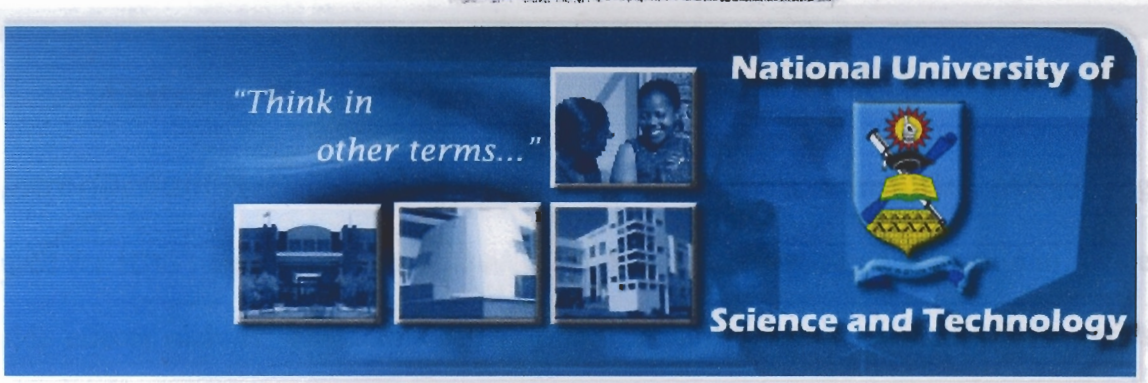

Faculty of Applied Science

Applied biology

And

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Therapeutic Drug Monitoring in Anti-retroviral Treatment in Zimbabwe

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Abstract

Introduction*:** Nevirapine is the commonly used first-line antiretroviral (ARV) drug used for HIV-1 treatment in Zimbabwe, even though it is associated with mild to severe side effects such as severe liver damage. Susceptibility to these adverse effects varies among individuals due to factors such as genetic polymorphisms of drug metabolizing enzymes, food-drug interactions and physiological state amongst other factors. ***Objective: to determine CD4 counts of patients' referred by doctors to initiate antiretroviral treatment (ART) and to set up an HPLC-UV method for the therapeutic drug monitoring of nevirapine toward evaluation of safety and efficacy.

Materials and methods: CD4 counts for patients were enumerated using a Partec cyflow counter and a patient CD4 cell count database was created and analyzed using graph pad prism statistical software. An HPLC-UV method adapted from Kappelhoff *et al* 2005 was optimized and validated then used to evaluate nevirapine plasma levels for 30 samples that were collected at Wilkins Hospital in Harare.

Results: the CD4 histograms obtained in the database did not follow a distinct statistical distribution. For the 30 samples that were collected at Wilkins Hospital all CD4 cell counts were below 200 cells/μL the limit for antiretroviral treatment initiation. Nevirapine plasma levels were within the therapeutic index for 60 % of the samples collected.

Conclusion: all patients initiating nevirapine treatment were confirmed to be within FDA regulation for nevirapine treatment regimen initiation. The HPLC-UV method

provided a fast and efficient method for therapeutic drug monitoring of nevirapine hence, creating a platform for the exploration of possible causes of varied drug exposure.