

Abstract

Background: Kidney dysfunction is a significant health concern among people living with HIV (PLWHIV), attributed to factors including HIV-associated nephropathy and antiretroviral therapy effects. Early detection and intervention are critical for effective management and improved patient outcomes. This study explored the correlation between the serum uric acid/serum creatinine ratio and estimated glomerular filtration rate (eGFR) as a potential predictor of kidney dysfunction. The study also highlights the prevalence and the associated factors of kidney dysfunction among PLWHIV at Mbarara Municipal Council Health Centre IV.

Methods:

We conducted a cross-sectional study consecutively selected 338 adult People living with HIV, attending Mbarara Municipal Council Health Centre IV. A structured questionnaire supplemented with anthropometrics measurements and laboratory biochemical investigations were used. Pearson's correlation coefficient and linear regression was used for correlation studies. ROC analysis was used for predictive performance, logistic regression analysis to assess for factors associated with Kidney dysfunction. A p-value <0.05 was statistically significant.

Results: The prevalence of kidney dysfunction (eGFR < 90 mL/min) was 51.9% with 95% CI. The serum uric acid/creatinine ratio (SUA/SCr) was negatively correlated with eGFR $\beta = -1.76$ (95% CI: -2.92 -0.59) with a P-value of 0.003. SUA/SCr ratio was a poor predictor with AUC of 0.2768 (95% CI: 0.221-0.331). The factors associated included increasing serum biomarkers Uric acid 0.99(95% CI:0.98 - 0.99 P value 0.043 and creatinine 1.27 (95% CI:1.20- 1.347 <0.001), SUA/SCr 2.02(95% CI:1.50- 2.71p<0.001), age 1.06(95% CI:1.02-1.11 P-value 0.003)

Conclusions: PLWHIV are at high risk of kidney dysfunction, with increasing serum biomarkers, age, ART use, and Tenofovir-containing regimens as potential risk factors. Screening for kidney dysfunction using SUA and SCr before symptoms appear is recommended, as is monitoring the effects of ART on renal function, particularly for those on tenofovir. Long-term PLWHIV should undergo more extensive screening for early detection. Further research is needed to explore the clinical presentation when eGFR is <90 ml/min.

Key words: kidney dysfunction, serum uric acid, serum creatinine HIV, Uganda