

Drug- Resistance- Associated Mutations and HIV Sub-Type Determination in Drug-Naïve and HIV-Positive Patients under Treatment with Antiretroviral Drugs

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Abstract

Background and Objective: Resistance to antiretroviral agents is a significant concern in clinical management of HIV-infected individuals. Resistance is the result of mutations that develops in the viral protein targeted by antiretroviral agents.

Material and Methods: In this cross-sectional study, the blood samples of 40 HIV-positive patients were collected. Twenty of them were drug-naïve and the rest were under treatment for at least one year by antiretroviral agents. Virus genome was extracted from patient's plasma with high-pure-viral-nucleic-acid kit. Then, by means of reverse-transcriptase and specific primers of protease genes were amplified and sequenced. Sequences of genes, drug- antiretroviral- resistant mutations and subtypes were determined using Stanford University's HIV-drug-resistance databases.

Results: Drug-naïve patients show 15% resistance to nucleoside-reverse-transcriptase inhibitor (NRTI) and 20% resistance to non-nucleoside-reverse-transcriptase inhibitor (NNRTI). Anti-protease resistance is not observed in any patients. In under treatment patients, drug resistance to NNRTI (25%) is more than drug resistance to NRTI (20%) and the rate of drug resistance to protease inhibitor is 5%.

Conclusion: Our findings show a high prevalence of drug-resistant mutations in Iranian-drug-naïve-HIV-infected patients. But in under treatment individuals, the rate of drug resistance is less than previous studies.

Keywords: HIV; Nucleoside Inhibitor; Non-Nucleoside Inhibitor; Protease Inhibitor