14th EUROPEAN AIDS CONFERENCE
OCTOBER 16 – 19, 2013 · BRUSSELS, BELGIUM

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Poster Exhibition Presentation

PE1/3 - The Ability of the Highly Sensitive Enzyme Immunoassay for HIV-1 P24 Antigen Detection to Significantly Reduce Seroconversion Window Period at HIV Infection

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Background: Despite the use state of the art serological assays for screening of blood donations, there are cases of infection through transfusion of blood and its components. Samples obtained from seronegative donors during “window” period pose the most significant hazard. The only way to reduce the seronegative window of HIV infection is increase the assay sensitivity at detecting early marker of p24 antigen. The aim of this study is to show the possibility of a highly sensitive kit for detection of HIV-1 p24 antigen to reduce the serological window of HIV infection and thereby to reduce the risk of post transfusion infection.
Materials: The assay DS-EIA-HIV-AG-Screen (CE_{0483}) intended only for HIV-1 p24 antigen detection with sensitivity 0.025 IU/ml (“HIV-1 p24 ANTIGEN 1st international reference reagent” NIBSC, UK). 22 seroconversion panels produced by ZeptoMetrix and Sera Care (USA) have been tested.
Results: The kit with sensitivity 0.025 IU/ml detected the p24 antigen at the same time as viral RNA in 19 of 22 seroconversion panels. In ZeptoMetrix panel HIV 9077 it was even 4 days earlier than viral RNA. On the two panels ZeptoMetrix HIV6243 and BBI PRB966 p24 antigen was detected on 2 and 7 days later in comparison with NAT respectively. Compared to NAT, detection of HIV infection by the DS-EIA-HIV-AG-Screen is on average only delayed by about 0.25 days but enables to reduce seroconversion window period by 2.25 days in comparison with kits with the sensitivity 0.25 IU/ml, by 2.75 days in comparison with kits with the sensitivity 0.5 IU/ml and by 5.78 days in comparison with kits with the sensitivity 1.25 IU/ml.
Conclusion: The increasing sensitivity of EIA at HIV-1 p24 antigen detection allow significantly reduce serological window period during HIV infection and thereby ensure earlier detection of HIV infection and increase safety level of donated blood.

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