A multi-centre audit of changes to renal function and weight following switch from tenofovir disoproxil fumarate to tenofovir alafenamide

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Background

Switching from tenofovir disoproxil fumarate (TDF) to tenofovir alafenamide (TAF) is recommended by BHIVA 2022 antiretroviral treatment guidelines for adults living with HIV and an eGFR approaching or less than 60 mL/min/1.73m^2.[1] When looking at switches to TAF-containing regimens, it is important to also recognise emerging data which has associated TAF-containing antiretroviral regimens with metabolic changes, such as weight gain.[2-7]

Some studies have reported improvements in renal markers when switching from a TDF-containing regimen to a TAF-containing regimen.[8-12] The aim of our multi-centre retrospective data analysis was to determine whether our cohort of patients had an improvement in renal function following a switch from TDF to TAF and additionally what impact switching to a TAF-containing regimen had on weight.

Methods

Records were accessed from four HIV services in Greater Manchester from 2016 to 2022. In total, 213 patients were included if they had been switched from a TDF to TAF backbone and had creatinine measurements at time of switch and at 350-450 days follow-up. Of these, pre- and post-weight data was available for 114 patients.

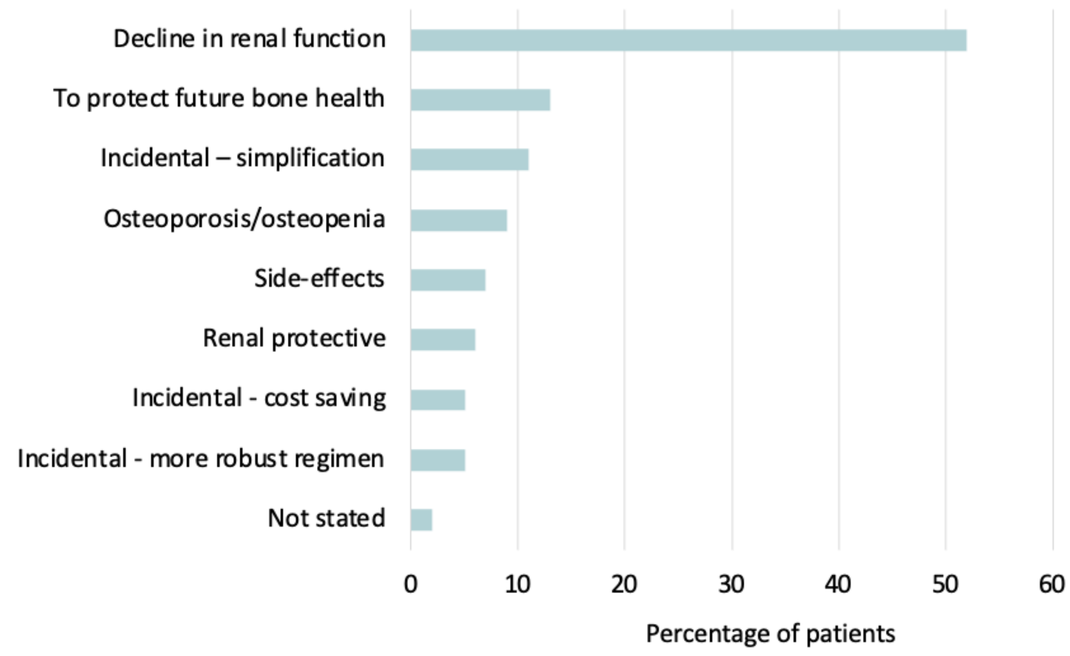
Data was normally distributed. To assess for statistical significance, patient's change in weight and change in eGFR at switch and follow-up was analysed using paired t-Test.

Results

Demographics

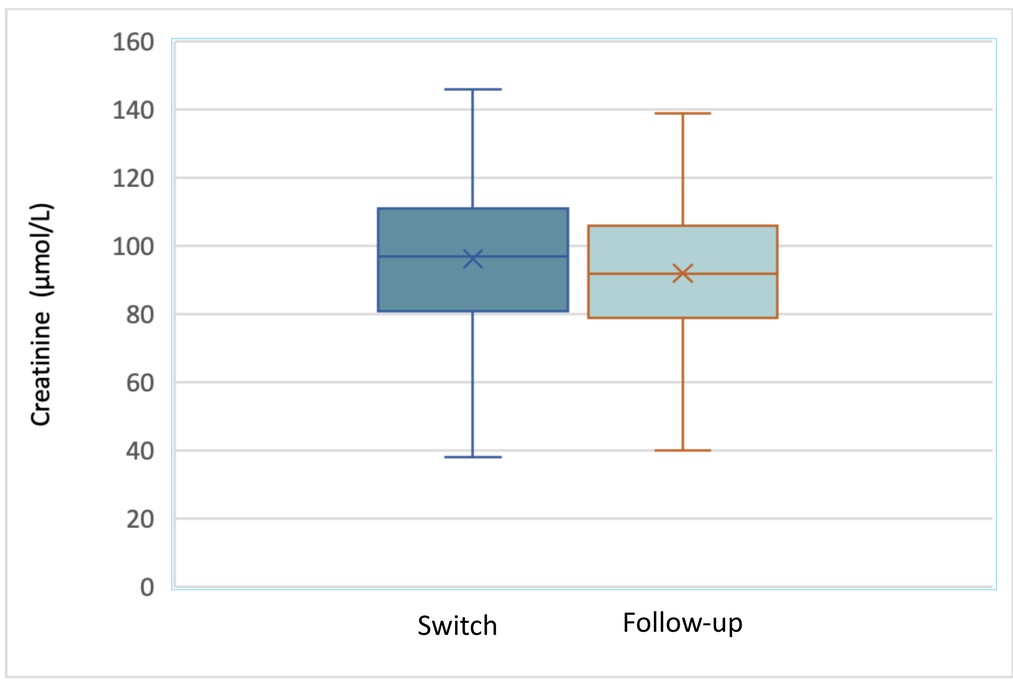
	Number of patients
Gender	
Male	173 (81.2%)
Female	40 (18.8%)
Ethnicity	
White British	134 (62.9%)
Black/Black British	44 (20.7%)
Asian/Asian British	7 (3.3%)
Other	23 (10.8%)
Not stated	5 (2.3%)
Co-morbidities	
Hypertension	44 (20.7%)
Diabetes mellitus	13 (6.1%)
Nephrotoxic drug use	53 (24.9%)
Smoker	54 (25.4%)
Recreational drug use	33 (15.5%)

Reasons for switch to TAF-containing regimen



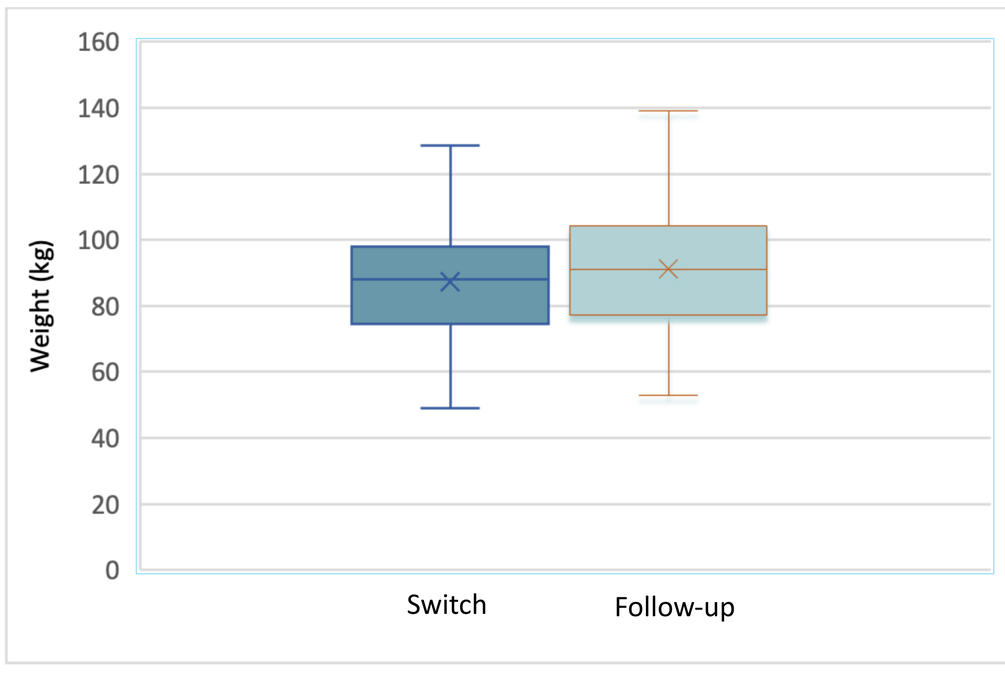
Serum creatinine

Table 1: comparison of creatinine at switch from TDF to TAF and at 350-450 day follow-up



Weight

Table 2: comparison of weight at switch from TDF to TAF and at 350-450 day follow-up



- Mean change in serum creatinine from time of switch to 350-450 days was a -4.23 umol/L (SD 13.31, $p < 0.05$)
- Mean change in weight from time of switch to 350-450 days post switch was an +3.44kg (SD 7.31, $p < 0.05$)
- The mean change in creatinine for patients with an eGFR at switch >70 mL/min/1.73m^2 was +1.96 umol/L (SD 10.8, p 0.06)
- The mean change in creatinine for patients with an eGFR at switch <70 mL/min/1.73m^2 was -10.37 umol/L (SD 12.8, $p <0.05$)

Conclusions

- The most common reason for switching to a TAF-containing regimen from a TDF-containing regimen was a decline in renal function
- Switching from TDF to TAF was associated with an improvement in renal function demonstrated by a decline in creatinine at follow-up. The improvement in renal biomarkers was greatest for individuals who had an eGFR <70 mL/min/1.73m^2. Those with an eGFR >70 mL/min/1.73m^2 demonstrated an average increase in creatinine at follow-up, but this was not statistically significant
- Switching from TDF to TAF was associated with weight gain
- Our audit supports recommendations to switch those with declining renal function from a TDF- to a TAF-containing regimen and demonstrates improvement in renal function post-switch
- Moving from TDF to TAF is associated with weight gain and this should be considered when choosing an antiretroviral regimen

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