Dosing IVIG based on Adjusted body weight

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Blood Matters
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The Nova Scotia Provincial Blood Coordinating Program (NSPBCP)

The NSPBCP supports excellence in transfusion medicine. A key area of focus is utilization management in order to optimize the appropriate use of blood and blood products and to minimize wastage.
Rationale for Using Adjusted Weight Instead of Actual Weight

- **SAFETY**: Identification of hemolysis related to high doses of IVIG

- Past discussion regarding Dose Capping

- Some chemotherapeutic drugs are dosed based on Adjusted Body Weight

- Australia, PEI, NB, two facilities in NL, Sunnybrook Hospital in Ontario and CDHA have implemented it.
Not using the weight of adipose tissue (in obese patients) for dose calculation in products that are NOT lipid soluble:

- Actual body weight (which includes the weight of adipose tissue of the patient) needs to be used for calculating the dose of fat soluble drugs.

- But Immunoglobulin is not lipid soluble therefore ideal body weight needs to be used instead of actual. The Devine formula may be used to calculate the ideal body weight.

- **Why is the dosing weight adjusted for IVIG dosage calculation?**
  - Adjusted weight or dosing weight= Ideal body weight + 0.4 x (Actual – Ideal)
  - The Adjusted weight is used to account for the increase in volume of distribution (due to the increased volume of body fluids) in obese patients.
Ordering IVIG by Adjusted Body Weight

Pre-printed physician’s order form
<table>
<thead>
<tr>
<th>Adjusted Body Weight Guidelines by indication</th>
</tr>
</thead>
</table>

**Ordering IVIG by**

- **Pre-printed physician’s order form**

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**Methodology**

Pre-printed physician’s order form

**Guidelines by indication**
### Ordering IVIG by Adjusted Body Weight Calculator

**Body Weight Calculator**
Enter Sex, Height & Weight then click "Calculate".

- **Sex**: Male
- **Height**: (equals: ___ inches)
- **Weight**: (equals: ___ pounds)
  - **kilograms**:
  - **Calculate**: using Davine formula

<table>
<thead>
<tr>
<th>Ideal Body Weight = ____ kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosing Weight = ____ kg</td>
</tr>
<tr>
<td>(for obese or overweight patients)</td>
</tr>
</tbody>
</table>

**IVIG Dose Calculator**
Select Dosing, then click "Calculate".

- **Dosing**: 2 gram/kg
  - **Calculate**: using Dosing Weight

<table>
<thead>
<tr>
<th>IVIG Dose = ____ g</th>
</tr>
</thead>
<tbody>
<tr>
<td>IVIG Dose Rounded Down to Nearest 5g</td>
</tr>
<tr>
<td>Rounded Dose = ____ g</td>
</tr>
</tbody>
</table>

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Example 1

Mr. Kane is a 42 year old male diagnosed with acute Idiopathic Thrombocytopenic Purpura.

Dr. Patton is aware that acute treatment of ITP by IVIG must meet 1 of 3 criteria. Mr. Kane has failed to respond to steroids after 5 days of treatment.

<table>
<thead>
<tr>
<th></th>
<th>Must meet 1 of the following criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stiff Person</td>
<td>GABAergic medications were tried &amp; failed</td>
</tr>
<tr>
<td>Syndrome: Acute</td>
<td>patient has contraindication to GABAergic meds</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>ITP: Acute</td>
<td>major bleeding &amp; platelets less than 50x10^9/L</td>
</tr>
<tr>
<td></td>
<td>failed to respond to steroids after 3 or more days</td>
</tr>
<tr>
<td></td>
<td>rapid elevation of platelets required for surgery</td>
</tr>
<tr>
<td>Pregnancy-Associated ITP</td>
<td>Must meet 1 of the following 3 criteria during the first 2 trimesters:</td>
</tr>
<tr>
<td></td>
<td>When the patient is having a major bleed</td>
</tr>
</tbody>
</table>
Example 1

Using the guidelines on the back of the PPO Dr. Patton is aware that for Acute ITP the dose is 1 g/kg for 2 consecutive days (based on adjusted body weight). Mr. Kane weighs 93.4 kg and is 167.6 cm tall.
Mr. Kane weighs 93.4 kg and is 167.6 cm tall.

Acute ITP-1 g/kg for 2 consecutive days
Request for IVIG (Adult)

**PATIENT NAME:** Mr. Kane  
**DOB:** July 1 1970  
**Gender:** M  
**HCN:** 000000000

**PATIENT ACTUAL WEIGHT (KG.):** 93.4  
**PATIENT HEIGHT (CM.):** 167.6  
**ALLERGIES:** none

**IGA DEFICIENT PRODUCT REQUIRED:** √

**IS THIS A REPEAT DOSE DUE TO LACK OF EXPECTED RESPONSE?** √

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*The IVIG dose in Adult Neurology, Hematology and Immunology is calculated using the Adjusted Body Weight (ABW) except for patients with Guillain-Barré Syndrome. The NSPBCP ABW calculator for IVIG can be located at the following URL: [http://www.gov.ns.ca/health/nspbcp/](http://www.gov.ns.ca/health/nspbcp/) or insert [http://www.gov.ns.ca/health/nspbcp/mobile](http://www.gov.ns.ca/health/nspbcp/mobile) into the browser of your smart phone.

**IVIG Orders** (see reverse for guidelines on the dose and frequency of administration)

**Adjusted Body Weight**

1. 75.6 kg of **dosing** *(adjusted body) weight ≥ 75 grams rounded dose* as per ABW calculator

Administered for ___ days. Repeat for ___ week(s). Expected start date: 2012/Nov/01 (yyyy/mm/dd)

**Actual Body Weight**

___ g (0.1 – 2 g/kg) for ___ kg of actual weight = ___ grams

Administered for ___ days. Repeat for ___ week(s). Expected start date: ___________ (yyyy/mm/dd)
Example 2
Same patient with short stature

Acute ITP-1 g/kg for 2 consecutive days

Mr. Kane weighs 93.4 kg and is 150 cm tall.
Acute ITP-1 g/kg for 2 consecutive days

Mr. Kane weighs 93.4 kg and is 150 cm tall. Use 152.4 cm as height.
Request for IVIG (Adult)

PATIENT NAME: Mr. Kane
DOB: July 1 1970
Gender: M
HCN: 00000000

PATIENTS ALLERGIES:
none

ACTUALWEIGHT (KG.): 93.4
HEIGHT (CM.): 152.4

IGA DEFICIENT PRODUCT REQUIRED:
YES

IS THIS A REPEAT DOSE DUE TO LACK OF EXPECTED RESPONSE?
NO

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IVIG Orders (see reverse for guidelines on the dose and frequency of administration)

Adjusted Body Weight

1 g (0.1 – 2 g/kg) for 67.4 kg of dosing*(adjusted body) weight = 65 grams rounded dose as per ABW calculator

Administered for 2 days. Repeat for ___ week(s). Expected start date: 2012/Nov/01

Actual Body Weight

___ g (0.1 – 2 g/kg) for ____ kg of actual weight = ______ grams

Administered for _____ days. Repeat for ___ week(s). Expected start date: __________________ (yyyy/mm/dd)
Example 3

Miss McKenzie is a 24 year old female diagnosed with Acute Myasthenia Gravis.

Based on Dr. Patton’s knowledge of the NSPBCP guidelines and criteria that Miss McKenzie has the following:

<table>
<thead>
<tr>
<th>Myasthenia Gravis: Acute</th>
<th>Must meet the following criterion:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>□ severe exacerbation or myasthenic crisis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Guillain-Barre Syndrome</th>
<th>Must meet both of the following 2 criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>□ IVIG being given within 4 wks of symptom onset</td>
</tr>
</tbody>
</table>
Example 3

- Based on the information on the PPO, Dr. Patton’s treatment plan is IVIG at a dose of 0.4g/kg for 5 consecutive days (based on adjusted body weight). Miss McKenzie weighs 73.8 kg and is 153 cm tall.
Acute MG-0.4 g/kg for 5 consecutive days

Miss McKenzie weighs 73.8 kg and is 153 cm tall

<table>
<thead>
<tr>
<th>Body Weight Calculator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex: <strong>Female</strong></td>
</tr>
<tr>
<td>Height: 153 cm (equals: 60.2 inches)</td>
</tr>
<tr>
<td>Weight: 73.8 kg (equals: 162.7 pounds)</td>
</tr>
<tr>
<td>Ideal Body Weight = 46 kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IVlg Dose Calculator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosing: 0.4 g/gram/kg</td>
</tr>
<tr>
<td>IVlg Dose = 22.8 g</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IVlg Dose Rounded Down to Nearest 5g</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rounded Dose = 20 g</td>
</tr>
</tbody>
</table>
**Request for IVIG (Adult)**

**PATIENT NAME:** Miss McKenzie  
**DOB:** July 1, 1988  
**Gender:** Female  
**HCN:** 000000000

**PATIENT ACTUAL WEIGHT (KG.):** 73.8  
**PATIENT HEIGHT (CM.):** 153  
**ALLERGIES:** none

**IGA DEFICIENT PRODUCT REQUIRED:**  
☑️ YES ☐ NO

**IS THIS A REPEAT DOSE DUE TO LACK OF EXPECTED RESPONSE?**  
☑️ YES ☐ NO

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**IVIG Orders** (see reverse for guidelines on the dose and frequency of administration)

**Adjusted Body Weight**  
0.4 g (0.1 – 2 g/kg) for 57.1 kg of dosing*(adjusted body) weight = 20 grams rounded dose as per ABW calculator  
Administered for ___ consecutive ___ days. Repeat for ___ week(s). Expected start date: 2012/Nov/01(yyyy/mm/dd)

**Actual Body Weight**  
___ g (0.1 – 2 g/kg) for ___ kg of actual weight = ___ grams  
Administered for ___ days. Repeat for ___ week(s). Expected start date: ______________ (yyyy/mm/dd)
Thank You