LIVER STEATOSIS AND FIBROSIS IN WOMEN WITH HIV BY INTEGRASE INHIBITOR USE

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BACKGROUND

- Global prevalence of non-alcoholic fatty liver disease (NAFLD) is 25%[1]
- NAFLD can lead to non-alcoholic steatohepatitis (NASH), fibrosis, and cirrhosis
- NAFLD prevalence among persons with HIV is increasing[1]
- Integrase strand-transfer inhibitors (INSTIs) are first-line antiretroviral therapy but associated with weight gain[2,3]
  - Women
  - Black, Hispanic

Study AIM: Assess hepatic steatosis and fibrosis among women with HIV switching to INSTIs vs non-INSTIs

Women with HIV switching to INSTIs had a **3.6 greater odds** of having **hepatic steatosis** within 1 year compared to non-INSTI controls.

CONCLUSIONS

- Women with HIV switching to INSTIs had a **greater odds of having hepatic steatosis** but not moderate fibrosis within the 1st year of switch compared to women on non-INSTIs
- **Hepatic fibrosis measures (LS) and FAST scores were minimally higher in the INSTI group** at 1 year compared to women on non-INSTIs, but clinical significance is unclear
- Larger studies with longitudinal hepatic steatosis and fibrosis measures are warranted
- Women starting INSTIs need close monitoring of metabolic changes and **low threshold to pursue noninvasive hepatic fibrosis testing**

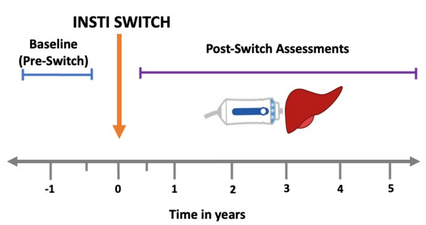
METHODS

WIHS Women's Interagency HIV Study



Cis-gender women co-enrolled in the SPPACE INSTI and Liver Disease Reproductive Aging (LIVRA)[4] studies were included:
- On ART for at least 2 years, HIV VL <200 cop/mL
- Excluded HBSAg+, untreated HCV, decompensated cirrhosis, heavy alcohol use (>12 drinks/wk)

Figure 1. Cross Sectional Study Schema. One FibroScan conducted at varying time-point post-INSTI switch or comparable time-point in non-INSTI group



Outcomes
- **Liver steatosis (CAP) =** controlled attenuation parameter
- (≥ 248 dB/m)
- **Liver stiffness (LS)** = shear wave elastography (≥7.1 kPa)
- **FibroScan AST (FAST) Score** ≥ 0.67

Analyses
- Mixed-effects and logistic regression models for continuous and categorical outcomes, respectively
- Adjusted for: Age, CD4%, BMI, TDF or TAF use, pre-switch anchor ART class, alcohol use

RESULTS

Table 1. Cohort characteristics, n=257

Mean (SD) or n(%)	INSTI N=123	Non-INSTI N=134
Age, years	50 (8)	49 (8)
Black race	82 (67)	107 (80)
BMI, kg/m²	32 (8)	32 (8)
CD4%	38 (10)	38 (9)
Alcohol use		
Abstainer	75 (62)	84 (63)
1-7 drinks/week	44 (36)	49 (37)
8-12 drinks/week	1 (1)	3 (3)
NRTI Backbone		
TDF*	28 (23)	109 (81)
TAF*	51 (42)	15 (11)
ABC*	33 (27)	10 (8)
Weight change, kg‡	+2.4 (7.9)	+1.6 (7.8)
BMI change, kg/m²‡	+0.95 (3.0)	+0.6 (2.9)
Waist circumference change, cm‡	+1.5 (7.6)	+0.6 (6.9)

*p<0.001
‡Change in body measurements are between time of FibroScan and pre-switch (baseline) assessments

Figure 2. Model-adjusted differences in measures of hepatic steatosis, fibrosis, and FAST scores between INSTI & non-INSTI groups. Women on INSTIs had greater LS (fibrosis) and FAST scores within 1 year of switch compared to non-INSTI Controls

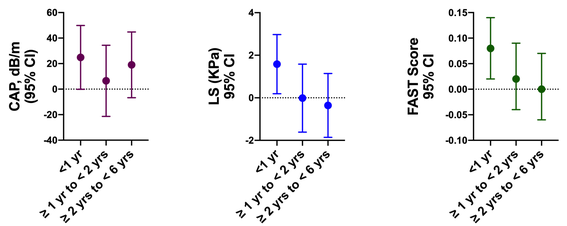
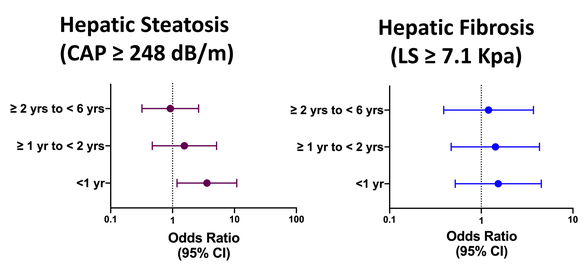


Figure 3. Model-adjusted odds of hepatic steatosis and moderate fibrosis in INSTI vs non-INSTI groups. Women on INSTIs had a 3.6 greater odds of having hepatic steatosis within 1 year of switch compared to non-INSTI Controls.



ADDITIONAL KEY INFORMATION

References
[1]Lake et al, Clin Gastrenterol Hepatol 2022 Feb; 20(2): 256-8
[2]Lake et al, CID 2020; 71 (9): e471-7.
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