**Abstract**

Background: Stavudine (d4T) and zidovudine (AZT) form the backb one of the most commonly used first-line highly active antiretroviral therapy (HAART) regimens in K enya. In 2012, more than 60 % of patients undergoin g combination antiretroviral therapy were either on A ZT or d4T based regimens, mainly due to their affor dability and availability in fixed dose combinations. Following, the World health Organization's recommendation in 2010 that d4T should be phased out due to safety concerns, Kenya has been steadily withdrawing d4T from HIV/AIDS tre atment programmes. Despite these decisions, questions as t o whether stavudine ought to be altogether abandone d in resource constrained settings continue to elicit de bate among clinicians, researchers and patient grou ps. Objective: This study was consequently designed to compare the tolerability and efficacy of AZT with low dose d4T in treatment of HIV infected adults in urban Kenya, an d to generate data on the safety of low dose stavud ine. Method: The design was an analytic retrospective hospital- based cohort study that involved examination of rec ords of patients on antiretroviral therapy. The study ha d two comparator arms: (i) ART-naive adult patient s initiated on stavudine 30 mg based HAART, and (ii) ART-naive adu lt patients initiated on zidovudine based HAART. Qu antitative variables were described with medians or means, and compared between groups using Wilcoxon rank sum te st. Association effects were determined by use of Chi-s quare test. Categorical variables were summarized using proportions. The time to event analysis was estima ted using the Kaplan–Meier product limit method. Co x Proportional Hazards regression was used to model t he hazard rates of regimen switching. Results: The incidence rate (IR) of switching regimen was hi gher in patients initiated on zidovudine than in pa tients initiated on low dose stavudine (11.3 % and 7.0 % r espectively). The most common reason for regimen sw itch was toxicity (79.2 %). In patients initiated on stavudi ne, lipodystrophy was the main reason for treatment change (53.2 %) followed by peripheral neuropathy (23.4 %). Amongst patients initiated on zidovudine, anaemia was the main reason for treatment change (33.3 %). There was no signifi cant difference in median change in CD4 cell counts between the two treatment groups. Conclusion: The study has showed that patients initiated on a z idovudine based regimen were more likely to change their treatment compared to those on a low dose sta vudine. Stavudine therefore still has its benefits, and public health programmes should not altogether abandon it.