2502. Impact of Pharmacist-Led Antiretroviral Therapy Simplification Initiative in Heavily Treatment-Experienced Patients on Virologic Control

Humberto R. Jimenez, PharmD, BCPS, AAHIVP[1];
Kayla M. Natali, PharmD, AAHIVP[2]; Jin S. Suh, MD[3]; [1]Rutgers, The State University of New Jersey, Paterson, New Jersey; [2]Saint Michael's Medical Center, Montville, New Jersey; [3]St. Joseph's University Medical Center, Paterson, New Jersey

Session: 262. HIV: Antiretroviral Therapy
Saturday, October 5, 2019: 12:15 PM

Background. It is well established that antiretroviral therapy (ART) with a lower pill burden are associated with better virologic suppression. However, many HIV providers are cautious when considering ART changes in heavily treatment-experienced patients for a variety of reasons: accumulation of complex resistance patterns, intolerance concerns with new agents, drug-interaction concerns, and a paucity of data on ART simplification in this population. The objective of our study was to evaluate the impact of pharmacist-led initiative to simplify ART among heavily treatment-experienced patients with high pill burdens on virologic control.

Methods. This was a prospective, observational cohort at a clinic in Paterson, NJ, USA. Patients were eligible if: heavily treatment experienced (≥10 years on ART with history of failure or resistance), ART with ≥ 4 pills daily, ≥ 48 weeks of data, and at clinic from September 2016 to present. The primary endpoint was to measure the effect of ART simplification (decrease of ≥ 2 pills daily) on virologic response (HIV RNA < 200 copies/mL) compared with continuation of regimens with a high pill burden. Secondary endpoints included difference in antiretroviral pill burden and monthly cost, based on average wholesale price (AWP).

Results. There were 94 patients eligible for the analysis. Most patients were male (65%), and either Black (53%) or Latinx (35%). The simplification and continuation groups had similar baseline characteristics: mean age (50 vs. 50 years old), daily pill burden (4.77 vs. 4.95), virologic response (82% vs. 87%), CD4 count (459 ± 265 vs. 528 ± 273), monthly ART cost ($4,585 vs. $4,159). M184V (50.0%) and K103N (23.4%) were the most commonly documented mutations. Thymidine-analog, atazanavir-associated, and darunavir-associated mutations were documented in 28.7%, 24.5%, and 11.7% of patients, respectively. Patients with ART simplification were more likely to have virologic response than patients continued on the baseline regimen (97% vs. 76%, $P = 0.0126$), and had a significantly lower daily pill burden (2.05 vs. 4.95, $P = 0.001$).

Conclusion. Pharmacist-led ART simplification in heavily treatment experienced patients can dramatically reduce pill burden while achieving better virologic success.

Characteristic	Simplification Group (n = 39)	Continuation Group (n = 55)	P value
HIV RNA <200 copies/mL, week 48, n	36 (92%)	42 (76%)	0.0878
HIV RNA <200 copies/mL, last clinic visit, n	38 (97%)	42 (76%)	0.0126
Time to last visit, mean # of months	15.9	18.9	0.0023
Daily pill burden, week 48, mean ± SD	2.05 ± 0.72	4.95 ± 1.01	0.0001
Monthly ART cost, week 48, mean average wholesale price	$4,559 ± $1,011	$4,159 ± $1,229	0.0978

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

2503. Differences Between Experts and Community Clinicians in Selecting HIV Switch Regimens for Patients With Viral Suppression

Jennifer Blanchette, PhD[1]; Jenny Schulz, PhD[1]; Edward King, MA[2];
Brian Wood, MD[3]; Joseph J. Eron, MD[4]; Paul Sax, MD[5]; [1]Clinical Care Options, Louisville, Colorado; [2]Clinical Care Options, LLC, Reston, Virginia; [3]University of Washington, Seattle, Washington; [4]University of North Carolina, Chapel Hill, Chapel Hill, North Carolina; [5]Brigham and Women's Hospital, Boston, Massachusetts

Session: 262. HIV: Antiretroviral Therapy
Saturday, October 5, 2019: 12:15 PM

Background. Patients and clinicians may consider switching suppressive HIV regimens for a variety of reasons, including simplification, improved safety and tolerability, drug interactions, or cost. Because switching treatment is a common clinical dilemma in current HIV care, we developed an online treatment decision support tool to assist providers on selecting a new regimen in a variety of patient scenarios.

Methods. In March 2018, 5 HIV experts provided treatment recommendations for more than 1300 unique HIV switch case scenarios based on a simplified set of variables: CVD, HLA-B*5701, HBV, drug resistance, current ART, and component requiring a switch. We then developed a decision support tool that enabled clinicians to specify a patient scenario using these variables and to select their currently intended approach. The experts' recommendations for that specific case were then shown, and clinicians were asked if the recommendations changed their planned treatment.

Results. In the 5 months following release of the tool, healthcare providers (HCPs) entered 932 patient case scenarios. A comparison of HCPs treatment plans vs expert selections in select patient case scenarios is shown in Tables 1 and 2. The data demonstrated several key areas of discordance, including the more frequent selection of the following options by HCPs vs. experts across a wide range of case scenarios: (a) Boosted regimens: 18% to 31% vs. 0% to 4% of cases; (b) TDF-containing regimens: 7% to 25% vs. 0% of cases; and (c) PI-based regimens: 9% to 23% vs. 0% to 4% of cases. In a subset of 88 patient case scenarios where HCPs' intended treatment differed from experts and HCPs also self-identified the impact of the tool, 48% indicated that their treatment plan would change/agreed with experts after using the tool.

Conclusion. This online HIV switch decision support tool shows substantial differences between experts' and HCPs' treatment choices for switching therapy in multiple case scenarios. Moreover, consensus expert selections in this online tool resulted in a change to the intended treatment plan for approximately one half of users, suggesting use of the tool can help optimize selection of a new ART regimen for patients switching in the setting of virologic suppression.

Table 1. No CVD/No High CVD Risk; HLA-B*5701 Negative; No HBV Coinfection

HIV Switch Case Scenario and Selected Switch Regimen	Expert Selections, %	HCPs Planned Treatment, %
No Drug Resistance		(n = 216 cases)
• Unboosted INSTI-based triple therapy	78	50
• DTG/RPV dual therapy	9	19
M184 or single TAM and/or K103N		(n = 116 cases)
• Unboosted INSTI-based triple therapy	74	44

Table 2. CVD or High CVD Risk and/or HLA-B*5701 Positive or Unknown; No HBV Coinfection*

Selection of Any Unboosted Triple Therapy Regimen According to HIV Drug Resistance	Expert Selections, %	HCPs Planned Treatment, %
• No drug resistance	96	77 (n = 131)
• Unknown resistance but no history of VF	92	74 (n = 69)
• M184 or single TAM and/or K103N	88	64 (n = 66)

*Experts did not select ABC-containing regimens in any of the case scenarios in this group, whereas HCPs chose an abacavir-containing regimen in 10% to 12% of cases.

Disclosures. All authors: No reported disclosures.

2504. Laboratory Evaluation of HIV-1 Viral Load Pooling with Marker-Assisted Deconvolution

Sabina Holland, MD[1]; Allison DeLong, MS[1]; Tao Liu, PhD[1];
Anna Makaretz[1]; Mia Coetzer, PhD[1]; Lauren Ledingham[1]; Yizhen Xu[1];
Soya Sam, PhD[2]; Kwamena Sagoe, PhD[3]; Angela Caliendo, MD, PhD[1];
Michael Daniels, PhD[4]; Joseph Hogan, PhD[1]; Rami Kantor, MD[1]; [1]Brown University, Providence, Rhode Island; [2]Lifespan, Providence, Rhode Island; [3]University of Ghana, Accra, Greater Accra, Ghana; [4]University of Florida, Gainesville, Florida

Session: 262. HIV: Antiretroviral Therapy
Saturday, October 5, 2019: 12:15 PM

Background. Cost still limits HIV-1 viral load (VL) routine monitoring in resource limited settings (RLS), preventing early detection of virologic failure (VF). Pooled VL testing reduces cost over individual testing (IND). We previously showed in simulation, that additional cost benefits over previously-used pooling deconvolution algorithms can be achieved by using low-cost, routinely-collected clinical markers to determine the order for VL testing in deconvolution (termed marker-assisted minipool plus algorithm; mMPA). This algorithm has not been assessed in-vitro.

Methods. 150 samples from 99 Ghanaian adults with HIV on first-line therapy (VF 17%; CD4-VL correlation −0.35) were used to construct 30, 5-sample pools: n = 10 with 0, n = 5 with 1, and n = 15 with 2 individuals with VF. VL testing was with Abbott M2000. Accuracy, number of tests and rounds of testing to deconvolute pools were estimated using four strategies: (1) IND; (2) Minipooling (MP); (3) Minipooling with algorithm (MPA); and (4) mMPA.

Results. Compared with IND, MP and MPA, mMPA reduced total number of tests per pool needed to ascertain VF: MP average 4.3 (95% confidence interval (CI) 3.5–5.2, p> 0.05), MPA 3.0 (95% CI 2.4–3.5, $P < 0.001$), and mMPA 2.5 (CI 2.0–3.0, $P < 0.001$). Compared with MP and MPA, mMPA further reduced VL tests by 42% (1.9 tests/pool, CI 1.3–2.4, $P < 0.001$) and 17% (0.5, CI 0.2–0.8, p = 0.004); and required fewer testing rounds than MPA by 17% ($P < 0.01$), thus producing results quicker. IND and MP had 100% sensitivity and specificity. MPA and mMPA had similar sensitivity of 96.1% (MPA CI 90.7–100%; mMPA CI 88.0–100.0%) and specificity of 99.5% and 99.2% (98.5–100.0% for MPA and 97.5–100.0% for mMPA). Specifically, 3/150 samples were misclassified with MPA and mMPA: one suppression as VF, and two VF as suppressed.

Conclusion. Laboratory evaluation confirms that deconvolution using mMPA with CD4 or other routinely-collected clinical information as low-cost biomarkers reduces the number of VL assays required to identify VF in a setting with a low prevalence of VF. Implementation of pooled VL testing using mMPA for deconvolution may increase the availability of VL monitoring in RLS. Work is ongoing to reduce complexity and misclassification, required prior to widespread implementation.

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

2505. Incidence of Transmitted Drug Resistance and Its Clinical Implications Between 1999 and 2018 in a Regional HIV Population

Raynell Lang, MD[1]; Hartmut B. Krentz, PhD[2];