Poster #337

Switching from TDF to TAF: Missed Opportunities for Statin Use in HIV

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OPERA® The Longitudinal Cohort

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Background

- People living with HIV (PLWH) have twice the risk for atherosclerotic cardiovascular disease (ASCVD) as the general population
- Increases in total and LDL cholesterol have been observed in PLWH switching from tenofovir disoproxil fumarate (TDF) to tenofovir alafenamide (TAF)[1]
- Current guidelines recommend initiating statin therapy in individuals with an elevated ASCVD risk (ASCVD ≥7.5%)[2]

OBJECTIVE

To assess missed opportunities for statin therapy in PLWH switching from TDF- to TAF-containing antiretroviral therapy

Methods

Study population

- OPERA cohort
  - » Prospectively captured, routine clinical data from electronic health records (84 clinics, 17 states, 1 US territory)
  - » ~7% of PLWH in care in the US
- Inclusion criteria
  - » HIV positive, ≥18 years of age
  - » Switched from TDF to TAF between 5Nov2015 and 31Mar2018
  - » ≥1 lipid measure on TDF ≤6 months prior to switch
  - » ≥1 lipid measure ≥7 days after switch to TAF
  - » No PEP, PrEP or clinical trial participation
- Observation period from TDF-to-TAF switch until the first censoring event:
  - » TAF discontinuation
  - » ≥12 months without contact
  - » Death
  - » Study end (30Jun2018)

Lipid lowering agents

- Statins
  - » Prescription of atorvastatin, pitavastatin, pravastatin, rosuvastatin, or simvastatin
  - » With or without other lipid lowering agents
- Non-statins
  - » Prescription of cholestyramine resin, ethyl eicosapentaenoic acid, ezetimibe, fenofibrate, gemfibrozil, niacin, Omega-3 acid ethyl esters, Omega-3 fatty acids
  - » Without statins

ASCVD risk score

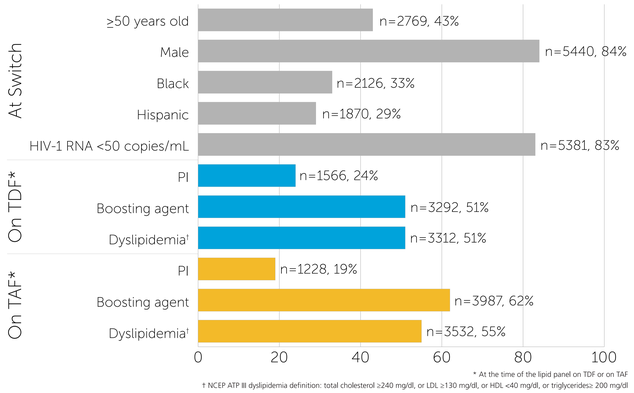
- Derived from the Pooled Cohort Equations calculator[2]
- Predicts the risk of developing a first ASCVD event (i.e. nonfatal myocardial infarction, coronary heart disease death, or fatal or nonfatal stroke) over 10 years among people free from ASCVD
- Based on sex, age, race, total cholesterol, HDL, systolic blood pressure, hypertension treatment, diabetes and smoking status
- Imputed using limit value if age <40 or >79, systolic BP <90 or >200 mmHg, HDL <20 or >100 mg/dL, total cholesterol <130 or >320 mg/dL

Analyses

- Proportion of PLWH prescribed statins pre- and post-switch
- Stratified by ASCVD risk

Results

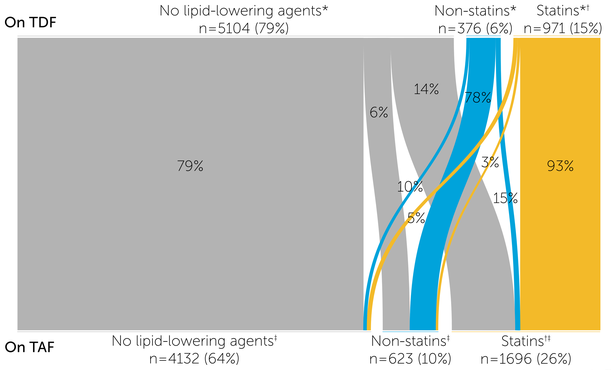
Figure 1. Demographic and clinical characteristics of PLWH switching from TDF to TAF (N=6,451)



* At the time of the lipid panel on TDF or on TAF

† NCEP ATP III dyslipidemia definition: total cholesterol ≥240 mg/dl, or LDL ≥130 mg/dl, or HDL <40 mg/dl, or triglycerides≥ 200 mg/dl

Figure 2. Lipid-lowering agent use before and after switch (N=6,451)

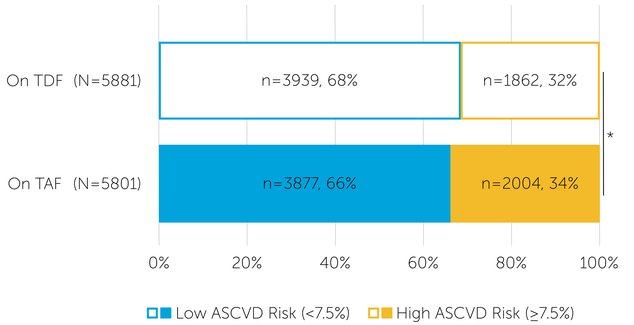


* Lipid lowering agent use assessed at time of lipid panel on TDF

† Statins used with or without other lipid lowering agents

‡ First lipid lowering agent use on/after first lipid panel on TAF

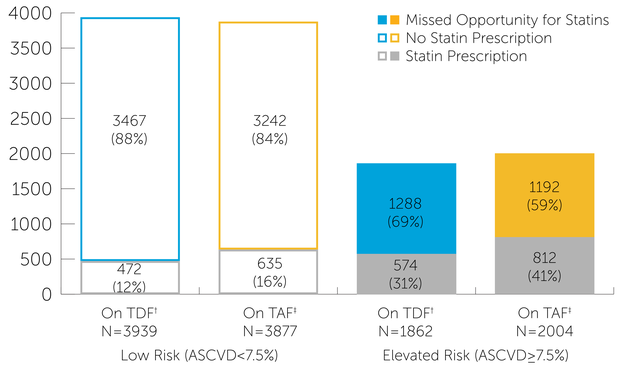
Figure 3. Risk of ASCVD in PLWH switching from TDF to TAF with an ASCVD† risk score



*p-value = 0.02

†All factors included in the ASCVD score calculation were measured within 6 months before the lipid panel

Figure 4. Statin use by ASCVD* risk in PLWH switching from TDF to TAF



*All factors included in the ASCVD score calculation were measured within 6 months before the lipid panel

†Statin prescription at or after the last lipid panel on TDF

‡Statin prescription at or after the first lipid panel on TAF

Discussion

- Changes in regimens represent an opportunity for healthcare providers to assess health markers and address clinical concerns
- A third of PLWH had an elevated ASCVD risk at the time of switch from TDF to TAF
- Failure to initiate statins in PLWH with an ASCVD ≥7.5% at switch represents a missed opportunity for statin initiation
  - » 69% had no statin prescription before switch
  - » 59% had no statin prescription after switch
- Considerable missed opportunity given that the Pooled Cohort Equations calculator may underestimate risk among PLWH due to non-traditional risk factors driving ASCVD[3]
- Comparable results among PLWH who did not require ASCVD score imputation (data not shown)

KEY FINDINGS

- Only an additional ~10% of PLWH with elevated ASCVD risk initiated statins after switching from TDF to TAF
- Considerable missed opportunities to reduce risk of cardiovascular disease in this at-risk population

References

1. Mallon P, Brunet L, Fusco J, et al. Changes in Lipids After a Direct Switch from TDF to TAF. CROI Conference on Retroviruses and Opportunistic Infections. Seattle, WA, 2019.
2. Stone NJ, Robinson JG, Lichtenstein AH, et al. 2013 ACC/AHA Guideline on the Treatment of Blood Cholesterol to Reduce Atherosclerotic Cardiovascular Risk in Adults: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Journal of the American College of Cardiology 2014; 63(25, Part B): 2889-934.
3. Zanni MV, Fitch KV, Feldpausch M, et al. 2013 American College of Cardiology/American Heart Association and 2004 Adult Treatment Panel III cholesterol guidelines applied to HIV-infected patients with/without subclinical high-risk coronary plaque. AIDS (London, England) 2014; 28(14): 2061-70.

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