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Gender differences in virologic response after antiretroviral therapy in treatment-naïve HIV-infected individuals: Results from the 550 clinic HIV cohort study

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1394. Comparison of Time to Viral Suppression Among Treatment-Naïve HIV-Infected Adults Initiating Combination Antiretroviral Therapy by Antiretroviral Regimen Class

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Background. Antiretroviral therapy (ART) regimens for the treatment of HIV that incorporate the integrase strand inhibitor (INSTI) class of antiretroviral medications have high efficacy and tolerability, and may result in faster time to virologic suppression compared with regimens that contain protease inhibitors (PIs) or non-nucleoside reverse transcriptase inhibitors (NNRTIs). However, differences in viral suppression are not well-defined in routine clinical settings.

Methods. We performed a retrospective single-center chart review of treatment-naïve HIV patients initiating ART between 2013 and 2016. Among patients on different ART regimen types, we compared rates of achievement of viral suppression (defined as viral load less than limit of detection or <20 copies/uL) over time and median time to viral suppression using chi-square and independent samples median testing. Patients who were prescribed nonstandard regimens, were nonadherent, or discontinued or changed ART within 6 months were excluded.

Results. One hundred and fifty-five patients—45 (29.0%) female and 110 (71%) male—met study inclusion criteria. Mean age at ART initiation was 41.3 years (SD 12.5), and mean baseline viral load was 293,974 copies/uL. Twelve (7.7%) patients had an opportunistic infection diagnosed at time of ART initiation. Seventy-one (45.8%) initiated an INSTI-based ART regimen, 58 (37.4%) initiated a NNRTI-based regimen, and 26 (16.8%) initiated a PI-based regimen. Eighty-one (52.3%) patients had documented viral suppression, with median time to viral suppression 105 days (IQR 49–159). Patients on INSTI regimens were more likely to achieve viral suppression by 6 months (93.2% compared with 69.7% on NNRTIs and 30.8% on PIs), and had lower median time to suppression (62.6 days vs. 140.5 days on NNRTI regimens and 154.5 days on PI regimens, $P = 0.002$).

Conclusion. In this cohort, patients on INSTI-based ART regimens experienced higher rates of viral suppression at 6 months and shorter time from ART initiation to viral suppression. In HIV patients on INSTI-based ART regimens, virologic failure should be suspected prior to the current recommendation of 6 months.

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1395. The Safety of Substitution of Antiretroviral Regimen in Non-Clinical Trial Settings in Asian Countries

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Background. Although substitutions of antiretroviral regimen are generally safe, most data on substitutions are based on results from clinical trials. The objective of this study was to evaluate the safety of substituting antiretroviral regimen in virologically suppressed HIV-infected patients in non-clinical trial settings in Asian countries.

Methods. HIV-infected patients enrolled in the TREAT Asia HIV Observational Database (TAHOD) were included in this analysis if they started combination antiretroviral therapy (cART) after 2002, were being treated at a center that documented a median rate of viral load (VL) monitoring ≥ 1 tests/patient/year, and experienced a minor or major treatment substitution while on virally suppressive cART (VL < 200 copies/mL). Minor regimen substitutions were defined as within-class changes and major regimen substitutions were defined as changes to a drug class. Virologic failure was defined as having had two viral load measurements > 400 copies/mL. The patterns of substitutions and rate of virologic failure after substitutions were analyzed.

Results. Of 3,994 adults who started ART after 2002, 3,119 (78.1%) had at least one period of virological suppression. Among these, 1,170 (37.5%) underwent a minor regimen substitution, and 296 (9.5%) underwent a major regimen substitution during suppression. The rates of virological failure were 1.48/100person years (95% CI 1.14–1.91) in the minor substitution group and 2.85/100person years (95% CI 1.88–4.33) in the major substitution group, and 2.53/100person years (95% CI 2.20–2.92) among patients that did not undergo a treatment substitution.

Conclusion. The rate of virological failure was relatively low in both major and minor substitution groups, showing that regimen substitution is generally safe in non-clinical trial settings in Asian countries.

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1396. Clinical outcomes associated with once daily ritonavir-boosted darunavir in HIV infected patients harboring single or multi-class resistant virus

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Background. Limited data exist on the use of a potent boosted protease inhibitor plus <2 active nucleotide reverse transcriptase inhibitors without use of additional classes of ART in treatment experienced patients with background resistance. We evaluated the clinical outcomes in HIV-infected patients harboring single or multi-class resistant virus (NRTI ± PI and/or NNRTI) treated with once daily darunavir/ritonavir (DRV/r) plus tenofovir/emtracitabine (TDF/FTC).

Methods. This was a single-center, retrospective chart review of HIV-1 infected patients harboring single or multi-class resistant virus and receiving an ART regimen of TDF/FTC plus DRV/r administered as a once daily regimen > 24 weeks. The primary outcome was HIV viral load (VL) < 200 copies/mL (cp/mL) at last measurement. Additional endpoints included virologic rebound, re-suppression, and/or failure; VL < 40 cp/mL at last measurement; development of additional mutations. Virologic failure (VF) was defined as failure to achieve a VL < 200 cp/mL or achievement of VL < 200 cp/mL but with rebound to > 200 cp/mL on all successive VLs.

Results. 34 of 387 patients meet criteria for inclusion in the study and were receiving DRV 800 mg daily/r 100 mg daily with fixed combination TDF/FTC. All patients had baseline resistance to FTC (M184V/I), 12 (35.3%) had resistance to TDF, and none had high level DRV resistance. 27 (79%) achieved a VL < 200 cp/mL and 25 (74%) had a VL < 200 cp/mL at the last reading. 23 (68%) achieved a VL of < 40 cp/mL. VF occurred in 8/34 patients (24%) with the following baseline parameters: TDF resistance (2/8), low/ intermediate DRV resistance (2/8), and VL > 100,000 cp/mL (3/8). Both patients with baseline DRV resistance and VF demonstrated high level resistance to DRV on repeat genotype testing. Adherence was considered a major contributor to VF.

Conclusion. The use of once daily DRV/r plus TDF/FTC in treatment experienced patients with single/multi-class resistant virus resulted in virologic suppression in over two-thirds of patients. VF was seen in nearly 25% of patients including development of high level DRV resistance. This combination is a potentially viable option in a patient population seeking a once-daily option to improve adherence.

Disclosures. **All authors:** No reported disclosures.

1397. Gender Differences in Virologic Response after Antiretroviral Therapy in Treatment-naïve HIV-infected Individuals: Results from the 550 Clinic HIV Cohort Study.

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Background. Controversy still exists regarding gender differences in virologic response between treatment-na•ve HIV-infected individuals. The objective of this study was to evaluate gender difference in virologic and immunologic response to antiretroviral therapy in treatment-na•ve HIV-infected individuals.

Methods. This was a retrospective, observational study of treatment-na•ve HIV-infected individuals managed at the 550 clinic who started antiretroviral therapy (ART) between January 1st, 2010 and December 31, 2015. Patients with available viral load and CD4 counts before and one year after initiating ART were included in this study. Virologic suppression was defined as < 48 HIV-1 RNA copies/mL, and mmunologic recovery was defined as a CD4 count increase of at least 150 cells/mm^3. Dichotomous variables were reported in number and percentages and analyzed using Chi-squared tests and Fisher's exact (whichever was appropriate). Continuous variables were reported as median and interquartile range (IQR) and analyzed using Wilcox rank-sum tests. Multivariate analyses performed were logistic regressions with

adjustment for other covariates. P value <0.05 was considered statistically significant. R version 3.3.2 was used for the statistical analysis.

Results. A total of 70 women and 90 men were included in the study. Median age was 41 years (19) for women and 34 years (19) for men ($P < 0.001$). Virologic suppression was documented in 76% of women and 64% of men (p 0.166). Immune recovery was documented in 60% of women and 68% of men (p 0.323). Multivariate analysis of virologic success is shown in Figure 1 and immunologic recovery is shown in Figure 2.

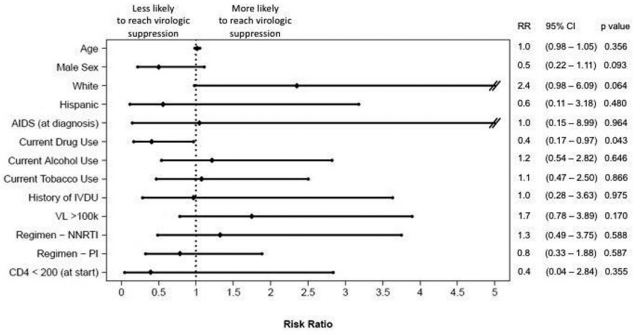

Figure 1: Multivariate Analysis of Virologic Suppression

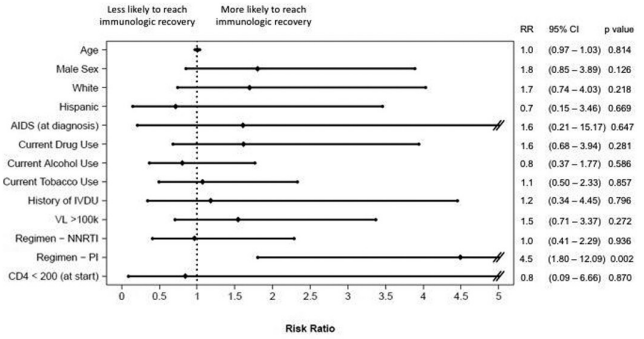

Figure 2: Multivariate Analysis of Immunologic Recovery

Conclusion. In our study, gender was not found to be associated with differences in response to ART. As expected, drug abuse continues to be an independent variable associated with lack of virologic suppression. If one of the goals of treatment is to achieve a rapid immunologic response, our study may indicate that regimens containing protease inhibitors should be the ones selected.

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1398. Weight Gain After Switch from Efavirenz-Based to Integrase Inhibitor-Based Regimens

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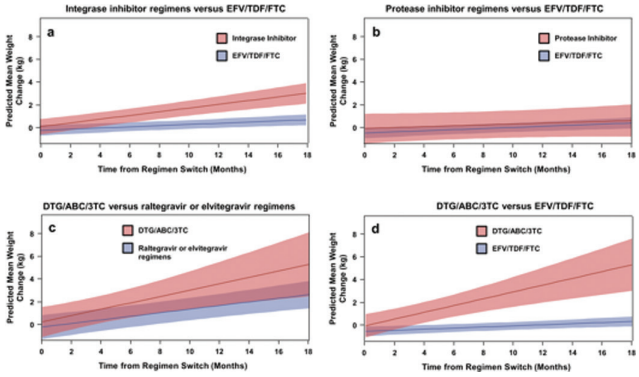
Background. Integrase strand transfer inhibitor (INSTI)-based antiretroviral therapy (ART) offers persons living with HIV a potent new treatment option. Recently, local HIV clinicians noted weight gain in patients who switched from daily, fixed-dose efavirenz/tenofovir disoproxil fumarate/emtricitabine (EFV/TDF/FTC) to fixed-dose dolutegravir/abacavir/lamivudine (DTG/ABC/3TC). To assess whether regimen switch was significantly associated with weight gain, we evaluated body weight over time among patients with sustained virologic suppression who switched from EFV/TDF/FTC to an INSTI-containing regimen, including DTG/ABC/3TC.

Methods. We analyzed data from adult patients on EFV/TDF/FTC for >=2 years with consistent plasma HIV-1 RNA <1000 copies/mL prior to date of switch (or date of sham switch for those who remained on EFV/TDF/FTC). All maintained HIV-1 RNA <1000 copies/mL for >=18 months post-switch. We assessed weight change over 18 months in patients switched to an INSTI-containing regimen or a protease inhibitor (PI)-containing regimen vs. those remaining on EFV/TDF/FTC over the same period. In a sub-group analysis, we compared patients switched to DTG/ABC/3TC vs. raltegravir- or elvitegravir-containing regimens. Linear mixed effects models assessed mean differences in weight over time, adjusting for baseline age, sex, race, CD4+ count and weight.

Results. Among 495 patients, 136 switched to an INSTI-containing regimen, 34 switched to a PI-containing regimen, and 325 remained on EFV/TDF/FTC. Patients switched to an INSTI-containing regimen gained an average of 2.9 kilograms (kg) at 18 months compared with 0.9 kg among those continued on EFV/TDF/FTC ($P = 0.003$, Figure a), while those switched to a PI regimen gained 0.7 kg ($P = 0.81$, Figure b). Among INSTI regimens, those switched to DTG/ABC/3TC gained 5.3 kg at 18 months, which was more than raltegravir or elvitegravir regimens ($P = 0.19$, Figure c) and significantly more than those continued on EFV/TDF/FTC ($P = 0.001$, Figure d).

Conclusion. Switching from daily, fixed-dose EFV/TDF/FTC to an INSTI-containing regimen among patients with virologic control was associated with weight gain at 18 months. This weight gain was particularly profound among those switching to DTG/ABC/3TC.



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1399. Application of The Change Point Analysis to The Long-Term Restoration of CD4 Count Among Well-Controlled HIV-1 Infected Patients Who Started Antiretroviral Therapy

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Background. Although CD4 count is an important marker for prognosis of patients infected with HIV-1, how long and how much CD4 count will increase after initiation of cART are still unknown. Hence, the aim of this study is, using change point analysis, to examine the long-term CD4 count restoration among well-controlled HIV-1 patients.

Methods. In this single-center cohort study at AIDS Clinical Center, Tokyo, we examined HIV-1 infected patients who initiated cART between January 2004 and January 2012 and achieved HIV viral load of <200 copies/mL within first 48 weeks of treatment and maintained viral suppression (VL <200 copies/mL) for at least 4 years. cART was defined as combination regimen which consisted of NNRTI, PI, or INSTI, plus two NRTIs. All patients were followed until censoring (defined by VL >200 copies/mL, discontinuation of cART for >30 days, lost to follow-up for >1 year, initiating chemotherapy for malignancy, or death), or at end of the observation period (September 30, 2015). Change point analysis was performed to determine the time point where the restoration of CD4 count becomes plateau.

Results. Of 752 patients, 708 (94.2%) were male and 89.9% was MSM. The median age was 39.3 years [IQR, 32–45] and the median baseline CD4 count and %CD4 were 172 cells/mm^3 [IQR, 61–254], and 13.8% [IQR, 7.7–18.5], respectively. The median follow-up period was 87.0 months [IQR, 65.2–109.2] and 134 were followed over ten years. With change point analysis, both longitudinal increase of CD4 count and %CD4 increased linearly until 78.6 and 62.2 months, respectively. Stratified by baseline CD4 count (<200 cells/mm^3, 200–350 cells/mm^3, and >350 cells/mm^3), CD4 count increased linearly until 76.2, 62.4, and 58.6 months, respectively. Moreover, the percentage of patient who achieved 500 cells/mm^3 during study period was 63.5%, 87.2%, and 92.0%, respectively.

Conclusion. With change point analysis, restoration of CD4 count and %CD4 continued increasing linearly until 6.5 and 5 years of cART, respectively. Patients with lower baseline CD4 count showed longer CD4 count recovery than those with higher baseline CD4; however, their CD4 count did not recover as high as those with higher baseline CD4 count.