



XVth REGIONAL CONGRESS OF THE ISBT, BANGKOK

REDUCING THE RISK OF HBV TRANSMISSION BY TRANSFUSION IN NEW ZEALAND

Author:	Richard Charlewood, Peter Flanagan, Melanie Dravitzki, Helen Hollis, Rebecca Horder New Zealand Blood Service
Co-author: (s):	

Background

Hepatitis B infection is endemic in New Zealand. All blood donations are tested using the Abbott Prism CLIA for HBsAg. Approximately 200,000 blood components are transfused each year. 1-2 reports of probable transfusion transmission of Hepatitis B are received each year.

Aims

To investigate the feasibility and benefits of introducing additional Hepatitis B marker testing of donated blood using either HBV DNA (Chiron Procleix Ultrio assay) or Hepatitis B Core antibody (Abbott Prism)

Methods

10,000 individual donations were tested for HBV DNA using the Chiron Ultrio assay. Reactive specimens were further investigated with a range of HBV markers; anti-HBc (Abbott Prism and Murex), anti-HBs (Abbott IMx) and HBV DNA (real time PCR assay ESR, Porirua NZ). Lookback, involving both testing of stored plasma samples and of blood component recipients, was undertaken HBV DNA positive donors. A separate 10,000 donations were tested for anti-HBc using the Prism CLIA (Abbott). Reactive donations were further tested with an independent anti-HBc assay (Murex) and anti-HBs levels quantified (IMx Abbott). HBV DNA testing was undertaken on donations confirmed as anti-HBc positive where anti-HBs levels were less than 100IU/L.

Results

682 of the 10,000 of donations tested for anti-HBc were reactive (6.8%). 64% of anti-HBc reactive samples had anti-HBs levels greater than 100IU/L. 6.3% had no detectable anti-

HBs. 1 of the 682 core reactive samples showed low level reactivity by Ultrio. This sample had an anti-HBs level of 8.6 IU/L. The Ultrio HBV discriminatory test was negative. Repeat Ultrio testing was negative. To date 7820 samples have been tested by Ultrio. 13 samples gave reactive results. 1 of the 13 was reactive in the discriminatory assay. HBV viraemia was confirmed in the orthogonal HBV DNA assay. This donation was strongly reactive in the Prism anti-HBc assay with anti-HBs less than 10 IU/L This sample was from a regular donor who had given 15 donations in the preceding 4 years. Stored aliquots from the most recent 12 of these were retrieved and tested. 1 of the 12 was Ultrio reactive. The HBV discriminatory assay was negative. Lookback was undertaken on the recipients of components derived from the donations given by the HBV DNA positive donor. 7 of 15 recipients were alive. 4 have been tested. None of the 4 had markers suggestive of past hepatitis B infection.

Conclusions

The high level of anti-HBc reactivity suggests that this would not be an appropriate screening test to reduce the risk of HBV transmission in the New Zealand context. The yield of HBV DNA (0.013%) suggests that testing would be feasible. More information is however needed on the infectivity of low level HBV viraemia in the presence of core antibody.