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TRANSMISSION OF NON-A, NON-B HEPATITIS BY BLOOD AND BLOOD PRODUCTS: IS IT PRACTICABLE TO REDUCE OR PREVENT IT BY INTRODUCING ALT TESTING OF DONATIONS?

1. The information in this note is mostly derived from the Ph.D. thesis entitled: "Non-A, Non-B Hepatitis in West Scotland", completed in 1985 by Dr B C Dow under the supervision of Dr Follett and others.

2. Hepatitis can be transmitted by blood and blood products, and is in Scotland an occasional but serious consequence of blood transfusion. In contrast, in USA as many as 10% of recipients may develop it. Established causes include Hepatitis B virus, Hepatitis A virus, Epstein-Barr virus, and cytomegalovirus. Hepatitis B virus is now successfully excluded by testing of donations. Hepatitis A has caused little trouble because virus is only found in blood over a brief period.

3. Non-A, non-B hepatitis is not a specific disease, but a heterogeneous collection of diseases. The hepatitis conditions due to the Epstein-Barr virus and cytomegalovirus are a substantial part of it, but there is general belief that some as yet unidentified virus infection is also part of it. Thus there can be no accepted test capable of detecting the virus in blood; detection is by exclusion of other conditions such as those mentioned.

4. Non-A, non-B hepatitis, thus defined, is not uncommon in the population; Dr Dan Reid reckons an incidence for Scotland of 154 cases per year, but has little confidence in this estimate because it can only be derived by starting from the total of all hepatitis cases reported (probably under-reported) by clinicians, and deducting the cases of hepatitis B detected in laboratories (probably fully reported). It is common among drug-abusers. But in association with blood transfusion it is very uncommon in the west of Scotland. Over the last 8 years, 1-5 cases are found each year there, and there is no upward trend. There are peculiar difficulties in identifying its presence in haemophiliacs, since their blood exhibits diverse reactions because of repeated administration of blood products, but Dr Dow found no evidence of any substantial problem. Dr Dow reckons that the proportion of donations infected with non-A, non-B hepatitis may be 18 per hundred thousand.

5. The condition is not as a rule serious, and most of the cases detected have not even been jaundiced. There may however be a tendency for it to become chronic, and the long-term outlook is inevitably not yet known. The case fatality rate is estimated in a textbook consulted by Dr Dan Reid at less than 0.1%, except in pregnant women, who are at much greater risk (10% if they contract it during the last 3 months of pregnancy).

6. In the absence of a specific test, for some years the suggestion has been made that an enzyme test ("ALT") which detects faulty liver function should be applied to every donation. The advantage is that some donations might thus be excluded which would transmit non-A, non-B hepatitis. The drawbacks are that some infective donations might still be missed ("false negatives") and some harmless donations might be excluded ("false positives"). The American evidence is that both drawbacks are serious: only perhaps 38% of the genuinely infective donations are detected, and some 70% of the apparently infective donations are harmless. Rejection of donations might reach 3% - a grave loss.

7. In New York, which has adopted ALT testing, although it is not generally in use in USA, the cost was put at 2 dollars per donation in 1982. Dr Dow concludes that in Scotland "cost would be extremely high and benefit minimal, especially when only a few cases of non-A, non-B post-transfusion hepatitis are reported each year."

8. Dr Dan Reid and Dr Follett do not recommend the introduction of ALT testing of Scottish blood donations, for the above reasons.

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12 June 1986

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