



TRANSFUSION TALES:

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Patient Case: Misty White, a previously healthy 18 year female has had numerous infections this past year leading to significant absence from high school. Assessment by an Immunologist indicated her baseline Immunoglobulin IgG protein level is markedly decreased (0.2 g/L. *Normal range: 4.5 to 11.5 g/L*). Her IgA and IgM levels are also very low. Misty is diagnosed with Primary Immune Deficiency (PID). The Immunologist's treatment plan is 0.5g/kg Intravenous Immune Globulin (IVIG) to be administered on an outpatient basis in the IV Therapy Clinic monthly.

QUESTION 1: Select **all** the licensed indications (per Health Canada) for IVIG

- a. Immune Thrombocytopenic Purpura (ITP)
- b. Primary Immune Deficiency (PID)
- c. Chronic Inflammatory Demyelinating Polyneuropathy (CIPD)
- d. Staphylococcal Toxic Shock
- e. Antibody mediated kidney transplant rejection

QUESTION 2: Classify the following statements as True or False

- a. IVIG is not a blood product.
- b. IVIG is compatible only with 5% dextrose in water (D5W)
- c. IVIG is available from only one manufacturer in Canada
- d. IVIG is a low cost alternative to other therapies for many illnesses

QUESTION 3: During the transfusion of IVIG, Misty complains of a headache and feeling nauseous. Flo Nightingale, her nurse stops the IVIG infusion. Flo's next steps include (choose all appropriate actions):

- a. Contact the ordering physician
- b. Administer antihistamine as per physician's order
- c. Order a Transfusion Reaction Investigation in PowerChart, complete the TRAC report and fax the report to the Blood Transfusion Lab
- d. Tell the patient that it is best to quickly infuse the rest of the IVIG before her symptoms worsen
- e. Restart the IVIG at a slower rate as per physician's order

ANSWERS:

- 1. a, b, and c
- 2. a FALSE, b TRUE, c FALSE, d FALSE
- 3. a, b, c, and e

DISCUSSION: IVIG is prepared from large pools of human plasma collected from many blood donors (tested negative for infectious diseases). Plasma fractionation, precipitation, filtration, and anion-exchange processes concentrate the IgG immunoglobulins (antibodies). Additional viral inactivation procedures are followed.

IVIG is used to treat patients when their own antibodies are not adequate to fight infections (Primary or Secondary Immune Deficiencies). It is a treatment for some autoimmune diseases. IVIG may also be administered to modify or strengthen the immune system before, during or after organ transplantation.

Currently, IVIG is licensed in Canada for the following indications: Immune Thrombocytopenic Purpura, Primary and Secondary Immune Deficiency, and Chronic Inflammatory Demyelinating Polyneuropathy. Clinical research has evaluated IVIG and there is evidence supporting its effectiveness in certain off-label (unlicensed) indications. At LHSC and St Joseph's Health Care a specific request form is required to be completed prior to the release of IVIG.

(refer to <http://www.lhsc.on.ca/priv/forms/search/search.php> FORM # NS4277)

If a patient's indication for IVIG is not listed on this form there is limited evidence for IVIG effectiveness, therefore a hematology consult is required prior to its release.

All blood products are provided by the Canadian Blood Services (CBS) at no cost to the hospital; however IVIG's cost is approximately \$63 per gram. A 70kg patient's treatment, for example, at a recommended dose of 2g / kg divided over 2 – 5 days, is estimated at \$8,820.

Similar to other Canadian hospitals, London IVIG use has almost doubled from 2000 to 2010. If this trend persists, there is concern regarding not only the cost to the health care system, but also the availability of IVIG.

Efforts to ensure that IVIG will be available for Canadian patients who will require it, have lead CBS to maintain contracts with 3 manufacturers: Talecris, Baxter and CSL Behring (product names: Gamunex[®], Gammagard[®] and Privigen[®] respectively)

Administration Guidelines

IVIG is issued in a glass bottle and a vented administration set is required. An inline filter is not required. IVIG is only compatible with 5% D5W. Infusions should be started slowly and vital signs should be checked pre-infusion and with each rate increase.

Adverse Reactions to IVIG:

Rate related symptoms may include mild headache, nausea, chills.

Mild or moderate reactions may include urticaria, wheezing, chest tightness, cough, changes in blood pressure, stomach discomfort.

Serious (less common) reactions may include hemolysis (IVIG contains anti-A and anti-B which can cause hemolysis of patient's red cells), aseptic meningitis, anaphylaxis.

For complete administration guidelines and adverse reaction information, refer to the back of the IVIG Request form (# NS4277) and/or Blood Transfusion Resource Manual.

<http://www.lhsc.on.ca/lab/bldbank/BTRManual.htm>