HÉMA-QUÉBEC

HÉMA-VIGIE…always on the lookout!

A Newsletter Focused on the Most Recent Scientific Advances in the Fields of Transfusion, Human Tissues, and Stem Cells

Volume 3, Number 9

Does storage of red cell concentrates alter their therapeutic efficacy?

Red cell concentrates prepared from whole blood donations can be stored up to 42 days at 4°C. Some studies published in the past few years seemed to indicate that surgical patients transfused with red cell concentrates that had been stored for more than 21 days did not recover as well as patients transfused with concentrates stored for less than 21 days. Two recent retrospective studies dealing with red cell concentrate storage time and its potential effects upon transfusion to cardiac surgery patients reached equivocal conclusions.

Basran, S., et al. (Duke University Medical Center, Durham, NC, USA) (2006). **The association between duration of storage of transfused red blood cells and morbidity and mortality after reoperative cardiac surgery**. Anesth Analg 103 (1): 15-20.

van de Watering, L., et al. (Sanquin Blood Bank, Leiden, The Netherlands). **Effects of storage time of red blood cell transfusions on the prognosis of coronary artery bypass graft patients**. Transfusion 46 (10): 1712-1718.

Prion protein genotype and susceptibility to variant Creutzfeldt-Jakob disease

The epidemiology of variant Creutzfeldt-Jakob disease, the human form of mad-cow disease, suggests that one of the genetic variants of the prion protein, whose aggregates are likely responsible for this neurodegenerative disease, confer some resistance to this atypical infection. Results from Ironside's team (University of Edinburgh, Scotland, UK) seem to indicate that the putative resistant variant of the prion protein could also form aggregates in lymphoid tissues, as occurs in individuals during the clinical stage of the disease.

Ironside, J. W., et al. (2006). **Variant Creutzfeldt-Jakob disease: prion protein genotype analysis of positive appendix tissue samples from a retrospective prevalence study**. Br Med J 332 (7551): 1186-1188.

Presence of avian influenza virus in the blood of some infected individuals

Yong Poovorawan and coworkers (Chulalongkorn University Bangkok, Bangkok, Thailand) report on the presence of the H5N1 virus in the plasma of a child who died from avian influenza. The results from de Jong et al., from Oxford University Research Unit (Ho Chi Minh City, Vietnam) are in agreement with this observation, and further suggest that the presence of the virus in the blood of infected individuals correlates with disease severity.

Chutinimitkul, S., et al. (2006). **H5N1 influenza A virus and infected human plasma**. Emerg Infect Dis 12 (06): 1041-1043.

de Jong, M., et al. **Fatal outcome of human influenza A (H_5N_1) is associated with high viral load and hypercytokinemia**. Nat Med. Published online on September 10, 2006.

A new animal model of TRALI

Transfusion-related acute lung injury (TRALI) is a severe, sometimes fatal, transfusion reaction that is presumably caused by the presence of antibodies specific to the recipient's white blood cells in the transfused component. The group led by Mark R. Looney, from the University of California at San Francisco, has recently published an article which tends to validate this hypothesis in an animal model.

Looney, M. R., et al. (2006). **Neutrophils and their Fcγ receptors are essential in a mouse model of transfusion-related acute lung injury**. J Clin Invest 116 (06): 1615-1623.

A new hypothesis for explaining the mechanism of action of IVIg

Intravenous immunoglobulins (IVIg), a fractionation product from human plasma, are often used in the treatment of several autoimmune and inflammatory diseases. Surprisingly, their mechanism of action has not been clearly established. Alan H. Lazarus' team from Canadian Blood Services/University of Toronto/St. Michael's Hospital (Toronto, Ont.) has put forward a new hypothesis involving dendritic cells, a particular class of cells of the immune system.

Siragam, V., et al. (2006). **Intravenous immunoglobulin ameliorates ITP via activating Fcγ receptors on dendritic cells**. Nat Med 12 (06): 688-692.

EDITED BY: Jean-François Leblanc, Scientific Information Specialist, Héma-Québec, Jean-Francois.Leblanc@hema-quebec.qc.ca