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Volume 2, Issue 1

Bloody Good News

Newfoundland and Labrador Provincial Blood Coordinating Program

Special Interest Articles:

- Role of Physicians in Transfusion Medicine
- Minor Allergic Transfusion Reactions
- Standards for Transfusion Services

Individual Highlights:

Year in Review for the Provincial Program

Well, it's hard to believe that we have completed our second year of the Provincial Blood Coordinating Program activities. 2007 was a busy year and the Program has been working on many issues related to the blood file within the province. These issues included: the delisting of Synagis from the Canadian Blood Services product list, the development of guidelines for Blood Group Substitution in Adults and, the development of Statistical Utilization Reports for the Regional Health Authorities that are not reporting through Teledata. A Transfusion Medicine Advisory Group was formed for the province. We have also been busy with the validation of the Minnesota Thermal Science Shipping Container for the Inter-Hospital Transfer Program. The Public Review of the CSA Standards for Blood and Blood Components has been completed and sent to Health Canada and a review of the Utilization of IVIG for the Province has begun for 2007. Some of these items will be discussed in this edition.

The Program staff would like to take this opportunity to wish everyone a *Joyous and Prosperous New Year* in 2008.

Standards for Blood Transfusion Services

The New Standards have arrived. The Canadian Society for Transfusion Medicine have recently released version 2 of the *Standards for Hospital Transfusion Services*. These standards are presented in a different format from the previous version in that they are written according to the Quality System Essentials format. There have been significant changes in some areas but the format is much easier to follow. A crosswalk at the end of the standards identifies where clauses have changed from the old version to the new. This makes referencing so much easier.

The CSA Standards for Blood Components was available on the Health Canada website for public review until mid November. The comments made will be evaluated and recommendations will be followed where appropriate. The final version of the standards is expected to be released in Spring 2008.

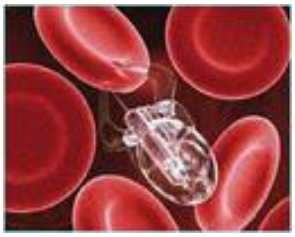
These two documents have been developed to assist transfusion services in the development of policies and operating procedures to enhance the quality and safety of the blood system from collection, to processing and transfusion. The standards are minimum criteria for performance. Hospitals may choose to exceed these standards in practice.

To purchase a copy of the CSTM Standards go to www.transfusion.ca

Guidelines for Blood Component Substitution in Adults

Compatibility testing is key to safe transfusion practice. It is important to realize that occasions do occur when blood group substitution is required to ensure that patients receive appropriate treatment. Therefore, it is imperative that compatible blood components are substituted when necessary. At times, there is a level of discomfort associated with blood group substitution. Without approved guidelines, decisions to provide non-group specific blood components may cause delays or result in a decision not to transfuse. The patient's health is the primary issue, and delays in transfusing required components can further affect the clinical situation. The Guidelines for Blood Component Substitution in Adults identifies the appropriate selection of ABO compatible choices for various blood components such as red blood cells, platelets and plasma products. The guidelines also provide information related to the use of Rh Immune Globulin when transfusing components that are not Rh compatible. The guidelines were developed referencing the CSTM Standards for Hospital Transfusion Services to ensure compliance with both CSTM and CSA standards. The guidelines will be revised to reflect the CSTM standards version 2 and will be circulated for comment and approval by the end of January 2008.

Is this the future?



Nanotechnology in Transfusion

"*The art of medicine consists in amusing the patient while nature cures the disease.*"
Voltaire 1694-1778

New Product Voluven® - Pentastarch

Can you identify this son of a tobacco merchant who became a famous protein scientist?

Volume expanders have been used in treating patients for many years. Debate still occurs over which colloid is the product of choice.

What should an ideal colloid accomplish when addressing plasma replacement? It should quickly replace volume loss, restore hemodynamic balance, normalize hemostasis, be readily metabolized, excreted and well tolerated, infrequently cause adverse events and be cost effective.

Albumin, a natural colloid produced from pools of human plasma by the fractionation process, continues to be a staple in patient management in Canada. Other colloid solutions include synthetic products such as dextrans, gelatins and hydroxyethyl starches (HES). Voluven® is a 6% HES derived from amylopectin and is available in 250mL and 500mL sizes. It is distributed by Canadian Blood Services.

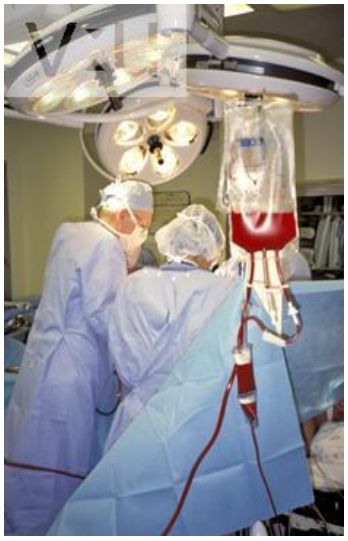
Voluven® should be infused slowly for the first 10-20mL and the patient should be observed for any adverse reactions. Infusions up to 33mL/kg/day are common and may be administered repeatedly over several days. Plasma levels remain at 75% of peak concentration at 30 minutes post-infusion and decrease to 14% after 6 hours post-infusion. After infusion of 500mL Voluven®, 62% is eliminated in urine within 72 hours. Voluven® is contraindicated for certain conditions and the product insert should be consulted prior to administration. Adverse events reported include pruritis (up to 10%) which is usually mild and self-limiting. Anaphylactoid reactions are rare. Serum amylase concentrations increase commonly with the use of Voluven®. Educational in-service sessions are available from the supplier representative. For product monograph information visit: www.fresenius-kabi.ca

The Physician's Role in Transfusion Medicine

Transfusion Medicine plays a significant role in patient care. The clinician responsible for patient care is often required to prescribe blood products to manage a patient's condition while treating other clinical conditions. Ensuring the patient receives the appropriate product for a specific need requires careful patient management. The clinician is required to inform the patient that a blood transfusion may be required, identify and describe the products, discuss risks and suitable alternatives to transfusion if options are available. This constitutes Informed Consent. The patient should be provided time to ask questions and make a decision. The signature of both the clinician and the patient should be documented indicating approval or refusal to conduct the transfusion.

The Transfusion Medicine Specialist (TMS) role has evolved over the years. In many cases, the surgeon or hematologist involved in requesting blood products for a patient expressed an interest in transfusion medicine or was thrust into the transfusion milieu and became the expert for the facility. The TMS acts as a consultant in transfusion therapy of patients, supervisor of quality assurance, regulatory and accreditation requirements for the institution and represents the facility on transfusion committee.

In blood collection centres, the physician is the medical expert for the centre. Regulatory compliance to standards requires that physicians have an understanding of transfusion therapy from the donor perspective by taking the lead on developing donor criteria for eligibility and medical screening procedures. An understanding of the epidemiology of transfusion- transmitted diseases is a crucial element in donor management.



Adverse Transfusion Events Reporting

Since its establishment in December 2005, 162 adverse transfusion event (ATE) reports have been received at the Provincial Blood Coordinating Program. Of these 36 were reported for the period of 2004-05 by sites under the former Health Care Corporation of St. John's where the position of Transfusion Safety Officer was already in place.

In 2006, the number of adverse event reports submitted to the Program increased to 64 and up to July 01, 2007, 53 reports have been received. The educational in-services held at various sites across the province and the Adverse Event Reporting half-day held in February 2007 have raised awareness and recognition of adverse events and consequently reporting of such.

The most prevalent type of ATE is Febrile Non – hemolytic Transfusion Reaction at 38.8% of all adverse events reported during this 3 ½-year period. Minor Allergic reactions followed at 22.8%. Concentrated Red Blood Cells constituted 70% of products suspected in ATEs, followed by Fresh Frozen Plasma at 15%. The majority of ATEs reported were graded non-severe with minor or no sequelae.

Currently there are 22 hospitals providing data for the 33 sites that perform transfusions with 86.3% of provincial transfusion activity being reported.

"*Far and away the best prize that life offers is the chance to work hard at work worth doing.*"

Theodore Roosevelt,
(1858 - 1919)

Minor Allergic Transfusion Reaction

Allergic transfusion reactions, also known as urticarial reactions, are usually due to antibodies from allergic donors or allergens in donor blood. The release of histamine and vasoactive amines are caused by IgE antibodies fixing to basophils and mast cells, which induce the most common type of allergic reaction – skin hypersensitivity. This type of reaction is usually mild, presenting with urticaria, pruritis, flushing, rash and mild edema and may occur in 1 in 100 transfusions.

Patients with a history of allergies and / or a history of previous allergic transfusion reactions may be prescribed antihistamine or corticosteroids prophylactically prior to or at the beginning of the transfusion. These medications should not be added to the blood product.

When an allergic transfusion reaction is suspected, the transfusion must be stopped and the physician notified. An antihistamine may be administered and the transfusion cautiously resumed. If symptoms continue or worsen, the transfusion should be discontinued and the blood bank laboratory notified. A transfusion reaction investigation should be initiated to rule out reactions that are more serious.

Answers from Issue 1:
Picture: Rotunda at Dr. Charles S. Curtis Memorial Hospital, St. Anthony
Polio Researcher: Dr. Karl Landsteiner

Case Study #2

A 47-year-old female was admitted with Acute Myeloid Leukemia. She was previously transfused within past 3 months and immuno-compromised due to chemotherapy. The pregnancy/ miscarriage history was unknown. The patient was not premedicated. Her blood group was B Positive. The pre-transfusion pulse was 104 and temperature was 36.5. She was not transfused under anesthesia. This patient was transfused approximately three-quarters of a unit of B Positive, Irradiated AS-3 Red Blood Cells, LRF between 1245 & 1445 hours. At 1445 hours the patient experienced chills & rigors, her temperature increased to 39.9and pulse increased to 114. The transfusion was stopped. The patient was treated with antihistamines and antipyretics. Blood cultures were collected from the patient and the blood product. All cultures were negative. The adverse event was reported to PBCP but not to the blood supplier.

1. Classify type of reaction

2. What was the relationship of the adverse event to the transfusion?

3. What was the severity of the reaction?

4. What was the outcome of the adverse event?

Case Study #1 Interpretation

1. *Hypotensive reaction due to ACE Inhibitor – Ramipril*
2. *Relationship of adverse event to transfusion – probable*
3. *Severity of the reaction – Grade 2 (severe)*
4. *Outcome – Minor sequelae*

Each newsletter will contain an interesting case study for you to review. The type of adverse event and answers to the questions will be provided in the next edition of the newsletter.

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http://www.health.gov.nl.ca/health/bloodprogram/index.htm