

## DETECTION OF HIV-1 INFECTION IN BLOOD DONORS DURING THE IMMUNOLOGICAL WINDOW PERIOD BY THE IMPLEMENTATION OF NUCLEIC ACID AMPLIFICATION TECHNOLOGY (P-018)

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**Background:** Individual Nucleic Acid-Amplification Testing (NAT) has been recently introduced in blood banks in the city of São Paulo, Brazil, in attempts to reduce the transfusion transmission risk of HIV and Hepatitis C viruses. This screening test can identify donations made during the immunological window period before seroconversion.

**Aims:** To investigate the impact of this technology in our blood donors and transfusion routine.

**Methods:** From March 2004 to November 2005, when the NAT testing has been implanted, 64,248 donations were tested using two approved enzyme immunoassays (EIA) for HIV antibodies (Abbott Murex and Biomérieux), although 47,866 were also tested for individual NAT (Procleix by Chiron Healthcare). Confirmatory tests: Western blot (Genelabs Diagnostics), p24 antigen (Vironostica) and quantitative PCR-HIV-1 (Roche).

**Results:** Among the samples screened, two were non-reactive in enzyme immunoassays but positive for HIV-1 RNA with negative confirmatory p24 antigen, as described: Donor A, male, 34 years old, married, was a repeat donor with a previous blood donation on 06/21/04. After the results of the index donation on 11/17/05, he was recalled to collect a new blood sample in order to confirm the HIV-1 positivity. The sample was collected 25 days after the index donation and confirmatory tests showed quantitative PCR-HIV 16,800 cp/ml, reactive antibody detection and negative p24 antigen. During interview with the infectious diseases specialist, the donor admitted, between the two donations, many occasions of male homosexual intercourse without using a protective. Two weeks before the index donation, he had low grade fever, sore throat, myalgia and malaise. Donor B, male, 30 years old, single, first time donor on 10/01/05. Four days after the blood donation, a new sample was collected remaining serological tests non-reactive, negative p24 antigen and quantitative PCR-HIV showing 122.000 cp/ml. The donor developed fever and diffuse body pain one week after the donation. He was recalled many times for counselling and testing. Unfortunately, he has never returned again.

**Conclusions:** Although serologic analysis for HIV is a primary tool for diagnostic testing, the introduction of NAT has made possible the identification and preventing of transfusion of two HIV-positive blood donations in a 18 months period. Interesting to note that while the prevalence of HCV is higher than HIV, in Brazil HIV incident cases are more common than HCV using NAT technology. The screening of donors reduced the immunological window period, permitting the identification of very early stage HIV infections. In addition, these case reports emphasized the fact that the risk of HIV transmission is not limited to the first time donors.