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


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.

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 in 21 States and DC 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 measure within ≥30 to 90 days and the last measure within ≥365 to 730 days from treatment start divided by the years between measures.

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 patients (66%) received integrase inhibitors (INSTI), 734 (22%) received non-nucleoside reverse-transcriptase inhibitors (NNRTI), 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%.

5. **PATIENT CHARACTERISTICS**
   - Compared to those with no weight gain, the ≥3% weight gain group had higher proportions of patients with overweight or 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.

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.

7. **MULTIVARIATE ANALYSIS OF WEIGHT GAIN ≥3%**
   - Factors identified as negatively associated with weight gain ≥3% via logistic regression were overweight or obese at baseline, hypogonadism, and use of PI-containing therapies. Psychiatric disorders were positively associated with weight gain via logistic regression. INSTI-containing ART was not significantly associated with weight gain ≥3% in the logistic regression. Significant variables are shown in bold.

8. **CHANGE IN BMI GROUP BY WEIGHT CHANGE STATUS**
   - In Weight Gain ≥3% 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 moved to normal BMI.

9. **SUMMARY**
   - Of the 3,468 patients, 30% had annualized weight gain ≥3%, 16% had weight loss ≥3%, and 54% had weight change <3%.

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**Notes:**

- Abbreviations include: ART = antiretroviral therapy, BMI = body mass index, CVD = cardiovascular disease, CKD = chronic kidney disease, INSTI = integrase strand transfer inhibitors, NNRTI = non-nucleoside reverse transcriptase inhibitors, PI = protease inhibitors, TDF = tenofovir disoproxil fumarate, TAF = tenofovir alafenamide, ABC = abacavir, FTC = emtricitabine, DTG = dolutegravir, EVG = elvitegravir, INSTI = integrase strand transfer inhibitors, NNRTI = non-nucleoside reverse transcriptase inhibitors, PI = protease inhibitors, TDF = tenofovir disoproxil fumarate, TAF = tenofovir alafenamide, ABC = abacavir, FTC = emtricitabine, DTG = dolutegravir, EVG = elvitegravir.