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## Surveillance of transmitted HIV drug resistant among voluntary counseling and testing centers clients in Gondar town, Ethiopia

Dawit Assefa<sup>1</sup>, Almaz Abebe<sup>1</sup>, Yibeltal Assefa<sup>1</sup>, Desta Kassa<sup>1</sup>, Tesfaye Tilahun<sup>1</sup>, Yenew Kebede<sup>2</sup>, Fekadu Adugna<sup>2</sup>, Per Bjorkman<sup>3</sup> and Patrik Medstrand<sup>3</sup>

<sup>1</sup>Ethiopian Public Health Institute, Ethiopia

<sup>2</sup>CDC, Ethiopia

<sup>3</sup>Lund University, Sweden

**Background:** In Ethiopia, free access to ART has been expanded rapidly since 2005. With the rapid scale up and decentralization of the ART service, the emergence and transmission of HIV drug resistance (HIVDR) will be a major problem. In view of this, we evaluated the prevalence of transmitted HIVDR (TDR) in recently HIV-1 infected adults in Gondar town, Ethiopia using WHO threshold surveillance method.

**Methods:** A cross-sectional survey was conducted among antiretroviral naive adults who were seeking HIV diagnostic testing in VCT site in Gondar university hospital and Gondar Health center, from August 2011 to December 2012 using the WHO recommended eligibility criterion. A total of 84 study participants fulfilling the inclusion criterion were consecutively enrolled and blood specimen were collected. HIVDR genotyping was done using the in-house assay. Sequences were interpreted using the calibrated population resistance (CPR) tool of the Stanford University database according to the 2009 WHO surveillance drug resistance mutation (SDRM) list.

**Result:** Among the 84 participants, 70 (83.3%) were female and mean age was 21 years (range: 18–24 years). Amplification and sequencing was successful for 67 (79.8%) of specimens. Using the WHO recommended truncated sequential sampling technique, among the first 47 sequenced specimens, 3 were found to harbor major HIVDR mutation associated to non-nucleoside reverse transcriptase inhibitor (NNRTI), suggesting moderate prevalence (5%–15%) of TDR in the study area. The mutation detected were K103N (n=2) and G190S (n=1). Including all sequenced sample in the analysis (n=67), 4 (6%) were found to have major HIVDR mutations (K103N (n=2), G190S (n=1), and Y181Y (n=1)) associated to NNRTI. However, no nucleoside/tide reverse transcriptase inhibitor (NRTI) or protease inhibitor (PI) associated major HIVDR mutation were detected.

**Conclusion:** In comparison to previous studies done in the Gondar town, our result showed an increase in prevalence of TDR, which could be associated to the ART scale up. As the TDR HIV-1 may seriously affect the efficacy of first line ART, the moderate levels of TDR observed in this study area indicate the need for continuous surveillance of TDR in Gondar town and in different region of Ethiopia to optimize treatment efficacy of the current ART and improve the drug resistance strategy within a country.

[dawitarm@gmail.com](mailto:dawitarm@gmail.com)

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