Long-term change of renal function among people with HIV who received tenofovir alafenamide (TAF)-containing ART

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Does tenofovir alafenamide (TAF) results in long term kidney injury or GFR decline?

TAF group: PWH taking TAF-containing ART for >180 days. ***vs.*** **Non-TFV group:** PWH without exposure to tenofovir (neither TDF or TAF).

Table 1. Baseline characteristics of the included PWH

Characteristics	TAF group (N=2422)	Non-TFV (N=252)	P value
Age, mean (SD), years	40.8 (10.7)	42.4 (11.0)	**0.02**
Male sex, n (%)	2339 (96.6)	237 (94.0)	**0.04**
PVL >200 copies/mL at the baseline, n (%)	142/2389 (5.9)	5/237 (2.1)	**0.01**
Duration of HIV infection, median (IQR), years	5.2 (2.4-8.7)	7.1 (1.2-9.1)	0.50
Length of observation, median (IQR), years			**<0.001**
TAF-containing ART exposure	4.8 (3.4-5.4)	NA	
Non-TFV ART exposure	NA	5.4 (4.0-5.6)	
Previous exposure to TDF, n (%)	1784 (73.7)	0 (0)	
Length of TDF exposure, median (IQR), years	3.1 (2.2-5.2)	NA	
Baseline eGFR, mean (SD), mL/min/1.73m^2	95.7 (19.3)	93.0 (18.3)	**0.03**

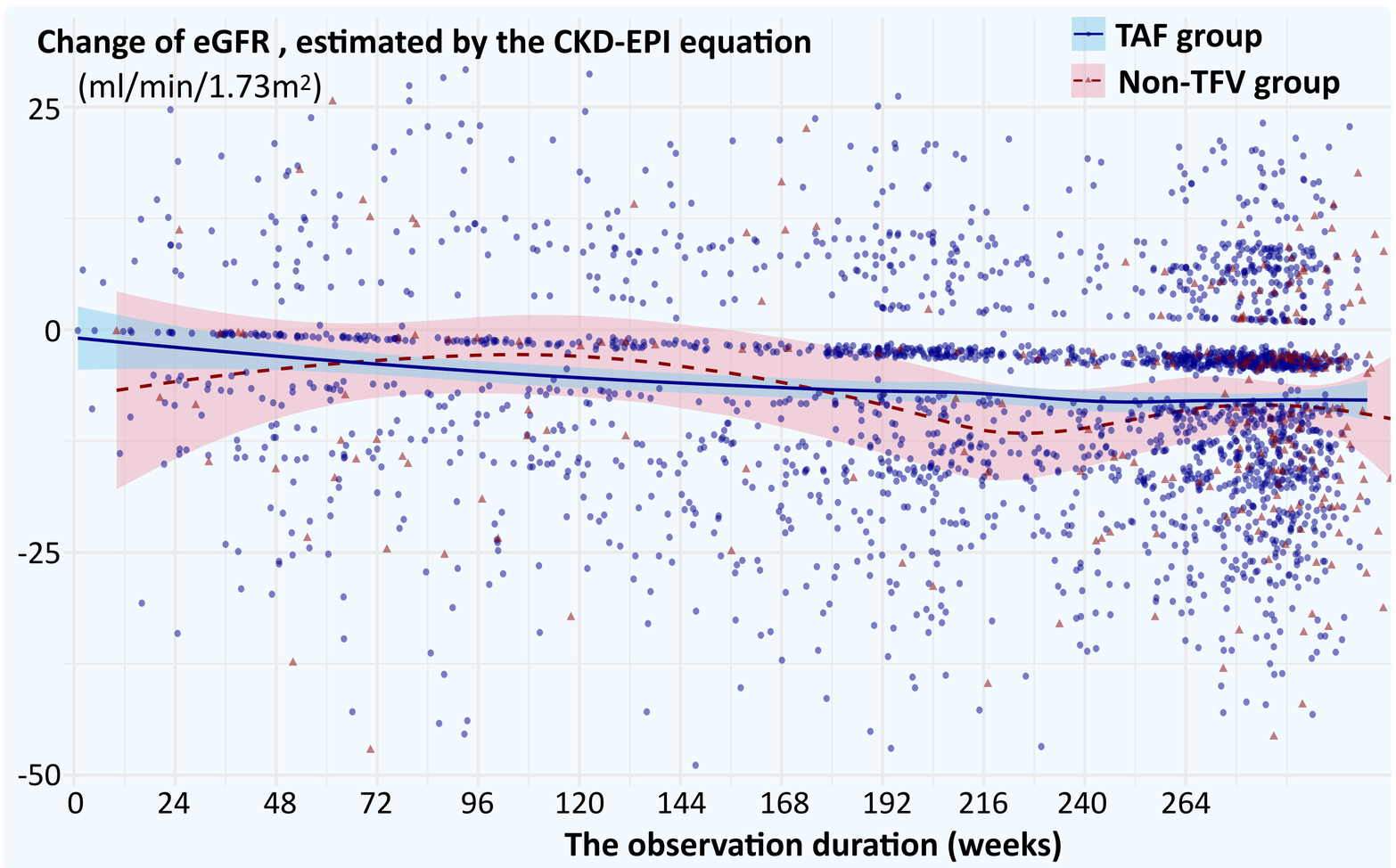

Figure 1. The change of eGFR from baseline each included PWH. Each filled circle and triangle represent a PWH in the TAF and control group, respectively. The solid and dashed line indicate the predicted and the 95% confidence interval of eGFR change in the LOESS regression.

Table 2. LOESS regression estimation within the first 240 weeks.

	Week 48	Week 96	Week 144	Week 192	Week 240
TAF group	-3.0 (-4.5 to -1.4)†	-4.7 (-5.8 to -3.5)	-6.0 (-7.1 to -4.9)	-6.9 (-8.0 to -5.8)	-8.0 (-9.1 to -6.8)
Non-TFV Group	-4.4 (-10 to 1.1)	-2.9 (-7.1 to 1.4)	-4.0 (-8.7 to 0.6)	-8.4 (-13.9 to -3.0)	-11.1 (-15.4 to -6.7)

†Change of eGFR from baseline, predicted mean (SD), mL/min

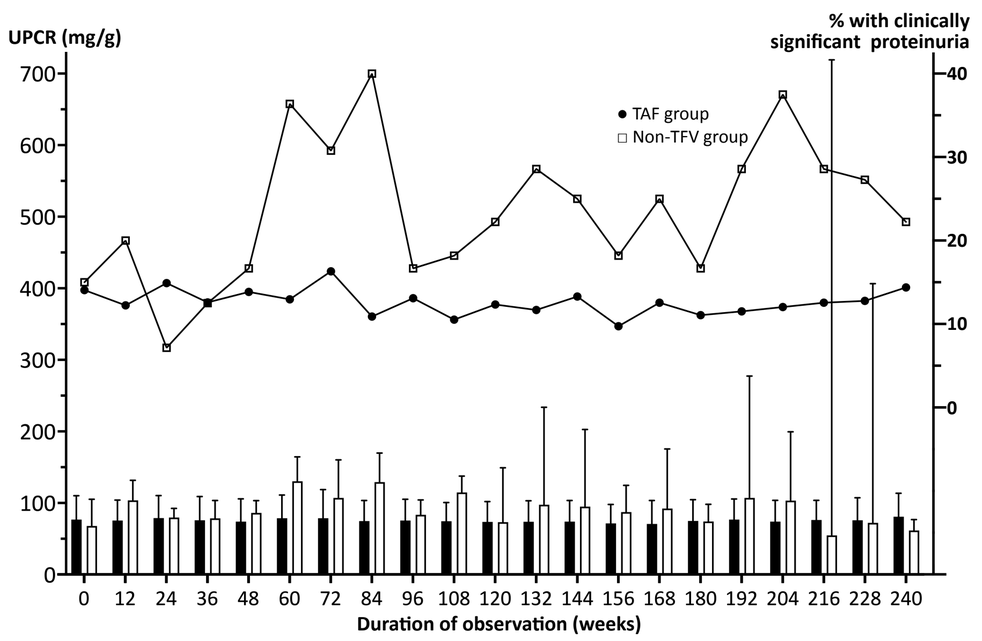

Figure 2. The changes of median levels of UPCR (bar graph) and the proportions of PWH with significant proteinuria (line graph) among the included PWH

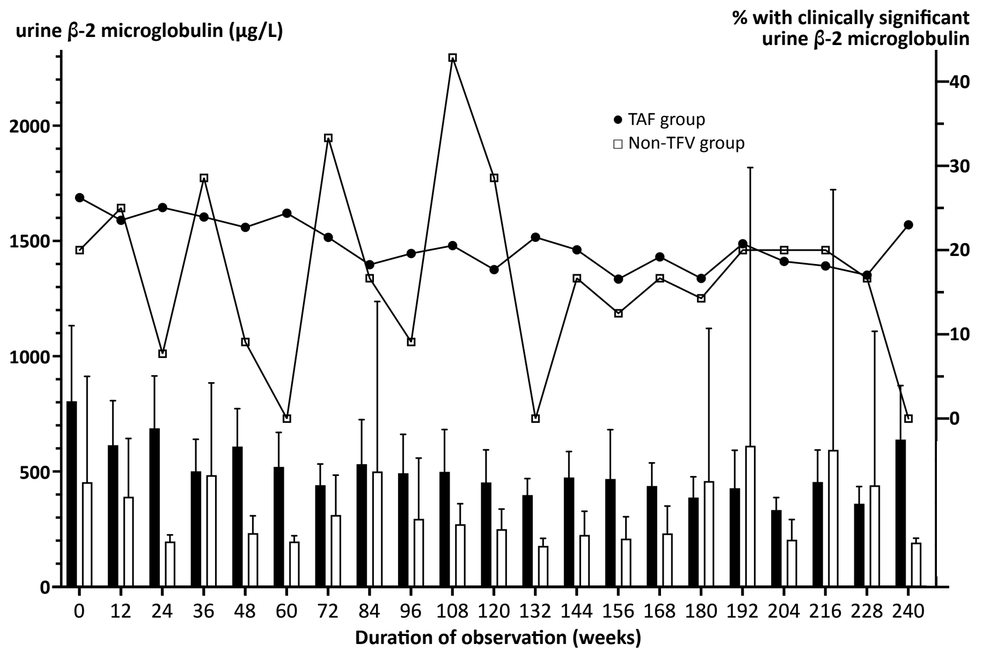

Figure 3. The changes of mean levels of urine beta-2 microglobulin (bar graph) and the proportions of PWH with significant urine beta-2 microglobulin (line graph) among the included PWH.

Results & Conclusion

In a multivariate logistic regression, we evaluated factors associated with an excessive decline of eGFR (defined as a decline >2.5 mL/min/1.73m2 per year or >25% throughout observation) among PWH receiving TAF-containing ART (**Table 3**).

Table 3. Factors associated with an excessive eGFR decline among PWH receiving TAF-containing ART.

Variables	Adjust OR (95% CI)
Age, per 1-year increase	1.02 (1.00-1.04)
Baseline plasma HIV viral load, per 1-log unit increase	1.32 (1.05-1.66)
Baseline eGFR, per 1-mL/min/1.73m^2	1.02 (1.01-1.03)
Presence of clinically significant proteinuria during observation	1.58 (1.14-2.18)

Conclusion

Our study suggests that long-term exposure to TAF-containing ART does not confer additional renal toxicity or eGFR declines among PWH.

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