

2PS-14-03

HAEMOVIGILANCE REPORTS OF POST-TRANSFUSION PURPURA AND TRANSFUSION-ASSOCIATED GRAFT-VERSUS-HOST DISEASE BEFORE AND AFTER IMPLEMENTATION OF UNIVERSAL LEUCOCYTE DEPLETION IN THE UK

M. Williamson¹, D. Stainsby², H. Jones³, E. Love³, C. Chapman², A. Casbard⁴, H. Cohen⁵

¹ *University of Cambridge/NBS, Cambridge, United Kingdom*

² *National Blood Service, Newcastle UK, United Kingdom*

³ *Serious Hazards of Transfusion, Manchester, United Kingdom*

⁴ *Medical Research Council, London, United Kingdom*

⁵ *Middlesex Hospital, London, United Kingdom*

Background: The pathogenesis of transfusion-associated graft-versus-host disease (TA-GvHD) and post-transfusion purpura (PTP) involves exposure to donor T lymphocytes and platelets respectively. Both are removed during blood component leucocyte depletion (LD), which could therefore potentially protect against these complications.

Aims: To establish whether implementation of universal leucocyte depletion in the UK has reduced the number of reports of PTP and TA-GvHD to the UK haemovigilance scheme Serious Hazards of Transfusion (SHOT).

Methods: All reports meeting the case definitions of PTP and TA-GvHD in annual SHOT reports from 1996-2005 were reviewed. For TA-GvHD, a comparison was made of case numbers transfused with LD compared with non-LD components. Since the LD status of components transfused to PTP patients was not obtained, we compared case numbers between periods before and during implementation of universal LD (1996-1999), with the post-implementation years 2000-2005. To exclude 'reporting fatigue' as a cause of reduced case numbers over time, numbers of cases of delayed haemolytic reactions (DHR) were also compared for the same time periods. Denominator data of numbers of components issued were taken from SHOT reports and National Blood Service issue data.

Results: From 1996-2005, a total of 6.2 million non-LD and 19.6 million LD red cells and platelets were issued. From 1997-2003, participation in SHOT using 'nil to report cards ranged from 67% to 97% of hospitals (mean 82%). There were 13 reports of TA-GvHD, all fatal, of which 10 cases had at least one factor which may have increased their risk:- undiagnosed immunodeficiency (2), B cell lymphoproliferative disease (6), steroids (1), transfusion of fresh blood (1) and donor/recipient HLA haplotype share (4). Only the 2 immunodeficiency patients met UK guideline criteria for irradiated components. Eleven cases had been transfused with non-LD red cells and/or platelets and 2 with LD ($p < 0.001$). No TA-GvHD cases have been reported to SHOT during 2002-2005. There were 46 reports of PTP, of which 45 were in previously pregnant females, with 1 transfused male. Two haemorrhagic deaths occurred, with all other cases recovering completely after intravenous immunoglobulin, with or without random or antigen-negative platelets. Human Platelet Antigen-1a (HPA-1a) alloantibodies were found in 34 cases (78%), either alone (29), or in combination with other HPA antibodies (2), heparin-induced antibodies (2), or a glycoprotein Ia/IIa autoantibody (1). Nine cases had antibodies to other HPA specificities, either singly or in combination. From 1996-1999, there were 31 PTP cases (10.3/year), which fell to 15 (2.5/year) from 2000-2005 ($p < 0.001$). Before universal LD, only 1/31 (3%) PTP cases had received platelets as well as red cells, in contrast to 8/15 (51%) afterwards ($p < 0.001$). Finally, prior to LD, 11/31 cases (32%) had antibodies to HPA specificities other than HPA-1a, compared to 1/15 (6.5%) after LD ($p = 0.07$). Reports of DHR increased over the same time period, with a mean of 27.3 cases/year from 1996-1999 and 39.3/year from 2000-2005.

Conclusions: In 'moderate risk' recipients, universal LD has markedly reduced but not eliminated the risk of TA-GvHD, and has both reduced and altered the profile of PTP cases.