Weight Gain During Treatment Among 3,468 Treatment-Experienced Adults with HIV

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1. BACKGROUND ANDAIMS

Weight gain during antiretroviral therapy (ART) is multifactorial and likely includes demographic, viral, and treatment components. However, the specific risk factors and magnitude are not well understood, especially after the initial treatment period. The objectives of this study were to describe the demographic, clinical, and treatment characteristics of treatment-experienced adults with virally-suppressed HIV who had ≥3% annual weight gain in recent years (2013 to 2018) and identify variables independently associated with such gain.

2. METHODS

This retrospective observational study included EMR and prescription data from patients who switched to a new ART between August 1, 2013 – August 1, 2017, were virally suppressed at switch and remained suppressed throughout the observation period, had ≥1 BMI within -30 to +90 days of ART prescription and ≥1 BMI during treatment after 365 days up to 730 days of follow-up. Patients resided in 21 States + DC and were in care at ≥6 HIV treatment centers. The resultant observation window was August 1, 2013 to August 31, 2018. Annualized weight change was calculated using the kg difference between the first measurement within -30 to +90 days and the last measurement within +365 to +730 days from treatment start divided by the years between measurements.

3. REGIMEN UTILIZATION IN THE STUDY POPULATION

The most commonly used 15 regimens accounted for 80% of the sample with the top three regimens being EVG/c/TAF/FTC, DTG/ABC/3TC, and RPV/TAF/FTC. By drug class, 2,231 (6.4%) received integrase inhibitors (INSTIs), 734 (21.4%) received non-nucleoside reverse-transcriptase inhibitors (NNRTIs), and 685 (20%) received protease inhibitors (PI).

4. POPULATION BY ANNUALIZED WEIGHT CHANGE

Of the 3,468 patients, 30% had annualized weight gain ≥3%, 16% had weight loss ≥3%, and 54% had weight change <3%. Patients with ≥3% weight gain were more likely to have a worse CD4 response, a lower baseline CD4 count, and be on ART regimens associated with such gain.

5. PATIENT CHARACTERISTICS

Compared to those with no weight gain, the ≥3% weight gain group had higher proportions of patients with underweight and normal BMI status at baseline, female, age <50, and patients with psychiatric disorders and lower proportion of patients with CKD, CVD, diabetes, hyperlipidemia, and hypogonadism. Additional analyses completed but not shown in the table below examined weight gain by race and gender. These analyses did not reveal statistically significant differences between African-American vs. White males (≥3% weight gain 31% vs. 29%, p=0.444) or between African-American vs. White females (weight gain 15% vs. 11%, p=0.184).

6. WEIGHT GAIN WITHIN REGIMEN GROUPS

The percentage of patients with ≥3% weight gain was significantly lower among those with PI vs. not treated with PI. Conversely, the percentage of patients with ≥3% weight gain was higher among patients treated with INSTI vs. those not treated with INSTI. There was no statistically significant difference between the NNRTI and no NNRTI groups.

7. MULTIVARIATE ANALYSIS OF WEIGHT GAIN ≥3%

Factors identified as negatively associated with weight gain ≥3% included those with weight gain ≥3% vs. those with weight gain <3% or no weight gain. This study has several limitations beginning with the practice that contributed data which may not reflect the national patient experience, either in patient demographics or practice patterns. The study did not account for potential confounders such as prior treatment experience and concomitant medications. Further analyses are needed to account for these and other factors that may contribute to weight gain.

8. CHANGE IN BMI GROUP BY WEIGHT CHANGE STATUS

In Weight Gain 23% group, 48% of the patients that were underweight or normal for BMI at baseline became overweight or obese. In the No Weight Gain group, 10% of patients that were obese or overweight at baseline remained in BMI normal.

9. SUMMARY

Of the 3,468 patients, 30% had annualized weight gain ≥3%, 16% had weight loss ≥3%, and 54% had weight change <3%. Based on multivariate analysis, weight gain in this treatment-experienced population with continued HIV suppression was primarily associated with lower baseline BMI, reduced proportion of hypertension, increased proportion of psychiatric disorders, and non-PI containing regimens. The association between INSTI-based ART and weight gain, which reached significance in bivariate analyses, did not remain significant in multivariable logistic regression modeling, suggesting that in this population, weight changes are primarily driven by other factors. This study has several limitations beginning with the practices that contributed data which may not reflect the national patient experience, either in patient demographics or practice patterns. The study did not account for potential confounders such as prior treatment experience and concomitant medications. Further analyses are needed to account for these and other factors that may contribute to weight gain.