

Clinical Pathology Abstracts, 11/16

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Neonatal ICU quality initiative: identifying preanalytical variables that contribute to specimen hemolysis

Hemolysis is a major cause of sample rejection and the need to recollect a specimen from a patient. In the neonatal intensive care unit, this may be of particular concern because of limited venous access and the risk of causing iatrogenic anemia. The authors conducted a quality improvement study with the intent of reducing the rate of specimen rejection due to hemolysis to less than four percent over nine months. They investigated whether intravenous infusion of lipid emulsion during sample collection, as well as sample collection site and blood sample transportation methods, contributed to the hemolysis observed. The investigators used the DMAIC (define, measure, analyze, improve, and control) approach to identify two practice improvements: pausing lipid emulsion infusion prior to sample collection and slowing withdrawal rates through arterial catheters. The results showed that samples were more likely to be hemolyzed if they were collected during lipid infusion and transported by a pneumatic tube or collected through an arterial catheter. A retrospective analysis showed a decreased number of tests cancelled due to specimen hemolysis (from 6.4 to 3.5 percent) after the authors' interventions. The authors noted that these results may be generalizable to other neonatal intensive care units and could be applied to other aspects of laboratory medicine and clinical care.

Tolan NV, Kaleta EJ, Fang JL, et al. Neonatal intensive care unit quality initiative: identifying preanalytical variables contributing to specimen hemolysis and measuring the impact of evidence-based practice interventions. *Am J Clin Pathol.* 2016;146:113-118.

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Survey of irradiation practice for prevention of transfusion-associated graft-versus-host disease

Transfusion-associated graft-versus-host disease is a preventable, uncommon, and highly fatal complication of cellular blood product transfusions. In cases of TA-GVHD, viable donor lymphocytes from blood products replicate and attack the recipient, who is unable to mount a sufficient immune response. Irradiated products prevent TA-GVHD in high-risk groups. The authors conducted a study to assess the current irradiation practices at College of American Pathologists member institutions by comparing the results of a 2014 CAP Survey of irradiation practices to a comprehensive 1989 American Association of Blood Banks survey of such practices. The latter was the last time a comprehensive review of irradiation practices was performed, despite the emergence of new indications for irradiation. The intent of the study reported herein was to determine how the field has developed and what, if any, areas need to be improved. The authors reported that an average of 2,100 organizations responded to each question in the 2014 CAP Survey regarding irradiation practices for specific conditions and circumstances. The most commonly reported indications for irradiation were for transfusion from blood relatives, human leukocyte antigen-matched products, preterm infants, and Hodgkin disease. A few organizations performed universal irradiation on all cellular blood products, and others irradiated by floor/unit or by service. Unexpectedly, fewer organizations required irradiation for some at-risk groups, including those with congenital immunodeficiency syndrome, Hodgkin disease, acute leukemia, and lymphoma, than in the 1989 assessment. The authors also noted a slight decrease for a few groups not considered to be at risk, such as HIV/AIDS patients. The study concluded that irradiation practices continue to be widely disparate across institutions. This may be, at least in part, a result of the United States not providing national guidelines on the use of irradiated components, thereby leaving decisions

regarding indications for irradiation to individual institutions. The authors suggest that work still remains to eliminate the risk of TA-GVHD in at-risk populations.

Pritchard AE, Shaz BH. Survey of irradiation practice for the prevention of transfusion-associated graft-versus-host disease. *Arch Pathol Lab Med*. 2016;140:1092-1097.

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