

The Prevalence of Kidney Disease and Associated Factors among Patients with Chronic Hepatitis B Virus Infection at Mbarara Regional Referral Hospital

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Abstract

Background: Chronic Hepatitis B (CHB) virus infection is a global health problem and is highly prevalent in sub-Saharan Africa. It is well established that CHB is a primary cause of kidney disease that progresses through the course of the illness. Early detection of kidney disease is crucial and is an indication for earlier initiation of antiretroviral therapy, which could potentially slow down or halt its progression. Current screening biomarkers, like serum creatinine, have poor sensitivity, especially in the early stages. There is no data about kidney disease among patients with CHB in Uganda.

Objectives: The study aimed to identify kidney disease prevalence and associated factors among patients with CHB using a combination of kidney function biomarkers which included urine NGAL, a highly sensitive and specific kidney function biomarker.

Methods: This was a cross-sectional study conducted from November 2023 to April 2024 at the hepatitis clinic of Mbarara Regional Referral Hospital, recruiting patients 18 years and above being followed up for CHB. Data collected included: socio-demographic data, comorbidities, co-infections, and CHB-related data. Spot urine and blood were collected for dipstick, urine NGAL, and

creatinine. GFR was estimated using the CKD-EPI 2021 equation. The prevalence of kidney disease was represented as a simple proportion with 95% CI. Logistic regression was used to determine factors associated with kidney disease. A p-value ≤ 0.05 was considered significant.

Results: One hundred and twenty six participants were enrolled, mean age of 36.2 ± 12 years, 50% females. Overall kidney disease prevalence was 30.2% (95% CI: 22.7-38.8). Prevalence based on urine NGAL, eGFR $<60\text{ml}/\text{min}/1.73\text{m}^2$, and eGFR between $60\text{-}89\text{ml}/\text{min}/1.73\text{m}^2$ with either proteinuria or haematuria was 19.1% (95% C.I: 12.6-27.0), 6.4% (95% C.I: 2.8-12.1) and 11.1% (95% C.I: 6.7-18.0) respectively. Factors associated to kidney disease included the female sex with odds ratio of 2.6 (95% CI: 1.1-6.2) and a p-value of 0.033.

Conclusion: The study found a 30.2% prevalence of kidney disease in patients with CHB, with a higher prevalence using urine NGAL (19.1%). Female sex was the only factor associated with kidney disease. The study recommends frequent monitoring of patients with CHB especially among women and using urine NGAL as a point-of-care test for kidney function.

Key words: Chronic Hepatitis B virus, Kidney disease