INTEGRASE INHIBITOR START OR SWITCH IMPACTS LEARNING IN WOMEN WITH HIV

0438

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BACKGROUND

- The integrase strand transfer inhibitor (INSTI) class of antiretroviral therapy (ART) has become an integral component of HIV treatment.
- Despite concerns regarding neuropsychiatric adverse events, there are limited data on cognitive side effects, with INSTI use, particularly in women with HIV (WWH).

METHODS

- WWH enrolled in the Women's Interagency HIV Study, who started ART that included an INSTI or switched to INSTI-based ART, and had completed one comprehensive neuropsychological (NP) test battery before and after the start/switch, were included
- NP battery assessed learning, memory, fluency, attention/working memory, executive function, processing speed, and motor function.
- Primary NP outcomes were demographically-corrected T-scores (M=50, SD=10) for each cognitive domain.
- Linear mixed effects models adjusted for relevant covariates (e.g., age, race, education, income, substance use, body mass index, HIV RNA) were used to examine the effect of start/switch of any INSTI and individual drugs within the INSTI class, on NP function.

Characteristics	INSTI starters (n=89)	INSTI switchers (n=550)
Age, in years	46 (37, 54)	49 (42, 54)
Black, non-Hispanic	59 (66%)	359 (65%)
High-school education or higher	59 (66%)	377 (69%)
Currently employed	33 (37%)	189 (34%)
Married	26 (29%)	169 (31%)
Recent alcohol use	43 (48%)	220 (40%)
Recent marijuana use	23 (26%)	93 (17%)
CD4+ T cell count	314 (169, 459)	573 (366, 780)
HIV RNA <500 copies/ml	12 (13%)	460 (84%)

Data are median (interquartile range, IQR); INSTI, integrase strand transfer inhibitor.

Integrase Strand Transfer Inhibitor use was associated with poorer performance in learning among women with HIV

This was seen in particular with dolutegravir and elvitegravir use, but not with raltegravir

RESULTS

- 639 WWH were included, of whom 14% were INSTI starters and 86% were INSTI switchers .
- Of switchers, 59% switched from PI-based regimens, while 31% switched from NNRTI-based regimens.
- Raltegravir (RAL), elvitegravir (EVG), and dolutegravir (DTG) were introduced in 38%, 24% and 38% of WWH, respectively

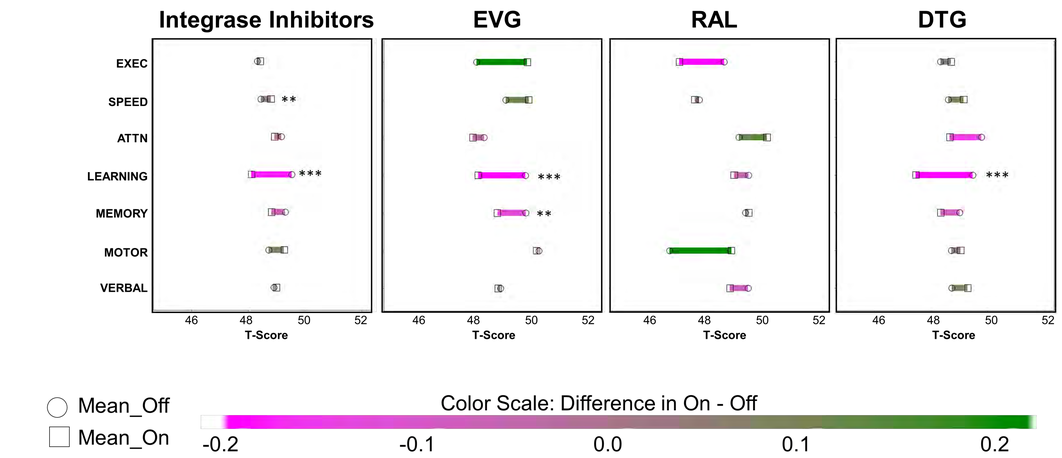


Figure 1. Mean T-score per cognitive domain before and after start/switch of integrase strand transfer inhibitor. Green corresponds to improvement and magenta to decline. Significance derived from linear effects model.

Results

- Any INSTI use was associated with poorer learning after start/switch (before 49.5 (SD 9.8) versus after 48.1 (10.2); $p<0.001$).
- No differences were identified within the other six domains (executive function, processing speed, attention, memory, motor function and verbal fluency.
- When examined by individual INSTI drug, start/switch of EVG (before 49.6 (SD 9.4) versus after 48.0 (10.2); $p=0.02$) and DTG (before 49.5 (SD 10.1) versus after 47.5 (10.5); $p=0.002$) were associated with poorer learning, but not RAL
- When restricted to WWH that switched to INSTI-based ART, again any INSTI use was associated with poorer learning ($p<0.009$), as was use of DTG ($p=0.004$).
- Overall INSTIs and DTG remained associated with poorer learning among those switching from a PI-based regimen. DTG also remained associated with poorer learning among those switching from an NNRTI (p's<0.05).

CONCLUSIONS

Switching or starting an INSTI was primarily associated with poorer performance in learning among WWH. Changes were mainly observed in EVG and DTG users, and not with RAL, indicating that the impact of INSTI on cognition in WWH may not be a class effect.

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