BIOCHEMICAL AND HAEMATOLOGICAL RESPONSES OF HIV PATIENTS CO-INFECTED WITH HEPATITIS B VIRUS AND HEPATITIS C VIRUS TO ANTIRETROVIRAL THERAPY

BY

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DECLARATION

The experimental work described in this thesis was carried out at the Laboratory department of Tarkwa Government Hospital, Tarkwa. The work has not been submitted for any other degree.

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et al	-	and others
g/dl	-	Gram per deciliter
µmol/l	-	Micromole per liter
mmol/l	-	Millimole per liter
x	-	Multiplication
nm		Nanometers
%	-	Percentage
U/l	-	Units per liter

ABSTRACT

Background: The introduction of antiretroviral therapy has considerably helped improve the life expectancy of Human Immunodeficiency Virus (HIV)-infected patients. This notwithstanding, the antiretroviral therapy (ART) has also been found to induce some biochemical and haematological abnormality in some HIV-infected patients. The ART-induced biochemical and haematological abnormality is noted to be sometimes complicated by co-infection with other pathogens such as, Hepatitis B Virus and Hepatitis C Virus.

Aim: The aim, therefore, was to determine the biochemical and haematological responses in HIV-infected patients on antiretroviral therapy and those also co-infected with hepatitis B Virus or hepatitis C Virus in the Tarkwa-Nsuaem Municipality.

Methods: A hospital-based prospective cohort study was conducted on 125 HIV patients from February, 2014 to May, 2015 at the Tarkwa Government Hospital. Data on socio-demography and exposure to risk factors associated with HBV and HCV co-infection were collected using structured questionnaire. Venous blood samples were collected from the participants for Hepatitis B surface antigen (HBsAg) and anti-HCV tests. Biochemical and haematological indices were obtained by estimation with Vitalab Selectra Junior Automatic chemistry analyzer and KX-21N Sysmex Automatic Haematology Analyzer. The biochemical and haematological parameters compared were haemoglobin (Hb) concentration, total white blood cell (WBC) count and lymphocyte counts and aspartate aminotransferase (AST), alanine aminotransferase (ALT), creatinine and urea, respectively. Comparison was made between the mean at pre-ART and at 6-month and 12-month post ART using two sample t-test at 5% level of significance.

Results: Of the 125 HIV-infected patients included in the study, 39(31.20%) were males and 86(68.80%) were females with mean age (SD±) 38 (±9.7) years. The prevalence of HBV, HCV and HBV/HCV co-infection among the HIV patients were 22(17.60%), 9(7.20%) and 2(1.60%) respectively. Logistics regression analysis of history of exposure to multiple sexual partners, exposure to sharp objects, such as razor blades shared with others, exposure to tattoo, exposure to blood transfusion and exposure to intravenous drug revealed no significant association with HBV or HCV co-infection among the HIV patients. Serum urea increased significantly ($p < 0.01$) among patients infected with HIV alone at post ART. There was no significant difference in the Hb concentration, total WBC, Lymphocyte counts, AST, ALT, Urea and Creatinine concentrations between HIV patients co-infected with HBV or HCV and those without the co-infection.

Conclusion: Biochemical and haematological responses of HIV patients on ART are not affected by co-infection with Hepatitis B Virus or Hepatitis C Virus.

Limitation: Hepatitis B envelope antigen (HBeAg) and Deoxyribonucleic acid (DNA) were not tested to assess the stage of liver disease.