



Longitudinal Assessment of Pre-treatment HIV Drug Resistance Prevalence among Antiretroviral Therapy Initiators in the Hhohho Region, Eswatini, 2015

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Abstract

The expansion of antiretroviral therapy (ART) in sub-Saharan Africa raises concerns about HIV drug resistance (HIVDR). Pre-treatment drug resistance (PDR) among those starting ART compromises first-line regimen efficacy. Longitudinal data on PDR from specific regions, such as Hhohho in Eswatini, are scarce. This study aimed to assess longitudinally the prevalence and trends of PDR among individuals newly initiating ART in the Hhohho region of Eswatini. A longitudinal study was conducted using consecutive sampling of adults and children initiating ART at selected clinics. Blood samples were collected at ART initiation for viral load testing and genotypic resistance analysis. Standardised WHO protocols sequenced the HIV pol gene to identify resistance-associated mutations. Demographic and clinical data were extracted from patient records. Overall, 412 participants were enrolled. The prevalence of PDR to any antiretroviral drug was 12.4%. Resistance to non-nucleoside reverse transcriptase inhibitors was most common (9.7% of participants). A modest, non-significant upward trend in PDR prevalence was observed over time. A substantial prevalence of PDR exists among ART initiators in the Hhohho region, driven primarily by resistance to first-line non-nucleoside reverse transcriptase inhibitors. This level of resistance threatens individual treatment outcomes and programme effectiveness. Routine PDR surveillance should be strengthened and integrated into national HIV monitoring systems. Programme managers should consider the potential need for enhanced baseline resistance testing in specific populations and review standard first-line regimens in response to evolving resistance patterns. HIV, pre-treatment drug resistance, antiretroviral therapy, surveillance, Eswatini This study provides longitudinal evidence on PDR prevalence in the Hhohho region of Eswatini, informing national treatment guidelines and surveillance strategies.

Keywords: *HIV drug resistance, pre-treatment drug resistance, antiretroviral therapy, sub-Saharan Africa, longitudinal cohort study*

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