

**OCCURRENCE OF ANTIRETROVIRAL DRUG RESISTANCE AMONG
HUMAN IMMUNODEFICIENCY VIRUS PATIENTS ATTENDING
ANTIRETROVIRAL CLINIC IN MUHIMBILI NATIONAL HOSPITAL,
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ABSTRACT

Tanzania is among the countries in Sub-Saharan Africa with high prevalence of HIV infection. The country has implemented several interventions for control and prevention, including care and treatment with ARV drugs. The ARV drug treatment programme of patients living with HIV and AIDS started in 2004. Among the major potential challenges inherent in ARV drug treatment programmes is the danger of emergence of ARV drugresistant strains. This study aimed at determining the occurrence and risk factors of ARV drug resistance among HIV patients receiving ARV treatment at the ART clinic in Muhimbili National Hospital, Dar es Salaam.

A descriptive comparison study selecting cases (HIV patients on ARV treatment for more than six months experiencing treatment failure) and non-cases (HIV patients on ARV treatment for more than six months responding well to treatment) was conducted. Viral load testing and genotypic resistance testing was done on 150 of the patient samples (79 cases and 71 non-cases). Epi Info version 3.3.2 and Microsoft excel were used for general data analysis.

Chromas Pro, Bioedit and Mega 2 were used for Phylogenetic analysis. ARV resistant mutations were analysed using Stanford ARV resistance database.

There was no statistically significant difference between cases and non-cases with respect to marital status, education level, gender and mean viral load and development of ARV resistance mutations.

The difference in mean percentage weight gain and the mean percentage CD4 increase between cases and non-cases was statistically significant at a P-value of 0.0001. The clinical stage of the patients at the initiation of therapy was found to be a significant factor for development of drug failure at a P-value of 0.001.

Only 28 samples were fully sequenced and mostly those with the viral load of more than 400 copies/ml. Subtypes A and C were the most prevalent subtypes followed by subtype D and their recombinants. Overall the occurrence of PI major mutations was 4%, PI minor mutations was 29%, NRTI mutations 64% and NNRTI mutations 71%. The mutations detected were related to the ARV therapy in use, more observed for Lamivudine, Stavudine and Nevirapine.

There was no significant association between subtypes and development of resistant mutations.

The maintenance of resistance genotypic programs supplied for ARV drug naïve patients and ARV failing patients is important in the management of HIV patients.