

Prevalence of renal impairment among HIV-infected antiretroviral naïve persons eligible for ART in rural Zimbabwe

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Introduction

In 2011, the Zimbabwean Ministry of Health (MoH) introduced tenofovir (TDF) as a component of standard first-line antiretroviral therapy (ART) in line with World Health Organization (WHO) guidelines. TDF is safer than alternative antiretrovirals (ARVs), but may adversely affect renal function, and should be avoided or prescribed at a reduced dose among patients with creatinine clearance (CrCl) <50 ml/min. CrCl was measured to screen ARV-naïve patients for renal impairment before initiating a TDF-based regimen.

Methods

Laboratory results and clinic records of ART-eligible patients >12 years old were abstracted into an electronic database. Creatinine clearance (CrCl) was estimated using the Cockcroft-Gault formula. Renal dysfunction was classified as severe (CrCl <30 ml/min), moderate (CrCl 30-60 ml/min), or mild (CrCl 60-90 ml/min). Poisson regression was used to determine factors associated with CrCl <50 ml/min.

Results

831 patients were included in the analysis. Their median age was 35 years (interquartile range [IQR]: 29-41) and baseline CD4 225 cells/μl (IQR: 115-360). Eight (1.0%) had severe; 164 (19.7%) moderate; and 384 (46.2%) mild renal impairment. 77 (9.2%) had CrCl < 50ml/min. Compared to those aged ≤30 years, the risk of CrCl <50 ml/min was greater among those aged 31-40 years (incidence rate ratio [IRR]: 2.1; 95% CI: 0.94 – 4.6); and those aged >40 years (IRR 5.3; 95% CI: 2.5 – 11). Controlling for age, CrCl<50 was also associated with female sex (IRR 1.8; 95% CI: 1.1 – 2.9).

Conclusion

Although mild to moderate renal impairment was very common, severe renal impairment was rare. If resources permit, CrCl should be measured in all patients before starting a TDF-based ART regimen. In resource constrained-settings, patients aged >40 years should be prioritised to have CrCl measured before starting a TDF-based regimen.