

Clinical chemistry profiles in injection heroin users from Coastal Region, Kenya

Abstract

Background: Although the co-burden of injection drug use and HIV is increasing in Africa, little is known about the laboratory markers of injection drug use and anti-retroviral treatment (ART) in Kenyan injection drug users. This study, therefore, aimed at determining the clinical chemistry profiles and identifying the key laboratory markers of HIV infection during ART in injection heroin users (IHUs).

Methods: Clinical chemistry measurements were performed on serum samples collected from HIV-1 infected ART-experienced (n = 22), naive (n = 16) and HIV-1 negative (n = 23) IHUs, and healthy controls (n = 15) from Mombasa, coastal Kenya.

Results: HIV uninfected IHUs had lower alanine aminotransferase (ALT) levels (P = 0.023) as ART-exposed IHUs exhibited lower albumin (P = 0.014) and higher AST to platelet index (APRI) (P < 0.0001). All IHUs presented with lower aspartate aminotransferase to ALT values (P = 0.001) and higher C-reactive protein (CRP) levels (P = 0.002). ART-naive IHUs had higher globulin levels (P = 0.013) while ART-experienced and naive IHUs had higher albumin to total protein (P < 0.0001) and albumin to globulin (P < 0.0001) values. In addition, CD4+ T cells correlated with ALT ($\rho = -0.522$, P = 0.011) and CRP ($\rho = 0.529$, P = 0.011) in HIV negative and ART-experienced IHUs, respectively. HIV-1 viral load correlated with albumin to globulin index in ART-experienced ($\rho = -0.468$, P = 0.037) and naive ($\rho = -0.554$, P = 0.040) IHUs; and with albumin to total protein index ($\rho = -0.554$, P = 0.040) and globulin ($\rho = 0.570$, P = 0.033) in ART-naive IHUs.

Conclusion: Absolute ALT, albumin, globulin, and CRP measurements in combination with APRI, AST to ALT, albumin to total protein and albumin to globulin indices may be useful laboratory markers for screening IHUs for initiating and monitoring treatment.

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