Impact of Switching to E/C/F/TAF on Lipid Profile and Renal Function in HIV-infected Patients

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Introduction and Objectives

Elvitegravir/cobicistat/emtricitabine/tenofovir alafenamide (E/C/F/TAF) is a recommended and widely used regimen for HIV infection. In this study we aimed to determine the impact of switching to E/C/F/TAF on the lipid profile and renal function in HIV-infected patients.

Methods

ACTHIV-IST Study Group produced a database and 5 dedicated HIV centers in Istanbul entered data on HIV patients who switched from any tenofovir disoproxil fumarate-containing regimen to E/C/F/TAF. Viral parameters, lipid studies, renal function tests, adverse events, and adherence to the treatment were recorded.

Results

The study included 171 patients; 93% (159/171) were male and mean age was 41 years (SD:11 years). Among them, 48% (83/171) described themselves as men who have sex with men. Median duration of HIV infection was 40 months (interquartile range-IQR 53-31). Median duration of E/C/F/TAF use was 18 months (IQR 20-15). HIV-RNA was undetectable at months 6 and 12 in 88% (151) and 87% (149), respectively. Median CD4 counts were 729 cells/µL (IQR:931-595) and 789 cells/µL (IQR:970-580). Renal functions tests and lipid profile at month 12 were available in 84% and 60% of the patients, respectively. Patients with abnormal lipid parameters and kidney functions with treatment were given in Table.

There were trends toward a decrease in serum creatinine and an increase in eGFR at month 12. Median total cholesterol levels at baseline and month 12 were 162 and 204 mg/dL; LDL-cholesterol 103 and 135 mg/dL; HDL-cholesterol 38 and 45 mg/dL; and triglycerides 99 and 129 mg/dL, respectively. The total cholesterol/HDL ratio at baseline and month 12 were 4.4 at both time points.

Table. Patients with abnormal lipid parameters and kidney functions with treatment.

	Baseline	Month 6	Month 12	p
Creatinine level, median (IQR)	0.87 (0.98-0.75)	0.86 (0.97-0.79)	0.85 (0.96-0.77)	NS
High creatinine*	0.6% (1/167)	2.1% (3/145)	1.4% (2/143)	NS
eGFR, median (IQR)	105.97 (115.9-94.2)	105.4 (113.2-95.0)	107.2 (116.2-96.0)	NS
Low eGFR**				
Stage 2 (60-89)	18.7% (31/166)	15.9% (23/144)	14.8% (21/142)	NS
Stage 3 (30-59)	1.2% (2/166)	1.4% (2/144)	1.4% (2/142)	NS
Stage 4,5 (<30)	0/166	0/144	0/142	-
TC >200 mg/dL	16.7% (25/150)	58.1% (68/117)	53.4% (55/103)	<0.0001
LDL >130 mg/dL	15.5% (22/142)	51.8% (59/114)	56.3% (54/96)	<0.0001
Low HDL***	74.6% (106/142)	50.4% (57/113)	43.0% (43/100)	<0.0001
TG >200 mg/dL	14.9% (22/148)	27.4% (31/113)	19.0% (19/100)	<0.05

*High creatinine= in females >1.1 mg/dL, in males >1.3 mg/dL, **low eGFR= <90 mL/min/1.73 m², US National Kidney Foundation Classification, ***low HDL= in females <55 mg/dL, in males <45 mg/dL. NS: not significant, IQR: interquartile, eGFR: estimated glomerular filtration rate, TC: total cholesterol, LDL: low-density lipoprotein, HDL: high-density lipoprotein, TG: triglycerides.

Conclusion

Switching to E/C/F/TAF was associated with stable renal functions. Its use was associated with increases in LDL-cholesterol, triglycerides and also in HDL cholesterol levels at month 6; these effects were diminished at month 12.