

Reinventing blood safety

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Poster Presentation

HCV-NAT Testing of Singapore Blood Donors

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The Centre for Transfusion Medicine (CTM) in Singapore implemented Nucleic Acid Testing (NAT) for Human Immunodeficiency Virus (HIV) and Hepatitis C Virus (HCV) on all blood donations from October 2000. This is a retrospective study of the HCV-NAT results during the period from October 2000 till February 2002. A total of 94,577 blood donations were collected from 51,573 blood donors (17,138 female and 34,435 male).

All donations were individually tested for Hepatitis C Virus Antibody (Anti-HCV) using the ABBOTT PRISM HCV chemiluminescence assay and for HCV-RNA using the Chiron Procleix HIV-1/HCV Transcription Mediated Amplification (TMA) Multiplex Assay. Samples testing repeatedly reactive for Anti-HCV were further tested using Chiron RIBA 3.0 Strip Immunoblot assay. Samples testing reactive in the TMA multiplex assay were repeated using the discriminatory TMA assay for HCV.

Eighty seven donors (0.17%) were tested repeat reactive for Anti-HCV. RIBA testing results were available in 68 (78.16%) of these samples. Of the 68 samples, 25 (36.8%) tested RIBA negative, 29 (42.6%) indeterminate and 14 (20.6%) RIBA positive. There were 2 donors with positive Anti-HCV on testing with the PRISM and RIBA but negative in the HCV-NAT.

HCV-NAT showed 136 testing positive in the initial multiplex test. Of these, 120 (0.13%) samples subsequent tested negative in the discriminatory NAT. The remaining 16 samples tested positive in the discriminatory HCV-NAT, giving a positive HCV-NAT rate of 0.03% in the donor population. All 16 donors also tested positive for Anti-HCV on the PRISM. RIBA testing on 12 of the 16 samples was positive; results of RIBA tests in the remaining samples are pending at this time. None of the samples testing positive in the HCV-NAT was negative for Anti-HCV.

Of the 87 donors testing repeatedly reactive for Anti-HCV using the PRISM, 31 (35.6%) were followed up at a specialist liver clinic. Repeat testing for Anti-HCV by ELISA was non-reactive in 23 (74.2%) donors. The repeat RIBA results (either negative, indeterminate or reactive) were similar in 29 (93.5%) of the 31 blood donors. 16 donors (14 non-reactive, 2 reactive by HCV-NAT) had the test for HCV-RNA repeated using a PCR-based test. All of the repeat test results corresponded with the initial HCV-NAT performed on their donations. None of the donors who were initially negative in the HCV-NAT has developed evidence of hepatitis C infection on subsequent follow up so far.

Conclusion:

51,573 blood donors were tested by HCV-NAT from Oct 2000-Feb 2002. 16 donors (0.03%) tested positive by HCV-NAT. All 16 were also positive for Anti-HCV, with 12 testing positive in the RIBA test (remaining 4 results are unavailable). HCV-NAT has so far not detected any seronegative "window period" donations in the Singapore blood donor population.