

HIV-1 and HCV NAT Screening of Blood Donors in Korea (SP199)

Q Park (qpark@seoul.korea.com), J Kang, Central Blood Laboratory, Korean Red Cross, Seoul, Republic of Korea; K Huh, Middle Blood Laboratory, Korean Red Cross, Daejeon, Republic of Korea; J Wee, South Blood Laboratory, Korean Red Cross, Busan, Republic of Korea; J Lee, D Hwang, B Choi, Central Blood Laboratory, Korean Red Cross, Seoul, Republic of Korea; K Nahm, Middle Blood Laboratory, Korean Red Cross, Daejeon, Republic of Korea; J Ahn, J Kim, South Blood Laboratory, Korean Red Cross, Busan, Republic of Korea; J Kim, Central Blood Laboratory, Korean Red Cross, Seoul, Republic of Korea; D Oh, Central Blood Center, Korean Red Cross, Seoul, Republic of Korea; M Kim, D Seo, K Lee, Blood Services Headquarters, Korean Red Cross, Seoul, Republic of Korea

Background: The nucleic acid amplification test (NAT) for HIV-1 and HCV in blood donors was started in Korea from February 1, 2005. Three NAT centers were established by Korean Red Cross (KRC). Two of them are using Roche's reverse transcription polymerase chain reaction (RT-PCR) method while one of them implemented Chiron's transcription mediated amplification (TMA) system. This is the summary of the 15 months' experience of NAT in blood donors in Korea.

Methods: Between February 1, 2005 and April 30, 2006, a total of 2,874,992 donor samples were screened - 2,022,830 samples by Roche AmpliScreen Assay and 852,162 samples by Chiron Procleix Assay. In Roche system, each NAT screen was done on the basis of 24 minipool format. Initial reactive pools were divided into four 6-pools, and tested by the same assay. The final positive results were confirmed by individual tests. In Chiron system, HCV and HIV-1 NAT were done simultaneously by multiplex assay on the basis of 16 minipool format. Initially reactive samples were tested individually, and discriminatory assays were done to identify the reactive virus. The NAT reactive results were confirmed by an alternative NAT assay format and compared with those of EIA results and confirmatory tests (RIBA or Western blot). For HCV NAT positive, EIA-negative donors were followed up until 6 months for seroconversion. For the epidemiological purpose, the NAT reactive samples were quantified and genotyped.

Results: During 15 months, 67 (0.002%) and 339 donors (0.012%) were reactive for HIV and HCV NAT, respectively. All NAT reactive results were confirmed by another NAT assay. The NAT yield in comparison to EIA was 4 (0.00014%) and 9 (0.00031%) for HIV and HCV, respectively. In all of the HCV EIA-window period cases, seroconversion was confirmed in the follow-up studies (22~196 days after the index donations). Most frequent genotypes of HCV were 1b (53%) and 2a/2c (35%) while the genotype of all of the detected HIV was type B.

Conclusions: The observed NAT yield for 15 months was greater than expected. The implementation of NAT has contributed to the improvement of blood safety in Korea. Continuing effort should be made to minimize the residual risk of transfusion-transmitted diseases.