EVALUATION AND REVERSIBILITY OF RENAL FUNCTION AFTER SWITCH FROM TDF TO TAF REGIMENS


Background
- Tenofovir alafenamide (TAF), a pro-drug of tenofovir disoproxil fumarate (TDF), is associated to higher integrase concentration of tenofovir diphosphate and 91% lower serum concentration of tenofovir compared to TDF, with less renal and bone toxicity.
- Switching TDF to TAF in randomized clinical trials has shown:
  - Variable renal function improvement;
  - Marginal benefit in safety with boosted regimens, according to a recent meta-analysis;
  - Reversibility of renal function when TDF is discontinued is matter of debate.
- 31-60% reversibility in observational studies.

Methods
- It is a retrospective analysis of prospectively collected data from the Icona Foundation Cohort, an observational cohort, set up in 1997, including HIV-infected subjects, naive at ART at the enrolment, involving 51 centers in Italy.
- HIV+ subjects from the Icona Foundation Cohort switching from TDF to TAF maintaining the same third drug (and the same boosted, if present), with at least two evaluations before switch and one after switch, were included in the analysis. Regimens including atazanavir were excluded due to its detrimental effect on renal function.
- Renal function was evaluated by eGFR (estimated glomerular filtration rate), through CKD-EPI formula. Due to the strong relationship between increasing age and declining kidney function, we considered age in CKD-EPI formula both as an updating value and as a constant for each patient, using an age switch from TDF to TAF (sensitivity analysis).

Results
- Proportion of patients with recovery of eGFR after switch to TAF to the eGFR before TDF introduction (recovery was defined as the first of 2 consecutive eGFRs within 5% of the eGFR at the time of TDF initiation);
- Change in eGFR at 3-12 months [the latest measurement ] after switch from TDF to TAF;
- Proportion of patients with ≥25% eGFR improvement after switch to TAF;
- Proportion of patients with a change of eGFR category in CKD (Chronic Kidney Disease, from 60-89 mL/min/1.73 m2 to ≥90).

Conclusions
- After switch from TDF to TAF: a small but statistically significant improvement in eGFR was observed; the clinical relevance of this improvement remains to be clarified;
- A complete recovery of renal filtration was demonstrated only in 23% of cases;
- Unboosted regimens seem to be associated with a higher probability of regaining renal filtrate;
- The association of a boosted regimen with TDF was confirmed as to be avoided;
- These data may be useful for defining in which patients to switch to TAF or to maintain TDF without jeopardizing renal function.

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References and notes
6. Analyses performed in Paire pairs; analysis of end points were performed with respect to the presence of carotenemia.