SP400

Reduced Incidence of Serological Transfusion Reactions Following Change of Technology Used for Routine T&S Testing

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Background: Many publications have compared the performance (sensitivity, specificity) of different technologies for screening for red cell alloantibodies. These studies have predominantly focused on test results and have not been correlated to clinical outcomes following transfusion, except in a few individual cases where specimens from patients who experienced transfusion reactions were investigated using alternative antibody detection methods. In mid 2005, we implemented the Galileo® (Immucor, Inc. Norcross, GA), an automated instrument that uses solid phase red cell adherence (SPRCA) technology for antibody screening and liquid phase microplate method for ABO and D typing. Previously, the laboratory used ID-Micro Typing System™ (ID-MTS) Gel Test™ (Ortho-Clinical Diagnostics, Inc. Raritan, NJ).

Methods: A retrospective comparison of workload statistics, antibody identification (Ab ID) records and transfusion committee reports was performed to evaluate the effect of the change of technology on the number of Ab ID work-ups performed and serological transfusion reactions (new red cell alloantibodies) detected up to three months following transfusion.

Results:

Period	Technology	# Specimens Accessioned	# Ab IDs Performed (%)	# Ab IDs Performed with New Abs Detected Post Transfusion (%)
7/04 - 6/05	Gel	38,893	856 (2.20%)	52 (0.134%)
3/06 - 2/07	SPRCA	42,271	883 (2.09%)	22 (0.052%)

The proportion of specimens requiring Ab ID remained relatively constant, but the number of new antibodies identified posttransfusion was reduced by a factor greater than 2.

Conclusion: Other publications have indicated that SPRCA is a more sensitive method for detection of clinically significant antibodies1 and that failure to detect these antibodies is a major contributor to incidence of transfusion reactions2. There were no other changes in technologies or procedures in the blood bank during this period that are likely to explain the reduction in incidence of new alloantibodies post transfusion. Our data suggests that the higher sensitivity of the SPRCA test method is matched by clinical outcomes showing reduced serological transfusion reactions.

References: 1. V Weisbach et al. Comparison of microtube column systems and solid phase systems and the tube low-ionic strength solution additive indirect antiglobulin test in the detection of red cell alloantibodies. Transfusion Medicine, (2006) 16 276-284.
2. The Serious Hazards of Transfusion Steering Group (2005). WWW document (URL www.shotuk.org). SHOT Report 2005.

Disclosure of Conflict of Interest

Alyssa Ziman, Rebecca Davis, James Thompson, Alana Calhoun: Nothing to Disclose