Prevalence and factors associated with hepatotoxicity amongst HIV infected patients on Antituberculosis therapy in Mulago Hospital

By

Dr Mark Okwir, MBChB (Mak)

Supervisors:

1. Prof Magid .M. Kagimu
   MBChB (Mak), M.Med (Khartoum), MSc (London)

2. Dr Ponsiano Ocama
   MBChB (Mak), M.Med (Mak)

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ABSTRACT

Background information: HIV infected patients have been shown to have a five fold higher risk for developing hepatotoxicity during anti-TB therapy than their HIV negative counterparts. WHO (2009), now recommends that HIV- infected patients diagnosed with TB be started on ARVs and anti-TB concurrently and yet both drug groups are hepatotoxic. Because of this, the American thoracic society and British thoracic society recommends routine liver function tests (LFTs) for monitoring anti-TB therapy. WHO recommends clinical monitoring for evidence of hepatotoxicity for patients on TB therapy. Routine LFTs monitoring is not practiced in Mulago Hospital partly because it is perceived that the burden of hepatotoxicity is low and monitoring increases costs of management. However the actual burden is unknown.

Objectives: The main objective of the study was to determine the prevalence and factors associated with hepatotoxicity in HIV- infected patients on anti-TB therapy in Mulago Hospital.

Methodology: This was a cross-sectional study done on HIV-infected patients on anti-TB therapy. Those who met the eligibility criteria were enrolled consecutively until a sample size of 302 was achieved. Patients were evaluated for LFTs, hepatitis B and C, alcohol consumption, herbal use, BMI, CD_4^+ counts, Clinical evidence of hepatotoxicity, clinical stage of HIV, ARVs and other concurrent hepatotoxic drugs used. This study was done in Mulago National referral Hospital in the medical wards and TB/HIV clinic on consented adults for duration of 6 months.

Results: The burden of all grades of hepatotoxicity was 17.2%. The prevalence of the most severe WHO grades of hepatotoxicity (grade 3 and grade 4) was 5.6%. Cholestatic pattern of liver injury was the commonest (53.9%) pattern of presentation.

The known risk factors significantly associated with hepatotoxicity in this study were: WHO stage-IV HIV with CD_4^+ count < 100 cells/mm^3 (p-value 0.017), Patients with low Hb < 10g/dl (p-value 0.033), low BMI ≤ 17 Kg/M^2 (OR 2.4, CI [1.1 – 5.4]), Low serum Albumin ≤ 27 g/l (AOR 7.5, CI (2.9 – 18.99), p-value 0.000) and concomitant use of ARVs, (AOR 4.6, CI [1.7 – 12.5] p-value 0.003). Presentation of liver injury was 5 times more likely with Nevirapine based regimen of ARVs in Bivariate analysis, (COR 4.95, CI [1.46 – 16.8], p-value 0.013).

Conclusions and Recommendations:

The prevalence of hepatotoxicity is low at 17.2%. Routine LFTs monitoring for liver injury during anti-TB therapy in all HIV – infected patients is not warranted in resource limited settings.

However, targeted routine monitoring for liver injury using clinical parameters and LFTs during anti-TB therapy in HIV-infected patients should be considered for patients with the following characteristics: those concurrently on ARVs (especially Nevirapine based) and anti-TB therapy, low BMI ≤ 17 Kg/M^2, low Hb < 10 g/dl, low serum albumin ≤ 27 g/l and WHO stage-IV HIV with CD_4^+ counts < 100 cells/mm^3. This is because of a higher likelihood for patients with these clinical characteristics to present with liver injury during anti-TB therapy.