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NUCLEIC ACID TESTING OF FIRST TIME INDONESIAN BLOOD DONORS

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Background

In 2004, 1,284,254 units of blood were collected in Indonesia of which approximately 30% came from first time donors and over 80% came from voluntary donors. As of 1995, the seroprevalences of HCV and HBV among our blood donors were 2.1% and 8.8%, respectively, although the recently obtained donor seroprevalence for HIV was 0.002%.

Aims

We studied the potential benefit of adding NAT to our screening armamentarium using the Chiron PROCLEIX[®] ULTRIO[®] Assay (Chiron Corp. Emeryville, CA.U.S.).

Methods

Between January and July 2005, 931 seronegative samples from first time donors were collected from 10 blood transfusion centres : Padang (n=31), Bali (n=20), Malang (n=47), Pekanbaru (n=10), Surabaya (n=77), Batam (n=4), Bandung (n=155), Makasar (n=30), Semarang (n=31) and DKI Jakarta (n=526). These centres are located in heavily populated provinces known for high seroprevalences of HIV, HCV and HBV, operated by the Indonesian Red Cross. Each centre performed their own ELISA screening for HIV, HCV and HBV and followed their regular protocols for release of blood. Seronegative samples were sent to the Central Blood Transfusion Centre in Jakarta where they were individually tested by Ultrio for the simultaneous detection of HIV RNA, HCV RNA, and HBV DNA. Reactive samples were tested by the Discriminatory Assay to identify the reactive viral nucleic acid. In addition, 70 seroreactive samples were also sent to Jakarta for testing by the Ultrio Assay.

Results

Of the 931 seronegative samples sent for NAT testing, 6 were confirmed reactive by the Ultrio Assay, for a NAT yield of 0.64%; the Discriminatory assay revealed 5/931 (0.54%) were HBV reactive and 1/931 (0.10%) was HCV reactive. Of the 70 seroreactive, 53 (76%) were also NAT positive. Of 1,001 total samples tested, we identified 5 co-infections that were both NAT and seroreactive – 1 HBV/HCV co-infection which was NAT reactive for both viruses, but seroreactive only for HBV and 4 HCV/HIV co-infections, 3 of which were both sero- and NAT reactive and 1 which was HCV sero- and NAT reactive, but HIV sero-reactive only.

Conclusions

The very high overall NAT yield (0,64%) of seronegative donors along with the identification of co-infected donors suggests a multiplex NAT, specifically the Ultrio Assay, could improve the safety of our blood supply and also contribute to improving donor recruitment and selection methods.

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