)	3 (0.2)	
Age (years)				**0.0023**
18-24	100 (3.4)	7 (2.3)	23 (1.8)	
25-39	560 (18.8)	48 (15.6)	244 (18.8)	
40-49	563 (18.9)	70 (22.8)	302 (23.2)	
50+	1,755 (58.9)	182 (59.3)	730 (56.2)	
Race/ethnicity				**0.0315**
Non-Hispanic Black	2,386 (80.1)	263 (85.7)	1,033 (79.5)	
Non-Hispanic White	287 (9.6)	22 (7.2)	135 (10.4)	
Hispanic	210 (7.1)	12 (3.9)	78 (6.0)	
Other/Unknown*	95 (3.2%)	10 (3.3)	53 (4.1)	
Insurance (current)				0.1705
Public	2,310 (77.6)	254 (82.7)	1,002 (77.1)	
Private	538 (18.1)	50 (16.3)	254 (19.6)	
Other/Unknown	130 (4.4)	3 (1.0)	19 (3.3)	
Sex - HIV Transmission Risk Factor				0.4403
Male – High Risk Heterosexual	668 (22.4)	63 (20.5)	295 (22.7)	
Female – High Risk Heterosexual	627 (21.1)	77 (25.1)	270 (20.8)	
MSM	1,077 (36.2)	101 (32.9)	474 (36.5)	
Unknown	606 (20.3)	66 (21.5)	260 (20.0)	
IVDU as HIV Transmission Risk Factor				0.3048
Yes	210 (7.1)	22 (7.2)	76 (5.9)	
No	2,162 (72.6)	219 (71.3)	963 (74.1)	
Unknown	606 (20.3)	66 (21.5)	260 (20.0)	

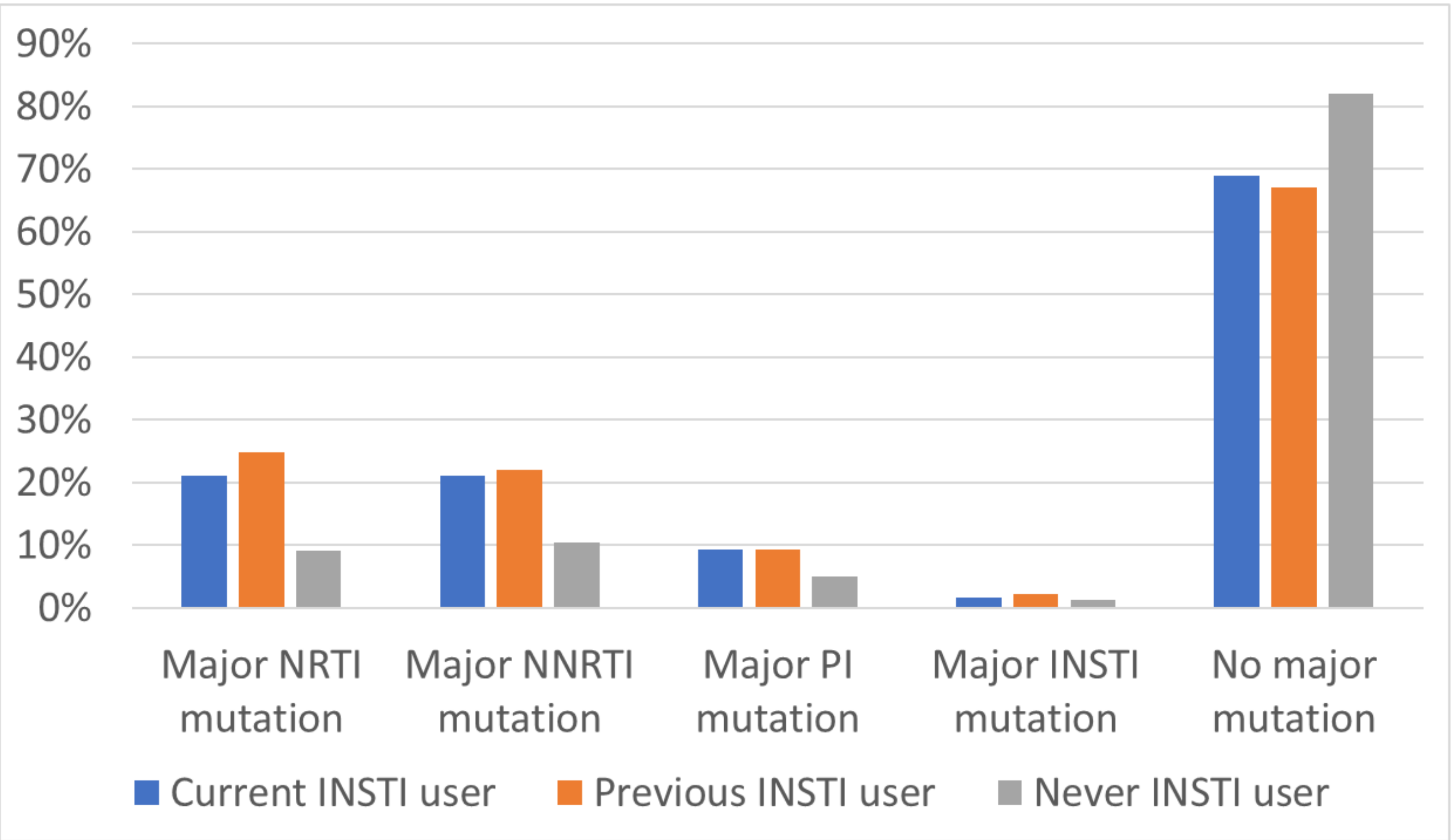
*Those with "Unknown" status not included in statistical testing

Table 2. Factors associated with current and previous INSTI use vs. never use, DC Cohort, 2017-2018

Characteristic	Current INSTI (vs never) aOR (95% CI)	Previous INSTI (vs never) aOR (95% CI)
Gender		
Male	Ref	Ref
Female	1.06 (0.91, 1.24)	**1.36 (1.03, 1.80)**
Transgender (all)	**0.48 (0.32, 0.72)**	1.06 (0.53, 2.12)
Age (years)		
18-24	**1.90 (1.18, 3.06)**	1.09 (0.45, 2.65)
25-39	1.06 (0.88, 1.28)	0.87 (0.60, 1.26)
40-49	0.85 (0.71, 1.01)	0.98 (0.71, 1.35)
50+	Ref	Ref
Race/ethnicity		
Non-Hispanic Black	Ref	Ref
Non-Hispanic White	1.02 (0.81, 1.29)	0.82 (0.50, 1.34)
Hispanic	**1.39 (1.05, 1.84)**	0.80 (0.42, 1.51)
Other/Unknown	0.92 (0.64, 1.31)	0.95 (0.47, 1.92)
Insurance (current)		
Public	Ref	Ref
Private	1.01 (0.84, 1.21)	1.00 (0.70, 1.43)
Other	1.40 (0.97, 2.02)	**0.29 (0.09, 0.95)**
Alcohol use (current)	**1.16 (1.00, 1.35)**	1.18 (0.89, 1.55)
Tobacco use (current)	0.96 (0.83, 1.11)	0.94 (0.72, 1.22)
CD4 nadir (cells/mm^3)		
500+	Ref	Ref
350-499	0.93 (0.75, 1.16)	1.03 (0.67, 1.59)
200-349	0.98 (0.80, 1.20)	0.97 (0.64, 1.45)
<200	1.20 (0.98, 1.46)	1.23 (0.84, 1.81)
Most recent viral load ≥50 copies/mL	**1.26 (1.06, 1.49)**	**2.09 (1.57, 2.77)**
Major NRTI mutation	**2.00 (1.58, 2.53)**	**2.37 (1.63, 3.44)**
Major NNRTI mutation	**1.56 (1.24, 1.95)**	1.39 (0.952, 2.03)
Hepatitis B, chronic	0.93 (0.66, 1.30)	1.29 (0.738, 2.27)
Hepatitis C, chronic	1.16 (0.95, 1.40)	1.14 (0.80, 1.63)

Statistically significant values (p<0.05) shown in **bold**

Figure 1. Presence of Major Resistance Mutations (at any time) among DC Cohort Participants on ART, 2017-2018, N=4,584



Summary of Results

- Most (65.0%) of the 4,584 participants were current INSTI users; however, a sizeable proportion (28.3%) were never users and 6.7% were former users.
- Presence of a major NRTI or NNRTI mutation was associated with being a current (vs never) and previous (vs never) INSTI user
- Transgender participants were less likely to be current INSTI users.
- Younger participants were more likely current INSTI users, as were Hispanic participants.

Strengths and Limitations:

- Strengths: Large sample size, study covers an entire metropolitan area
- Limitations: No detailed information about reasons for stopping/switching therapy available

Conclusions

- The majority of active DC Cohort participants are using INSTI-based therapy.
- Our results suggest resistance history as an important driver of INSTI prescription.
- Transgender and older individuals were less likely to be on INSTIs, indicating that they are more likely to be on PI-based or NNRTI-based therapy or not on therapy.
- Further research should explore the impact of not being on INSTIs for long-term HIV outcomes in these patient groups.

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