



Evaluating Weight Gain with the Initiation of Antiretroviral Therapy: A Comparison of Integrase Strand Transfer Inhibitors to Other Antiretrovirals

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BACKGROUND

For patients infected with HIV-1, antiretroviral therapy (ART) has shown positive impact on immunologic recovery & survival^{1,4}

Existing research has observed a potential association between antiretroviral therapy exposed individuals and a high prevalence of weight gain and obesity^{2,3,4,5}

Integrase strand transfer inhibitor (INSTI) based regimens play a pivotal role in ART for treatment-naïve individuals, and are recommended for first line therapy in the adult US Department of Health & Human Services (DHHS) guidelines¹

Uncertainty lies within the differences in the prevalence of weight gain between the different classes of ART agents, particularly in treatment-naïve individuals with HIV-1^{2,3,4,5}

The primary objective of this study is to evaluate weight change in treatment-naïve patients with newly initiated ART in a Ryan White Clinic

METHODS



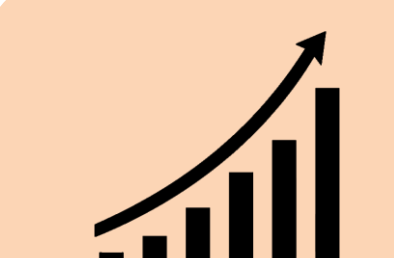
Inclusion

- ≥18 years of age
- Diagnosis of HIV-1
- Treatment-naïve, or no ART for >6 months
- Initiated on ART between January 2013 – January 2018
- Maintained therapy ≥24 months
- Wt. values recorded at least twice during the study period
- Were initiated on any 3-drug regimen containing the following: NNRTIs, NRTIs, INSTIs, PIs, +/- PK boosters



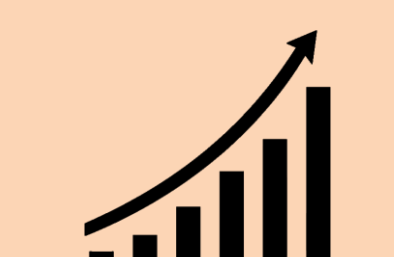
Exclusion

- Women participants who became pregnant at any point during the study period
- Patients currently on ART, or who have been on ART within the previous 6 months



Baseline Characteristics

- Age, gender, ethnicity, AIDS status (CD4+ T-cell count <200 μ L/mL), Plasma HIV-1 RNA (viral load), ART regimen, weight (kg), BMI (kg/m²), BMI Category, Plasma HIV-1 RNA (viral load), and CD4+ T-cell count by ART class (NNRTI, PI, INSTI) at **baseline**



Outcomes Assessed

- Weight (kg), BMI (kg/m²), BMI Category, Plasma HIV-1 RNA (viral load), and CD4+ T-cell count by ART class (NNRTI, PI, INSTI) within **6 months** of ART initiation
- Weight (kg), BMI (kg/m²), BMI Category, Plasma HIV-1 RNA (viral load), and CD4+ T-cell count by ART class (NNRTI, PI, INSTI) within **18 months** of ART initiation

RESULTS

N=3,054 patients were identified as participants
N=200 patients were included in this study

Baseline Demographics	All Regimens (N=200)	NNRTI (N=42)	PI (N=50)	INSTI (N=113)	DTG (N=82)	EVG (N=25)	RAL (N=6)
Age (years)	38.3	38.6	42.2	37.0	35.9	38.2	48.2
Caucasian	110 (55.0%)	31 (73.8%)	23 (46.0%)	56 (49.6%)	39 (47.6%)	15 (60.0%)	2 (33.3%)
Male Sex	162 (81.0%)	38 (90.5%)	38 (76.0%)	90 (79.6%)	69 (84.1%)	16 (64.0%)	4 (66.6%)
CD4+ T-Cell Count (cells/ μ L)	356.2	335.6	249.4	405.5	406.3	411.0	372.3
CD4+ T-Cell Percent (%)	19.3	20.2	15.4	20.2	20.1	21.5	12.5
AIDS Status (CD4+ <200 cells/ μ L)	70 (35%)	14 (33.3%)	27 (54.0%)	33 (29.2%)	24 (29.3%)	7 (28.0%)	2 (33.3%)
HIV-1 RNA (copies/mL)	481,801	1,203,633	1,324,345	201,308	216,236	180,125.2	85,558
HIV-1 RNA >100,000 (copies/mL)	74 (37.0%)	19 (45.2%)	23 (46.0%)	38 (33.6%)	27 (29.3%)	9 (36.0%)	2 (33.3%)
Weight (kg)	80.8	75.9	78.9	84.1	85.9	76.8	90.9
BMI (kg/m ²)	26.2	24.8	25.8	27.1	27.1	26.3	30.1

Table 1. Baseline clinical and demographic characteristics of study population.

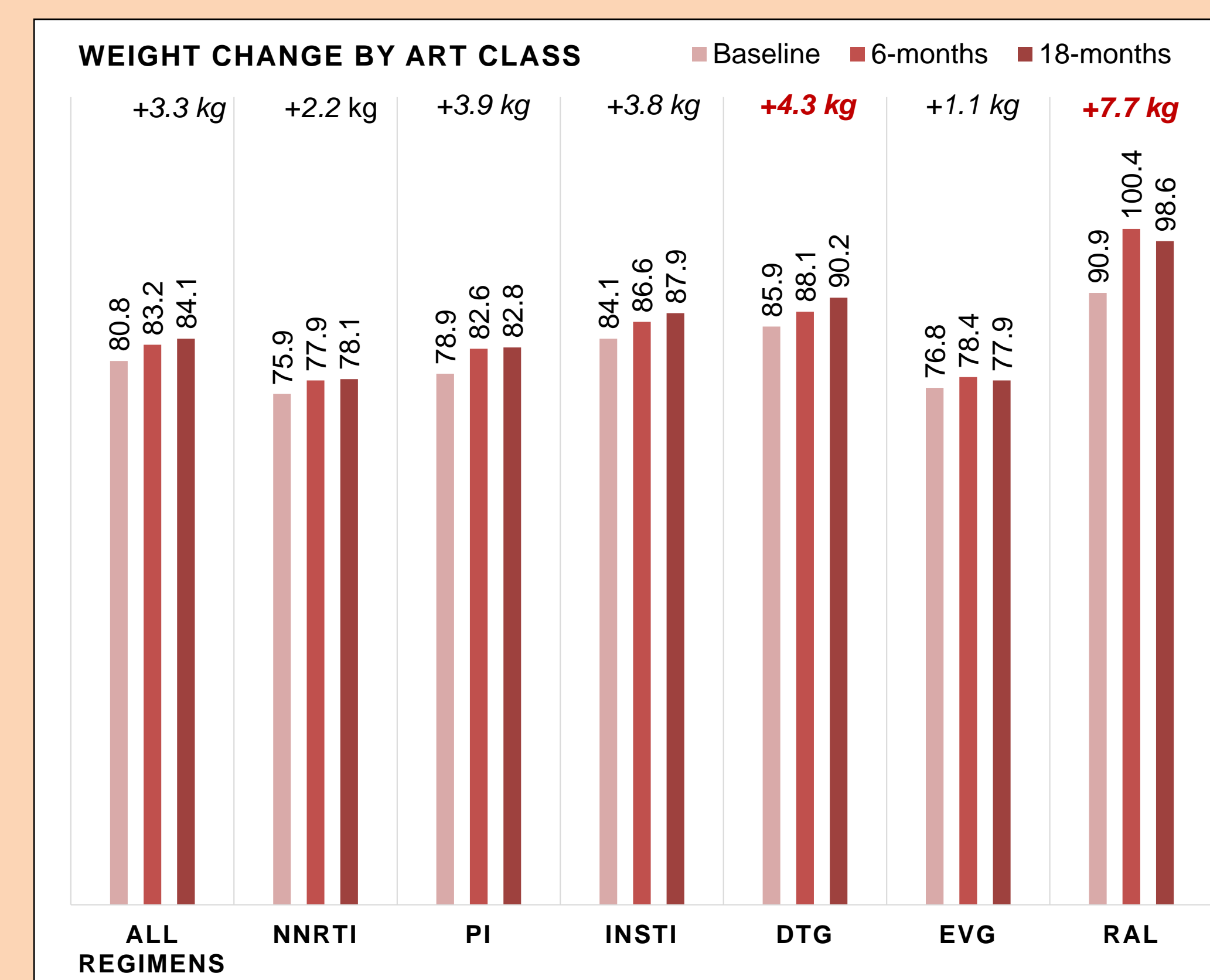


Figure 1. Weight change by ART class within:
(A) 6-months of ART initiation, and
(B) 18-months of ART initiation

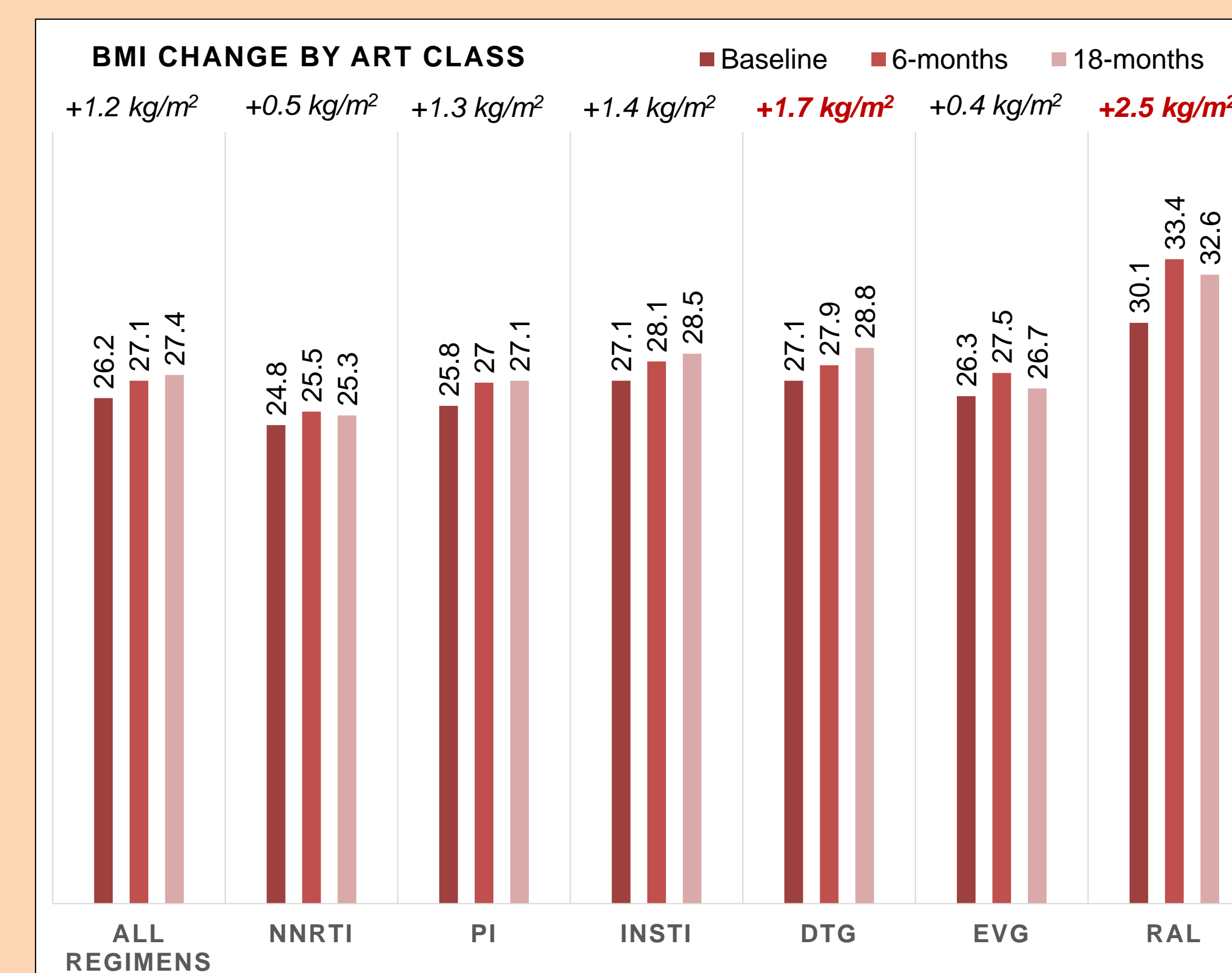


Figure 2. BMI change by ART class within:
(A) 6-months of ART initiation, and
(B) 18-months of ART initiation

FURTHER ANALYSIS

Regimens of Patients on Raltegravir (N=6)

- Patient 1) Raltegravir / Darunavir / Zidovudine / Lamivudine / Ritonavir
- Patient 2) Raltegravir / Darunavir / Etravirine / Ritonavir
- Patient 3) Raltegravir / Darunavir / Zidovudine / Ritonavir
- Patient 4) Raltegravir / Darunavir / Emtricitabine / Tenofovir DF / Ritonavir
- Patient 5) Raltegravir / Darunavir / Etravirine / Ritonavir
- Patient 6) Raltegravir / Darunavir / Ritonavir

CONCLUSIONS

1

Treatment naïve patients with HIV-1 initiating therapy with dolutegravir-based regimens were associated with a higher incidence of increase in weight and BMI at 18-months than those initiating elvitegravir, NNRTI, and PI-based regimens.

2

Those initiating raltegravir-based regimens, all of which also contained concomitant darunavir/r, were associated with the highest incidence of increase in weight and BMI and 18-months than all other regimens.

Further research is recommended.

DISCLOSURES

The authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

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