Incidence and Risk Factors of Renal Dysfunction in Adult Patients on Nevirapine Based Regimens at Kenyatta National Hospital

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ABSTRACT

Introduction: As patients infected with human immunodeficiency virus (HIV) live longer while receiving antiretroviral therapy, kidney diseases have emerged as significant causes of morbidity and mortality. Black race, older age, hypertension, diabetes, low CD4+ cell count, and high viral load remain important risk factors for kidney disease in this population. Chronic kidney disease should be diagnosed in its early stages through routine screening and clinicians should pay careful attention to changes in glomerular filtration rate or creatinine clearance. With early detection and treatment, it is possible to prevent kidney disease and its complications from worsening.

Objectives: The broad objective of this study was to evaluate the incidence and risk factors of renal dysfunction in HIV adult patients on Nevirapine based regimens.

Methodology: The study design was retrospective hospital based cohort. It was carried out at the Kenyatta National Hospital Comprehensive Care Center and targeted HIV patients on Nevirapine based regimens seen at the KNH-CCC.. The participants were sampled by convenient sampling technique. The patients who met the inclusion criteria and are willing to participate were required to give written informed consent. Ethical approval was obtained from the KNH-UoN Research and Ethics Committee. Quantitative data which was obtained from the patient interviews and abstraction of patient files was analyzed using STATA version 10 software. Ordered Logistic regression modeling was used to identify covariates that determine the severity of nephrotoxicity.

Results: In total, 241 HIV-infected adult patients were included in this study. There were 56 male and185 female patients. The median age was 39 years [IQR 35-44]. The duration of follow of for most of the patients was 5 years. The prevalence at baseline of renal dysfunction was 6.3% and the incidence in the study was 4.3%.In this study five (2.1%)   patients had estimated GFR (eGFR) < 50 mL/min per 1.73 m2, while ten (8.3%) patients had elevated serum creatinine (above 120µg/l). In the multivariate ordered logistic regression the significant predictor variables for renal dysfunction that were significant were age at diagnosis, current age at the time of study, the sex, alcohol consumption, the duration of therapy .

The females had a higher risk of developing renal dysfunction (adjusted O.R 0.48(95% C.I 0.24-1.04) p=0.04). Alcohol consumption was a significant predictor of renal dysfunction adjusted O.R 1.84 (95% C.I 1.01-3.29) p=0.04). Intensity of alcohol consumption has not been reported as a predictor of renal disease in HIV patients on HAART. This is the first study to report alcohol use as a risk factor.

Conclusion and Recommendations: The incidence was 4.3%. The risk factors identified in this study include age at diagnosis, alcohol consumption, duration of therapy and the female gender.

The elevated serum creatinine levels at baseline are a key indicator in the management of renal dysfunction. Routine eGFR calculations should be done at each clinical visit .Early detection of risk factors, systematic screening and appropriate referrals for kidney disease management should be advocated for improved patient care. Larger studies comparing the contribution of other NNRTIs is

recommended.

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