A Real World Assessment of the Efficacy and Safety of Switching from TDF to TAF in Treatment Experienced Patients with HIV Infection

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Background

- In clinical trials, switching from tenofovir disoproxil fumarate (TDF) to tenofovir alafenamide (TAF) containing antiretroviral therapy (ART) maintained viral suppression in patients living with HIV (PLWH)
- Switching to TAF also improved renal function and bone mineral density, while negatively influencing serum cholesterol levels
- The efficacy and safety of switching to TAF in a real world setting is unknown

Objective

- The primary objective of this study was to determine if patients maintain viral suppression after switching from TDF to TAF
- The secondary objective was to assess changes in renal function and serum cholesterol levels

Methods

- A retrospective chart review of 110 patients switching from a TDF to TAF based antiretroviral therapy
- Subjects were HIV positive, on TDF based therapy for at least one year, and virally suppressed during the year prior to switching
- Viral suppression was defined as two consecutive HIV viral load measurements < 200 copies/mL and no values > 200 copies/mL
- To asses the primary endpoint viral load measurements were analyzed one year after switching for each patient
- To asses renal function and cholesterol changes, creatinine clearance, total cholesterol, LDL-C, HDL-C, and triglyceride levels were analyzed for each patient one year before and after switching
- ASCVD risk scores were calculated for eligible patients at the time of their ART switch and again 6-12 months after the switch for comparison
- ASCVD scores were calculated using the 2018 American College of Cardiology/American Heart Association guidelines on treating blood cholesterol

Limitations

- The single centered study design could limit the external validity of the results
- Omissions or inaccuracies in medical records could have influenced study results
- The small sample size may not be representative of the entire population of PLWH

Results

Table 1: Demographics (n=110)

Characteristic	Result
Mean Age, years (range)	50 (24 – 77)
Male Sex, n (%)	80 (72.7)
Race, n (%)	
African American	64 (58.2)
Caucasian	38 (34.5)
Hispanic	6 (5.5)
Asian	2 (1.8)
Median Time with HIV, years (range)	12 (2 – 34)
Median Time on ART, years (range)	8 (1 – 29)
Median CD4 Count at Switch, copies/mL (range)	627.5 (138.0 – 1,401.0)

Figure 1: Patients with Viral Load Data After Switching

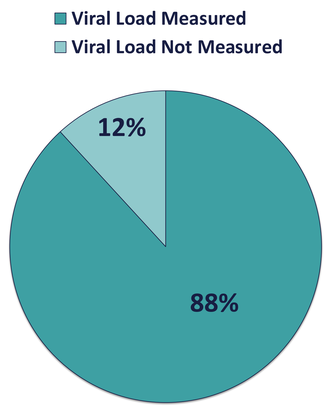

Figure 2: Patients Maintaining Viral Suppression After Switching

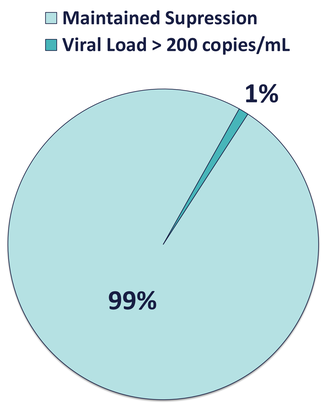

Table 2: Changes in Renal Function

Renal function measurement	Pre-switch	Post-switch	Change	p-Value
Creatinine Clearance (mL/min)	104.0	102.5	-1.0	0.82

*Median values reported

Table 3: Changes in Serum Cholesterol Values

Serum cholesterol measurement	Pre-switch	Post-switch	Change	p-Value
Total Cholesterol (mg/dL)	173.8	195.0	12.5	< 0.01
LDL-C (mg/dL)	98.6	112.1	8.2	< 0.01
HDL-C (mg/dL)	51.0	55.8	3.0	< 0.01
Triglycerides (mg/dL)	103.5	109.5	4.0	0.28
Total Cholesterol to HDL-C Ratio	3.5	3.5	0.1	0.25
ASCVD Risk Scores	6.9	8.1	0.4	< 0.01

*Median values reported

Conclusions

- PLWH in this study maintained viral suppression when switching from a TDF to TAF based ART and did not experience significant change in renal function
- Patients did however, experience significant increases in total cholesterol, LDL-C, and HDL-C from baseline measurements
- Changes in cholesterol led to significant increases in ASCVD scores
- The clinical implications of cholesterol and ASCVD changes are unclear, but could increase in the number of patients requiring statin therapy
- Additional studies are necessary to determine the causes of cholesterol changes in patients switching to TAF