

Incidence of Acute Kidney Injury and Associated Mortality among Individuals with Drug-Susceptible Tuberculosis in Uganda

Kansiime G, Aklilu AM, Baluku JB, Yasmin F, Kanyesigye M, Muzoora CK, Wilson FP, Bajunirwe F, Brewster U, Kalyesubula R

Mbarara University of Science and Technology, Uganda

Address for Correspondence: Dr. Grace Kansiime. Email: gkansiime@must.ac.ug

Abstract

Background: Although tuberculosis (TB) is associated with significant mortality and morbidity, its impact on kidney function is not well understood and is often attributed to anti-TB drugs.

Objectives: The study aimed to assess the incidence of Acute Kidney Injury (AKI) in the immediate post-TB diagnosis period in Uganda, a TB/HIV-endemic country in sub-Saharan Africa.

Methods: We included patients enrolled in an observational cohort study of adults diagnosed with drug-susceptible TB followed longitudinally. Adults (>18 years) without known kidney disease were enrolled between August 2022 and July 2023 at three regional hospitals serving 12.5% of the Ugandan population. Our primary outcome was the incidence of KDIGO-defined AKI within two weeks of TB diagnosis. Other outcomes included predictors of AKI and its association with 30-day survival.

Results: A total of 156 adults were included. The median (IQR) age was 39 (28-53) years, most were male (68.6%) and 49.4% had HIV. HIV-positive participants had a shorter time to TB diagnosis from symptom onset (21[7-30] days) compared to HIV-negative participants (60[23-90] days), $p < 0.001$. The overall incidence of AKI was 33.3% (52/156), and not different between HIV and non-HIV participants. Proteinuria or hematuria at enrollment was associated with higher odds of AKI (OR—2.68, 95%CI 1.09-6.70, $p \sim 0.033$). AKI was associated with a significant risk of mortality (aHR—5.82, 95%CI 1.54-21.95, $p = 0.009$) regardless of HIV status.

Conclusion: The incidence of AKI in the immediate post-TB diagnosis period is high regardless of HIV status and is associated with increased mortality risk. According to our study findings, monitoring kidney function should be routine among patients with TB, even before treatment initiation.

Key words: Acute Kidney Injury (AKI), Tuberculosis (TB)