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HIV-1 genetic diversity and drug resistance-associated mutations among drug-naïve patients from Russia

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Objectives: In recent years the number of patients infected by the HIV-1 recombinant subtypes is increased. The increasing diversity may have implications for HIV-1 diagnosis and treatment. Also with wide access to HAART the rate of emergency of the drug-resistant HIV-variants among drug-naïve patients is growing up. The goal of the study was to evaluate the prevalence of HIV-subtypes in Russia and to analyze the rate of resistant-associated mutations among newly diagnosed HIV-1 infected patients.

Methods: The fragment of pol-gene was analyzed with the help of primers specifically suitable for studying the HIV-variants circulating in the territory of Russia. Stanford HIV Drug Resistance Database was used for the analysis of HIV-subtypes and drug resistance profile.

Results: Over the period of 2011-2012 blood samples were collected from the 122 HIV-1 infected individuals who were not undergoing antiviral therapy; gender: 56% male, median age 35 (18-54 years) and 44% females, median age 33 (20-72 years). All individuals were living in the Central Region of Russia which has one of the highest rates of HIV-infection.

The most frequent HIV-1 genetic form was subtype A (85,2 %). HIV-1 subtype A was dominating both among heterosexually infected individuals (95,5 %), MSM cohort (67,7 %) and injecting drug users (82,5 %). Subtype ? was detected in 8,2 % cases. And in 6,6 % cases recombinant form CRF01_AE was detected.

Polymorphic mutation V90I in RT gene was detected in 19,5% cases. And in 74,4% cases A62V mutation was detected. The minor mutations in PR gene were: M36I (79,8%), V77I (45,1%), G16E (7,3%) and L10I (29,2%). Accessory mutation D60E was detected in 1,2%. Major NNRTI-Resistance mutation K101E was detected only in 1 case (subtype B).

Conclusion: Subtype A still predominates in the territory of Russia (85,2 %). The rate of recombinant forms is rather low. Although an access to HAART rapidly increases the prevalence of drug-resistant mutations remains also rather low. But nevertheless the drug resisting surveillance must be an integral part of testing among newly diagnosed HIV-patients.