SHORT AND LONG-TERM BODY WEIGHT GAIN FOLLOWING SWITCH TO INTEGRASE INHIBITORS DIFFERS BY SEX

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BACKGROUND

- Integrase strand-transfer inhibitors (INSTIs) are first-line antiretroviral therapy (ART) but associated with weight gain[1-4]
  - Women
  - Black, Hispanic
- Differences between men and women in short and long-term body weight change following switch to INSTIs remain unclear; prior studies not powered to detect sex differences

Study AIM: Assess differences in body weight change by sex up to 6 years following switch to INSTIs

METHODS

MWCCS
MACS/WIHS COMBINED COHORT STUDY

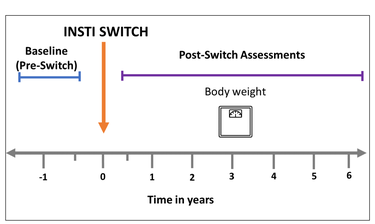


We used data collected between 2007-2020 from men and women enrolled in the MACS/WIHS Combined Cohort Study (MWCCS):

1) **INSTI group:** on ART ≥ 2 years, HIV VL <200 cop/mL and switched to INSTI-ART
2) **Non-INSTI Control**: on ART ≥ 2 years, HIV VL <200 cop/mL and remained on non-INSTI ART
3) **HIV seronegative Control**

*Excluded study visits where pregnant/within 2 years postpartum, active malignancy or TB, receiving chemotherapy/radiation or PrEP

Figure 1. Study Schema. Body weight was assessed at baseline and q6 months up to 6 years post-switch



Outcomes

- Percentage (%) body weight change

Analyses

- Linear regression mixed effect models assessed effects of sex (assigned at birth), group, and time on % weight change
- 1:1 propensity score matching in INSTI and non-INSTI groups on the following variables: BMI>30, race, diabetes, NNRTI use, PI use, depression, hyperlipidemia, socioeconomic status (n=1172)

Compared with men, women with HIV switching to INSTIs experienced greater amount and longer duration of body weight gain relative to non-INSTI and HIV seronegative controls

RESULTS

Table 1. Baseline (pre-switch) cohort characteristics, n=3466

Median (Q1, Q3) or n(%)	INSTI N=634			Non-INSTI N=1123			HIV seronegative N=1709		
	Men N=223	Women N=411	P value	Men N=412	Women N=711	P value	Men N=891	Women N=818	P value
Age, years	55 (49, 62)	51 (45, 57)	<0.001	52 (45, 58)	48 (41, 53)	<0.001	58 (50, 64)	46 (37, 53)	<0.001
Black race	50 (22)	270 (66)	<0.001	121 (29)	428 (60)	<0.001	183 (21)	561 (69)	<0.001
<HS Education	9 (4)	153 (37)	<0.001	34 (8)	247 (35)	<0.001	33 (4)	292 (36)	<0.001
BMI, kg/m^2	25 (23, 29)	29 (25, 35)	<0.001	26 (23, 28)	29 (25, 35)	<0.001	27 (24, 30)	31 (26, 37)	<0.001
CD4, cells/mm^3	610 (476, 841)	701 (519, 874)	0.010	648 (483, 855)	602 (446, 792)	0.004	*n/a*	*n/a*	*n/a*
Undetectable HIV RNA	197 (88)	349 (85)	ns	369 (90)	615 (87)	ns	*n/a*	*n/a*	*n/a*
TAF use	12 (5)	16 (4)	ns	14 (3)	5 (1)	0.002	*n/a*	*n/a*	*n/a*
NNRTI use	117 (53)	180 (44)	0.045	243 (59)	363 (51)	0.012	*n/a*	*n/a*	*n/a*
Time on ART, years	16 (11, 20)	13 (7, 18)	<0.001	13 (5, 18)	12 (6, 15)	<0.001	*n/a*	*n/a*	*n/a*

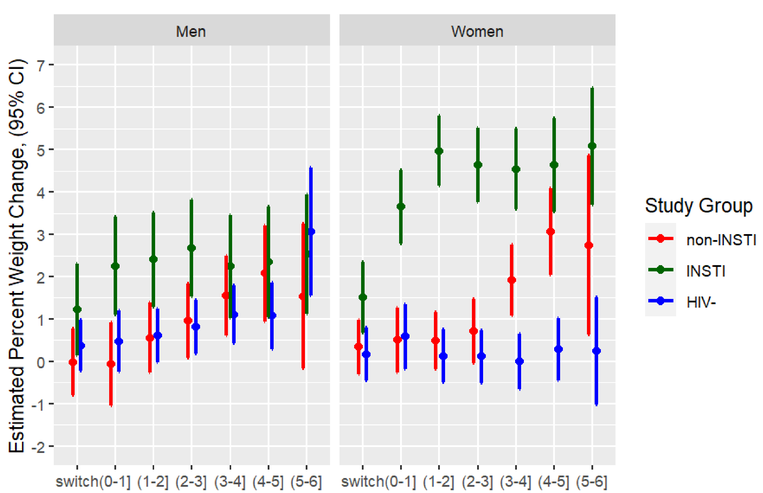


Figure 2. Model-estimated mean percent weight change among men and women with and without HIV in the MWCCS, stratified by study group and years since switch. Models adjusted for age, race/ethnicity, socioeconomic status, diabetes. Sex*group*years interaction term, p<0.0001

RESULTS

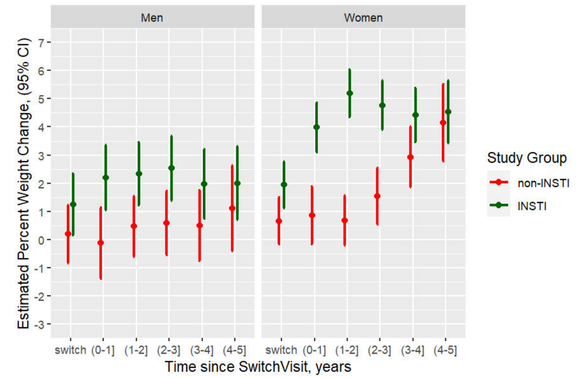


Figure 3. Model-estimated mean percent weight change among men and women with HIV, stratified by study group and years since switch after propensity score matching. Sex*group*years interaction term, p=0.0124

CONCLUSIONS

- **Short and long-term body weight gain in PWH switching to INSTIs differed by sex**
- **Women experienced a greater amount and longer duration of weight gain relative to controls**
- **Further research is needed to understand the implications of body weight gain on cardiometabolic disease and support sex-specific preventative and therapeutic intervention strategies**

ADDITIONAL KEY INFORMATION

References

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