2015 - 12
Volume 9, Issue 2

Bloody Good News

Newfoundland and Labrador Provincial Blood Coordinating Program

First Patient Enrolled in the SCIg Home Infusion Program

To enroll in the subcutaneous immune globulin (SCIg) *Home Infusion Program*, the patient and referring physician complete an enrollment form. The completed form, along with a prescription for SCIg, are faxed to the third party nursing service contracted to provide ongoing support to the recipient and prescribing physician. Training is set up for the patient by a Nurse Case Manager.

During the training session with the nurse educator, the patient signs a 'responsibility agreement', an affirmation that he/she will abide by regulations and guidelines of the Program. Once the patient training is complete and the patient has demonstrated competency to self-administer, home infusion begins.

To date, 12 patients in NL are actively self-administering SCIg through the *Home Infusion Program*.

The following is an interview with the first SCIg Home Infusion patient in Newfoundland and Labrador:

Q: Describe the enrollment process.
A: *I filled out the enrollment form at my last IVIg appointment. My doctor then faxed that form and filled out another form to convert my IVIg dose to SCIg. About two weeks later, I was contacted by the Nurse Case Manager to set up training. When training was complete, I picked up my product from Blood Bank and started my treatments at home.*

Q: How much time does it take to administer a SCIg treatment?
A: *I am on 8 grams of SCIg a week. I do it two days a week, 4 grams each day, and it takes about 10 minutes.*

Q: How does that compare to the intravenous treatments you received in the hospital?
A: *When I was on IVIG, my treatment would take 45 minutes. That time does not include travel to the hospital and finding parking. Then you may not get in for your treatment exactly on time so you may end up waiting around.*

Q: How do you feel since starting SCIg? Is there a difference with a more consistent amount of immune globulin in your body?
A: *When I was on IVIg, around the 25th day (of a once monthly treatment schedule) or anytime in the last week before the next treatment, I would feel low and more tired. I would feel I was ready for my next treatment. I have been on SCIg for four months and I am starting to feel the effect of having the constant level of immune globulin in my system.*

Q: Are you comfortable receiving your treatment at home without a doctor or nurse present?
A: *Yes, completely comfortable. Not nervous at all doing my own treatment at home.*

Q: What would you say benefits you the most about this program?
A: *Not going to ATP. Not having to take time off work, arrange my schedule around the appointment times and coordinate IVIg treatment with vacations is a benefit. The convenience of doing my treatments at home now is great, but I like the fact that I am not taking up a spot in ATP that someone else can use. After spending so much time in ATP once a month for a few hours each visit, you form relationships with people who are there for different treatments. The next month you might go back and one of those people aren't there anymore and you know they may have passed. It is very hard on you emotionally having this happen so often. That is a personal benefit of receiving my treatment at home.*

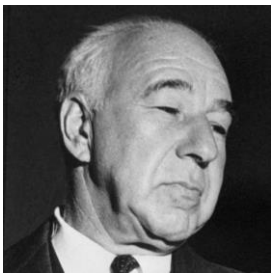
Q: Do you have any recommendations to improve the Program?
A: *No, being the first person to be enrolled in Newfoundland and Labrador in the Program there have been a few bugs to work out but none have been hard to solve and were fixed pretty much right away.*
I absolutely recommend the Home Infusion Program. It is a great program!

Special Interest Articles:

- **CTSM Transfusion Symposium**
- **Cord Blood Banking**

Individual Highlights:

Newfoundland Labrador



Edwin Joseph Cohn (1892-1953) was a scientist whose focus on the study of proteins led to some of the blood products most commonly used today. Cohn completed both an undergraduate degree and Ph. D. from the University of Chicago by 1917. In 1920, he moved to Harvard Medical School where he worked on a liver extract that successfully treated pernicious anemia, a previously incurable and fatal illness. There, he also began to study amino acids and peptides, the building blocks of proteins.

During WWII, Cohn helped develop a fractionation process to separate the proteins in blood plasma. In particular, he devised techniques for isolating the serum albumin fraction of blood plasma, which is essential for maintaining the osmotic pressure in the blood vessels. Subsequently, during the war, transfusions of purified albumin on the battlefields saved the lives of countless soldiers.

Other plasma proteins isolated by the fractionation process and used during the war included Gamma globulins, used to treat measles and to treat polio prior to development of the polio vaccine.

After the war, Cohn worked on developing mechanisms by which every component of donated blood was used, so nothing was wasted.

In 1948, Edwin Cohn received the Medal of Merit for his blood fractionation work. In subsequent years, he continued his research and contributions to public health, including invention of a machine designed to separate blood into its cellular components.

CTSM Transfusion Symposium

On October 30th, the Canadian Society for Transfusion Medicine (CSTM) sponsored a Transfusion Symposium at the Fairmont Hotel in St. John's, NL. The education event was provided for laboratory technologists, nurses and physicians, and any other medical professionals who wished to attend.

Experts from across the country, including local physicians, presented on transfusion-related topics such as red cell genotyping, pediatric hemophilia, and massive transfusion in combat injuries.

Sixty-five participants attended in person; more than 30 participants attended by webinar.

The event was a huge success! We look forward to offering a Transfusion Symposium annually.

Bombay Blood Group

The Bombay blood group is a rare blood type in which individuals appear to have O blood group. However, transfusion of any blood group, other than Bombay, including group O blood is incompatible.

Named for the city in which it was first discovered, the Bombay blood group describes individuals whose red blood cells lack the H antigen. The H antigen is a precursor protein that converts into A and B antigens, the basis for classification into the A, B or AB blood groups. Group O people do not convert H into A and B; they retain large amounts of H antigen unmodified.

Since A and B antigens cannot be formed without the H antigen precursor, Bombay individuals produce anti-A, anti-B and anti-H.

Individuals with Bombay blood group can only be transfused red blood cells that lack A, B and H antigens; therefore they can only be transfused red cells from another Bombay individual.

The H deficiency is found in one in 250,000 persons worldwide; one in 7000 to 8000 East Indians.
The Bombay blood group individual expresses the H antigen as hh (recessive) genotype. Any person whose blood group is A, B, O, or AB has the genotype HH or Hh.

The genotype Hh is referred to as *Para-Bombay*. Para-Bombay individuals do not express the Bombay blood group, however they are carriers. In order for a baby to be born with Bombay blood group when neither parent is expressing Bombay, both parents must be Para-Bombay (Hh).

When an individual is born with Bombay blood group, the blood group is expressed as group O regardless of each parent's blood group. For example, if one parent is group A and the other parent is group AB, in normal circumstances, a group O offspring would never be produced. However, if both parents are Hh, there is a 25 percent chance that the offspring will be Bombay blood group.

Bombay may go undetected because the individual will appear O Neg on typing. Unless a family history of Bombay is known, testing is not routinely completed. Cross-match prior to transfusion will rule out O negative blood type as previously interpreted by type and screen.

When individuals have the Bombay blood group, it does not mean that they suffer from an illness. In fact, it is only significant when transfusion is required. The Bombay blood group is very rare; blood is not readily available as with other blood groups.

Punnett Square for two Para-Bombay parents:

	H	h
H	HH	Hh
h	Hh	hh

Case Study #23

A 79-year-old patient remained hospitalized two months following AAA repair. The patient experienced symptomatic anemia; Hgb was 67. The patient was ordered transfusion of two units of RBC. Lasix 20 mg IV was administered pre- transfusion. The first unit transfusion was uneventful. During transfusion of the second unit, the recipient complained of rigors, nausea and shortness of breath. The transfusion was discontinued.

Pre transfusion		Post transfusion	
B/P	98/61	B/P	124/76
Heart Rate	97	Heart Rate	200
Respiratory Rate	36	Respiratory Rate	44
Temperature	36.9	Temperature	36.8

What type of reaction is this recipient experiencing?

Newfoundland Labrador

Long Acting Factor Concentrates

A new category of blood coagulation factors will soon be available for treatment of patients with congenital hemophilia B (congenital factor IX deficiency). Hemophilia B is a genetic disorder caused by missing or defective clotting protein factor IX. Individuals with hemophilia B bleed longer than normal. Bleeds can occur internally, into joints and muscles, or externally, from minor cuts, dental procedures or trauma. The frequency and severity of bleeding episodes depends on the levels of factor IX in the plasma.

Hemophilia B is classified by severity – mild, moderate or severe. Those with the severe form may experience 'bleeds' without any apparent cause. Patients with mild hemophilia may not experience spontaneous bleeds and only require factor replacement in the event of planned surgical procedures for example.

Current treatments are limited to short acting recombinant or human-derived factor IX replacements. However, a new category of factor concentrates, recombinant *long-acting* factor IX concentrates will soon be available for use. The new long-acting recombinant factor IX product has a longer half-life than currently available short acting factor IX replacements. Dosing will be required once every seven days up to 14 days. When the product becomes available, the long-acting factor concentrate is indicated to prevent or reduce the frequency of bleeding episodes in patients with hemophilia B.

Newfoundland and Labrador Provincial Blood Coordinating Program

P.O.Box 8700
St. John's, NL
A1B 4J6

PHONE:
(709) 729-5246
(709) 729-6573
(709) 729-5250

FAX:
(709) 729-4009
E-MAIL:
daphneosborne@gov.nl.ca
melissaleonard@gov.nl.ca

For reference documents including policies visit:
http://www.health.gov.nl.ca/health/bloodservices/index.html

Donating Cord Blood for Cord Blood Banking

Umbilical cord and placental blood contains an abundant amount of blood-forming stem cells that can aid in the treatment and possible cure of certain diseases and disorders. Since 1988, hematopoietic stem cell transplant from umbilical cord blood has been used in treatment of lymphoid and myeloid leukemias, Fanconi's anemia, aplastic anemia, β-thalassemia, sickle cell disease, Hurler's syndrome and other conditions.

For individuals who require bone marrow transplant, for whom a matching donor relative is not identified, and a match cannot be found in unrelated donors registries, cord blood may be a lifesaving option. Cord blood stem cells may be capable of generating all the cellular elements in the blood and immune system, similar to bone marrow. However, unlike bone marrow transplants, it appears that cord blood stem cells do not have to be a perfect match with the recipient.

To be able to donate cord blood, you must:

- Be at least 18 and in generally good health;
- Have reached 34 weeks gestation;
- Be carrying a single pregnancy (no twins); and
- Be free of infectious diseases and medical conditions that could affect successful transplantation of blood cells and be transmitted to a patient who receives the transplant.

"By making this decision, you and your baby could one day save a life and give hope to Canadians across the country or patients around the world who await this lifesaving miracle."
– Dr. Heidi Elmoazzen, Director, National Public Cord Blood Bank.

Case Study #23 Interpretation

Type of Reaction – Febrile Non-Hemolytic Reaction and TACO