Background. Used in conjunction with other antiretroviral drugs, integrase strand transfer inhibitors (INSTIs) are highly effective and well tolerated. First licenced in 2007, guidelines have recommended their use as an option for initial treatment of HIV since 2009. Here we examine factors associated with INSTI use.

Methods. Data on people living with HIV (PLWH) who were newly initiated on antiretroviral therapy (ART) was extracted from the Truven Health MarketScan® database for commercially insured and Medicaid covered adults between January 1, 2008 and December 30, 2015. New users were identified as those without an ART claim in the 6 months preceding study inclusion. Multivariable logistic regression was preformed to determine factors associated with INSTI use.

Results. Between 2008 and 2015, 25,928 new initiators of ART were identified. Of those 6,000 (23%) were initiated on INSTI-based regimens (raltegravir 47%, elvitegravir 40%, dolutegravir 13%). Fifty-three percent of initiated regimens containing non-nucleoside reverse transcriptase inhibitors and 28% included protease inhibitors. Mean age was 40.4 years (10.9); 15,382 (76%) were male. As expected, the proportion of PLWH initiated on INSTI-based regimes increased from 117 (5%) in 2008 to 53% in 2015 (n = 1,082). Those on INSTI were more likely male (OR 1.21 [95% CI 1.11, 1.31) and not on Medicaid (1.41, [1.29, 1.54]). Although PLWH with a history of congestive cardiac failure (1.42 [1.12, 1.8]), previous stroke (1.87 [1.03, 3.38]) or renal failure (1.48 [1.12, 1.98]) were more likely to receive INSTIs, those with a history of ischemic heart disease or risk factors for cardiovascular disease including, hypertension, dyslipidemia, obesity or diabetes were not more likely to initiate INSTI-based regimens after controlling for age and year (all $P > 0.05$). INSTI prescribing did not differ between infectious diseases (ID) and non-ID providers.

Conclusion. Despite their good safety profile and recommendation for first-line treatment, a significant proportion of PLWH were initiated on non-INSTI-based regimens, even in the setting of underlying comorbidities.

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557. Evaluation of Clinical Response of a Two Tablet Once Daily Antiretroviral Regimen in Antiretroviral Experienced HIV-Infected Patients

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Session: 60. HIV: Antiretroviral Therapy
Thursday, October 4, 2018: 12:30 PM

Background. The benefits of antiretroviral therapy (ART) are compromised by virologic failure and drug resistance. To maintain virologic suppression, these patients have traditionally required multitablet "salvage" regimens. We retrospectively analyzed data to assess virologic efficacy of a two-tablet, once daily combination of Elvitegravir/Cobicistat/Emtricitabine/TAF plus Darunavir (G/D) in HIV-infected adults with history of prior resistance and regimen failure.

Methods. Electronic Medical Records of HIV-infected adults with history of prior resistance and regimen failure in our HIV-Clinic were analyzed to assess efficacy of a two-tablet ART regimen of G/D. Efficacy was defined as percentage of participants with HIV-1 RNA <50 copies/mL. Statistical analysis included descriptive summary of all patients. Categorical variables (gender, mode of transmission, the presence of undetected viral load, the presence of viral load <50, class resistance number, and the presence of M184V mutation) were compared between the two outcome groups (success vs. failure) using the Fisher exact test. The two groups were also compared using Student's two-sample t-test for normally distributed numerical variables (age and number of years from diagnosis to regimen change) and the Wilcoxon rank-sum test for non-normally distributed numerical variables (CD4 level at diagnosis and CD4 level at regimen change).

Results. Thirty-four patients were included in the study, of which 70.6% were men, majority MSM: 64.7%. Patients had been diagnosed with HIV for a median of 13.8 ± 7.3 years. More than 50% of patients at time of switch were on four pills and 53% were on a BID regimen. 61.7% patients were virologically suppressed with the regimen of G/D. There was no difference between virologic success vs. failure group when following variables were compared: CD4 at the time of regimen change, undetectable HIV VL vs. viremic patients at regimen change, the number of drug class resistance, the presence of M184 V mutation. Only statistically significant variable was age, virologic failure arm patients were younger; 35.8 vs. 48.2 years.

Conclusion. Despite the small numbers of patients, our results demonstrate that in a clinical setting a two tablet regimen provides substantial efficacy in ART-experienced patients harboring resistant virus.

Disclosures. **I. Brar**, Gilead: Research Contractor and Speaker's Bureau, Research grant and Speaker honorarium. Janssen: Research Contractor and Speaker's Bureau, Research grant and Speaker honorarium. Viiv: Research Contractor, Research grant.

558. Genotype-Guided vs. Standard First-line Antiretroviral Regimen for Treatment Naïve HIV-Infected Patients in Thailand: A Prospective Randomized Controlled Trial

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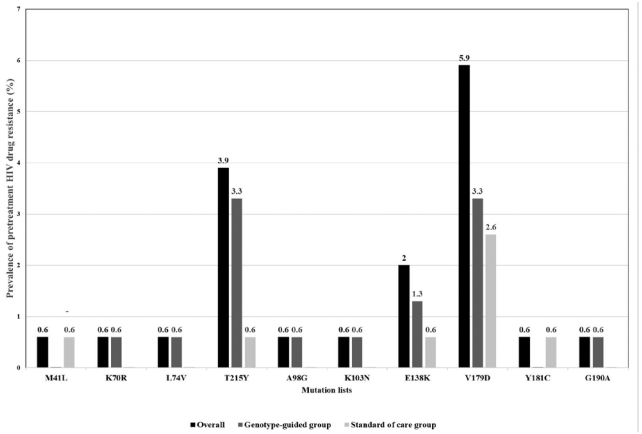
Thursday, October 4, 2018: 12:30 PM

Background. An increase in the prevalence of pretreatment drug resistance (PDR) has been reported among HIV-infected individuals and PDR may be associated with poor treatment outcome of first-line antiretroviral therapy (ART). However, drug resistance testing prior to ART initiation is not routinely performed in resource-limited settings. We aimed to evaluate the prevalence of PDR in Thailand and whether genotype-guided first-line ART can improve treatment outcomes.

Methods. A prospective, multicenter, randomized, controlled trial was conducted involving newly diagnosed HIV-infected adults. Participants who were going to initiate ART were randomly assigned to either genotype-guided (GG) group or standard of care (SC) group with 1:1 allocation as per a computer-generated randomization. Genotypic resistance assay was performed in all participants. The investigators in GG group were informed the results of genotypic resistance assays before selecting the ART regimen. In contrast, the results of SC group were blinded to the investigators. Factors associated with having PDR and undetectable HIV RNA were analyzed by logistic regression.

Results. A total of 153 participants were randomized to either GG group (78 participants) SC group (75 participants). Of all, median (IQR) age was 32 (26–42) years and 83% were male. Median (IQR) CD4 count was 190 (42–324) cells/mm^3. Overall prevalence of PDR was 13.7% and NNRTIs PDR was 10.5%. The most common mutation was V179D (5.9%), T215Y (3.9%) and E138K (2.0%). No associated factor of having PDR was determined. At 24 weeks, 85.9% in GG group and 86.3% in SC group had undetectable HIV RNA ($P = 0.940$). By univariate logistic regression, having PDR was not associated with undetectable HIV RNA (OR 0.40; 95% CI 0.12–1.30, $P = 0.122$). By multiple logistic regression, factors associated with undetectable HIV RNA were adherence (OR 1.53 per 5% increment; 95% CI 1.15–2.05; $P = 0.004$) and no history of PJP (OR 6.24; 95% CI 1.62–24.08; $P = 0.008$).

Conclusion. In Thailand, the prevalence of PDR is moderate and NNRTIs PDR is high according to the WHO category. Recommended first-line ART for Thai HIV-infected patients should be modified. Routine genotype-guided first-line ART is not now recommended in Thailand. Periodically PDR surveillance and cost-effectiveness study of genotype-guided first-line ART should be further studied.



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

559. Efficacy and Tolerability of Integrase Inhibitors: Experiences From a Nationwide Real-Life Cohort

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Session: 60. HIV: Antiretroviral Therapy
Thursday, October 4, 2018: 12:30 PM

Background. The integrase strand transfer inhibitors (INSTIs) are widely used in first-line and alternative antiretroviral therapy. Observational studies have documented a 2–12% incidence of adverse drug reactions sometimes leading to INSTI discontinuation.

Methods. Prospectively collected cohort data of INSTI use were analyzed between January 2008 and March 2017, in Hungary, a Central-European country with centralized HIV care. Efficacy of viral suppression and reasons for discontinuation were evaluated for available INSTIs (raltegravir (RAL) and dolutegravir (DTG)).

Results. There were 2,232 patients registered in the national HIV Center in 2017 March 31. Six hundred seventeen patients received during the study period RAL (259 patients—41.9%) or DTG (358—58.1%). There were 55 cases (9%) of switch within class (39 patients for simplification, 13 due to toxicity, two virological failures, and one other reason). Sixteen cases (3%) changed INSTI to another class (eight virological failures, four due to toxicity, and four other reasons). Ten cases of virological failure occurred in patients taking RAL, whereas none of those taking DTG, but in patients on DTG higher rates of side effects were observed compared with patients on RAL (11—3.1% vs. 6—2.3%, respectively).

Conclusion. Large and homogenous, nationwide cohort of patients taking INSTIs confirm good tolerability and excellent efficacy of the class with slight differences between RAL and DTG.

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

560. Immune Recovery of Acute HIV-Treated Patients Is Characterized by an Increase in Immune Senescence

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Thursday, October 4, 2018: 12:30 PM

Background. ARV treatment (ART) administered during acute HIV-infection presents several immunological benefits leading to a better CD4+ T-cell recovery and a diminished HIV reservoir.

Methods. Patients with acute HIV-infection, enrolled in the VIHIA cohort, had blood samples taken at diagnosis and at 2, 6 and 12 months after ART initiation. Flow-cytometry analysis was performed in fresh whole blood. Naïve-(Nv), central memory (CM), effector memory (EM) and terminally differentiated T-cells (TMRA), as well as activation markers were defined using CD3, CD4, CD8, CD45RA, CCR7, CD38, CD31 and HLA-DR markers. CD28 and CD57 were used to identify immunosenescent cells. Fox-P3, CD 25, CD127 and CD45RA were used to identify Regulatory T cells (Treg) and their subsets. To assess changes over time, Wilcoxon-matched-pairs signed rank test was used for each value between baseline and months 2 and 12 independently.

Results. Four patients were diagnosed at Fiebig stage II; 5 patients at Fiebig stage III, 24 patients at stage IV and 5 patients in stage V. All patients received treatment within the first 24 hours of HIV diagnosis. Only 13 patients had flow-cytometry data at baseline and 1 year of follow-up. All subjects were MSM with a mean age of 32 y.o. Mean CD4+ T-cell count was 439 cells/μL and mean viral load was 1.2 million copies/mL (23,379–10 × 10^6 copies/mL) at baseline. The change in T-cell differentiation patterns at 0 and 12 months is shown in Figure 1. Activation markers decreased in all studied subsets at 2 months and furthermore at 12 months. Total T-regs increased from 5.1% to 7.8% at 1 year of follow-up (Figure 2). Immunosenescence markers increased steadily throughout the study in all T-cell subsets, being statistically significant in the total T-cell CD8 population at 12 months of follow-up (Figure 3) unrelated to Fiebig stage.

Conclusion. It has been hypothesized that early ART decreases T-cell immunosenescence; however, in our cohort despite treatment during acute HIV, we observed that at 1 year follow-up immunosenescence markers increased despite a decrease in immune activation and a recovery of T-cell subsets.

Figure 1 (Opción 1). CD4+**(A)** and CD8+**(B)** T Cell Differentiation. NV:CD45RA+, CCR7+; CM: CD45RA-, CCR7+; EM: CD45RA-, CCR7-; TMRA: CD45RA+, CCR7-

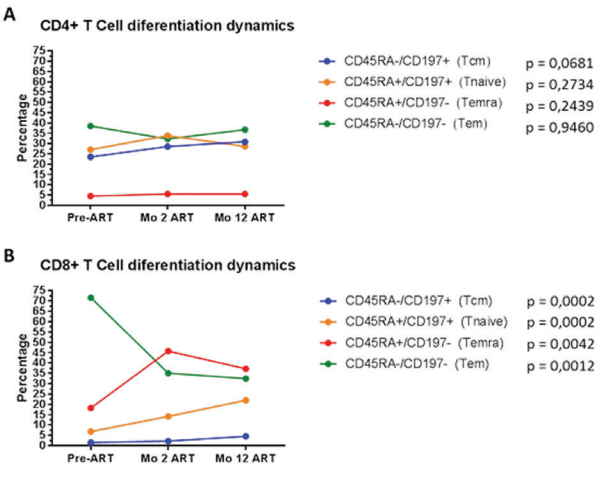


Figure 2. Regulatory T cells. Activated: $CD4^+$, $CD25^+$, $CD127^-$, Fox $P3^{hi}$, $CD45^-$; Naïve:$CD4^+$, $CD25^+$, $CD127^-$, Fox $P3^{low}$, $CD45^+$; Non Tregs(NS): $CD4^+$, $CD25^+$, $CD127^-$, Fox $P3^{low}$, $CD45^-$.

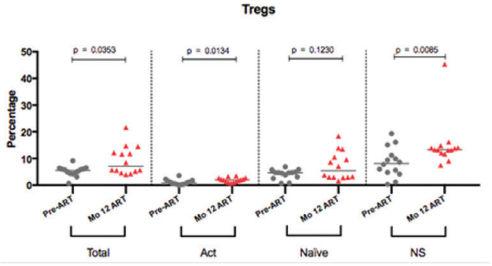
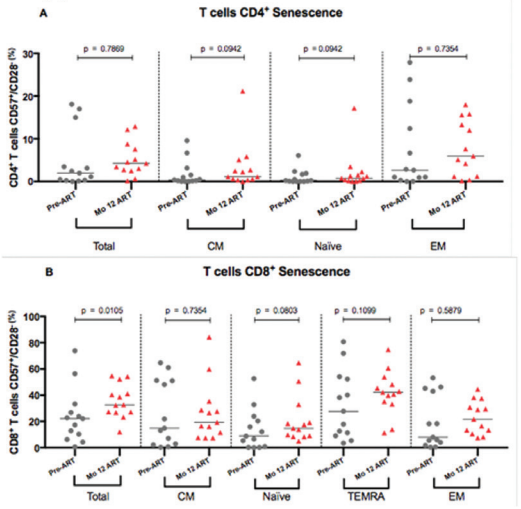


Figure 3. Effects of ART on changes in the percent of $CD28^-$ $CD57^+$ $CD4^+$**(A)** and $CD8^+$**(B)** T cells



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

561. Co-occurring Psychosocial Barriers to Viral Suppression Among Men Who Have Sex with Men (MSM) in India

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Session: 61. HIV: Linkage to Care and Viral Suppression in the Care Cascade
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Background. There is a paucity of data on factors associated with viral suppression in representative populations of HIV-positive MSM in low-middle income country (LMIC) settings. We characterized factors associated with viral suppression among a community-recruited sample of MSM across India with a particular focus on depression, alcohol use and recreational drug use.

Methods. Of 10,024 MSM recruited using respondent-driven sampling (RDS) from 10 Indian cities between August 2016 and April /2017, 1,460 were HIV-positive and eligible for ART. Alcohol dependence was defined as AUDIT score ≥15; severe depression as PHQ-9 score ≥15; recreational drug use included both injection and non-injection use of drugs common in India, excluding marijuana. Prevalence ratios (aPrR) were obtained using multivariable Poisson regression incorporating RDS2 weights and accounting for clustering by site.

Results. Median age was 37 years, 34.1% had at least high school education and 66.0% reported monthly income >$115. Prevalence of viral suppression among HIV+ ART eligible MSM was 66.2% overall, ranging from 35.2% in Bhopal to 76.1% in Madurai with no regional trends. Prevalence of severe depression was 4.0%, alcohol dependence 66.3% and recreational drug use 9.5%. Viral suppression was significantly more common among those who were older and had higher treatment literacy. In analyses that adjusted for these factors and sexual identity, those who reported drug use and had evidence of severe depression had a significantly lower likelihood of being virally suppressed (aPrR 0.38; [95% CI: 0.16–0.89]) than those with neither (*P*-value for interaction = 0.05). Similarly, compared with those who used neither alcohol nor drugs, those using both had a lower prevalence of viral suppression (aPrR: 0.61; [95% CI: 0.40–0.94]) although the interaction did not achieve statistical significance ($P = 0.07$).

Conclusion. In this population of MSM in an LMIC, recreational drug use appeared to be a key barrier to achieving viral suppression. Moreover, the impact of drug use was greater in the context of co-occurring severe depression or co-occurring alcohol dependence. It is critical that HIV programming in India and other resource-limited settings incorporate interventions to address these conditions in differentiated care models to maximize viral suppression.

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

562. Management and Outcomes of Patients With Acute HIV Infection in an Expanded Testing and Linkage to Care Program

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