Immune Globulin (IVIG) Infusion (Pediatrics)

Guidelines for Calculating Dosing Weight

- Check if using Adjusted Body Weight Calculator: Ideal Body Weight: _________ kg
- Dosing Weight: ________ kg
- Refer to Provincial Blood Coordinating Office (PBCO) Adjusted Body Weight Calculator to calculate ideal & dosing weights in overweight patients (http://www.pbco.ca/IVIG_Dosing_Calculator.htm)

Reminders

- Confirm signed consent on chart for Transfusion of blood and/or blood products

Admission

- Indication (check one): Review recommendations on attached sheet
  - Idiopathic Thrombocytopenia Purpura (ITP)
  - Kawasaki Disease (KD)
  - Guillain-Barré Syndrome (GBS)
  - Myasthenia Gravis
  - Multifocal Motor Neuropathy
  - Pemphigus vulgaris
  - Infectious Staphylococcal toxic shock (TS)
  - Invasive group A streptococcal fasciitis with associated TS
  - Chronic Inflammatory Demyelinating Polyneuropathy
  - Primary Immune Deficiency (PID)
  - Secondary Immune Deficiency (SID)
  - Juvenile Dermatomyositis (JD)
  - Hemolytic Disease of the Newborn (HDN)
  - Toxic Shock Syndrome
  - Other Diagnosis: _________________________________________ Hematopathologist consult required

Patient Care/Monitoring

- Refer to Administration of IVIG procedure
- Assess patient for signs and symptoms of adverse reaction and record vital signs
  - Prior to each rate change
  - After every new lot number
- If vital signs fluctuate significantly or patient experiences adverse reaction, stop IVIG infusion, run D5W at _______ mL/h and call physician. Refer to Transfusion Reaction Procedure and Reference Guide

Laboratory

- ABO Blood Group (prior to first time infusion of IVIG 1 gram/kg or more)
- IgG trough level every 6 months for PID & SID patients
Immune Globulin (IVIG) Infusion (Pediatrics)

DATE ____/__/______  TIME _________

WEIGHT:_________ KG  HEIGHT:_________ CM  □ ALLERGY CAUTION sheet reviewed

Immune Globulin (IVIG)

- 1 gram = 10 mLs
- Transfusion Medicine Laboratory round up to the nearest vial size. Rounding will usually be in 2.5 g increments
- IVIG is compatible with Dextrose 5% (D5W)

Dose per kg

☐ 0.15 gram/kg  ☐ 0.4 gram/kg  ☐ 0.5 gram/kg  ☐ 1 gram/kg  ☐ 1.5 gram/kg  ☐ 2 gram/kg
☐ Other:______________ gram/kg

IVIG total dose of ____________ grams to be divided over:

☐ 1 day  ☐ 2 days  ☐ 3 days  ☐ 4 days  ☐ 5 days

☐ IVIG ________________ grams given on day 1 ____________________________ (date)
☐ IVIG ________________ grams given on day 2 ____________________________ (date)
☐ IVIG ________________ grams given on day 3 ____________________________ (date)
☐ IVIG ________________ grams given on day 4 ____________________________ (date)
☐ IVIG ________________ grams given on day 5 ____________________________ (date)

Repeat IVIG infusion every ________________ week(s) for ________________ cycle(s) maximum 6 cycles

Infusion rate for all IVIG products

☐ 0.5 mL/kg/h for the first 30 minutes
☐ 1 mL/kg/h for the second 30 minutes
☐ 2 mL/kg/h for the third 30 minutes
☐ If initial infusion rate is well tolerated, GRADUALLY increase the rate of the infusion at 30 minute intervals.
☐ Limit max rate to 2 mL/kg/h
☐ Limit max rate to 3 mL/kg/h
☐ Limit max rate to 4 mL/kg/h

MAXIMUM RATE : 4 mL/kg/h or 200 mL/h, whichever value comes first. For patients with renal dysfunction or at risk of renal dysfunction infuse at lowest rate possible, maximum rate should not exceed 2 mL/kg/h

Medications

☐ acetaminophen _________ mg PO 30 minutes pre IVIG (15 mg/kg/dose) (Maximum dose 1 g per dose)
☐ diphenhydRAMINE ________ mg orally or intravenously 30 minutes pre IVIG (1 mg/kg/dose)
  (Maximum dose 50mg per dose)

Patient Education

☐ Review post transfusion care with patient

Discharge

☐ Give patient the "Heading Home After a Transfusion" form and discharge after 20 minutes if clinically stable

Signature:_______________________________________  Print Name:____________________________________

College ID:______________________________________   Pager:_______________________________________

PTN Review Date: Mar 21 2017  PTN# IVIGPv2  Exp Date: Mar 21 2020
Hemolysis is an uncommon but well described adverse event of IVIG therapy. The hemolysis has been characterized & reported most often in patients: who are non-Group O (high risk in Group A or AB), who have inflammatory conditions, & receiving a high total dose of IVIG (~2 grams/kg). Following IVIG therapy patients should be monitored for 1 to 2 weeks for this adverse event. Monitor for new onset fever, pallor, jaundice, or changes in urine colour (outpatients should be advised to monitor themselves for the above symptoms and alert their physician if these occur). Changes in hemoglobin; increased reticulocyte count; increased lactate dehydrogenase; low haptoglobin; unconjugated hyperbilirubinemia; hemoglobinuria and presence of significant spherocytosis. Perform additional testing to confirm the hemolysis if the hemoglobin has dropped significantly: Reticulocyte count, Direct antiglobulin test, Lactate dehydrogenase & Bilirubin.

**List of Approved Medical Conditions for IVIG Use**

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Medical Condition / Prerequisite / Comments</th>
<th>Dose and Duration</th>
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</thead>
<tbody>
<tr>
<td><strong>Immunology</strong></td>
<td>Primary and secondary immune deficiency conditions</td>
<td>0.3-0.6 g/kg every 4 weeks. Monitor IgG trough level.</td>
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<td>• Hypogammaglobulinemia (reduced total IgG or IgG subclasses and/or inadequate response to immunization)</td>
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<td>• Recurrent bacterial infection.</td>
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<td><strong>Fetal-Neonatal alloimmune thrombocytopenia (F/NAIT)</strong></td>
<td>Previos affected pregnancy or family history of F/NAIT or mother found on screening to have platelet alloantibodies. IVIG is first-line treatment of F/NAIT. In newborn with NAIT the provision of antigen-negative compatible platelets should be first-line therapy and IVIG adjunctive. Treatment should be under the direction of a high-risk obstetrical centre with expertise in F/NAIT.</td>
<td>Maternal Dose: 1 g/kg every week. Neonatal Dose: 1 g/kg, with a second dose within 48 hrs if required.</td>
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<td><strong>Hematology</strong></td>
<td>Hemolytic disease of the newborn (HDN)</td>
<td>0.5 – 1 g/kg. If necessary dose can be repeated in 12 hours.</td>
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<td>• IVIG is indicated only in HDNs with severe hyperbilirubinemia; i.e. TSB rising despite intensive phototherapy or TSB level within 34 – 51 micromol/L of the exchange level (TSB=total serum bilirubin)</td>
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<td><strong>Idiopathic thrombocytopenic purpura (ITP)-pediatric</strong></td>
<td>Acute ITP: IVIG may be considered initial therapy if platelet counts less than 20 x 10^9/L. Consultation with pediatric haematologist advised. IVIG recommended as part of multimodality therapy (with platelet transfusions and bolus intravenous MP) when patient has life-threatening bleeding. IVIG not indicated if only mild bleeding (petechiae, bruises or asymptomatic). Chronic ITP: IVIG may be considered</td>
<td>Acute or chronic: 0.8 g/kg to 1 g/kg, with a second dose within 48 hrs if platelet count not &gt;20 x 10^9/L. Acute ITP with life-threatening bleed: 1 g/kg daily for 2 days.</td>
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<td><strong>Neonatology</strong></td>
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<td><strong>Guillain-Barré syndrome (GBS), including Miller-Fisher syndrome and other variants</strong></td>
<td>Symptoms of grade 3 severity (able to walk with aid) or greater or symptoms less than grade 3 severity that are progressing. Treatment should be given within 2 weeks of symptom onset. Diagnosis of GBS variants should be made by a specialist with expertise in this area.</td>
<td>Pediatric: 2 g/kg over 2 days. Adults: 2 g/kg over 2-5 days.</td>
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<td>Chronic inflammatory demyelinating polyneuropathy (CIDP)</td>
<td>Initial treatment: 2 g/kg over 2-5 days. Maintenance: taper to the lowest effective dose usually 0.5-1g/kg q 4-8 weekly. Continued use should be based on objective measures of sustained effectiveness.</td>
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<td>• IVIG is considered a first line treatment for initial treatment of CIDP. Some patients may respond fully to IVIG alone. Other CIDP patients may have a limited or incomplete response to IVIG and then alternate treatments and immunosuppressants may be considered.</td>
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<td><strong>Neurology</strong></td>
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<td>Multifocal motor neuropathy (MMN)</td>
<td>Initial treatment: 2 g/kg over 2-5 days. Maintenance: taper to the lowest effective dose, 0.5-1 g/kg q 3-6 weekly.</td>
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<td>• Diagnosis should be made by a neuromuscular specialist, as very specific electrodiagnostic expertise is required</td>
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<td><strong>Dermatology</strong></td>
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<td>Pemphigus vulgaris</td>
<td>2 g/kg over 5 days.</td>
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<td>• Firm histological and immuno-diagnosis needed Consider IVIG when there is no response or a contraindication to corticosteroids and immunosuppressive agents.</td>
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<td><strong>Infectious Diseases</strong></td>
<td>Staphylococcal toxic shock or Invasive Group A streptococcal fascitis with associated toxic shock</td>
<td>1 g/kg on day one, and 0.5 g/kg per day on days 2 &amp; 3 OR 0.15 g/kg per day over 5 days.</td>
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<td>• Evidence of systemic inflammation and end organ hypoperfusion with fever, tachycardia, tachypnea and hypotension</td>
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<td>• Consult with a medical microbiologist or infectious disease specialist before treatment</td>
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<td><strong>Rheumatology</strong></td>
<td>Juvenile dermatomyositis</td>
<td>Initial treatment: 2 g/kg over 2 days. Maintenance: Maximum dose per treatment course should not exceed 2 g/kg.</td>
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<td>• Lack of response or contraindication to corticosteroids, Methotrexate and/or Azathioprine therapy.</td>
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<td><strong>Reference</strong>: BC PBCO Intravenous Immune Globulin (IVIG) Utilization Management Program Guidelines. (<a href="http://www.pbcco.ca">www.pbcco.ca</a>)</td>
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**ALL IVIG REQUESTS THAT DO NOT CORRELATE WITH THE LIST ABOVE MUST HAVE HEMATOPOATHOLOGIST APPROVAL**

IVIG is not recommended or is contraindicated for use in the following conditions: Hematology: aplastic anemia, heparin-induced thrombocytopenia, Neurorlogy: adrenoleukodystrophy, amyotrophic lateral sclerosis, autism, critical illness polyneuropathy, inclusion body myositis, intractable childhood epilepsy, paraproteinemnic neuropathy (IgM variant), POEMS

Date Reviewed: Nov 2014