MANAGEMENT OF HYPOGLYCEMIA IN HYPERINSULINISM

Daily medications and schedule:

Your child has been prescribed **diazoxide 50 mg/mL and/or octreotide 200 mcg/mL** and should take this as follows:

If a dose is forgotten, give it as soon as you remember. If it is close to the next dose, give the next dose and continue with doses as scheduled.

**Hypoglycemia** (low blood sugar) can occur when the blood glucose (sugar) drops below the normal range, _____ mmol/L. The onset can be sudden.

**Causes:** Hypoglycemia can result from late or missed meals, increased exercise without food, a missed dose of medication, or unknown causes.

**How will you recognize hypoglycemia?**

<table>
<thead>
<tr>
<th>MILD</th>
<th>MODERATE</th>
<th>SEVERE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG 2.5–3.0 mmol/L</td>
<td>BG 2.0–2.4 mmol/L</td>
<td>BG 1.9 mmol/L or below</td>
</tr>
<tr>
<td><strong>SIGNS &amp; SYMPTOMS</strong></td>
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</tr>
<tr>
<td>sweaty</td>
<td>irritable</td>
<td>unconscious</td>
</tr>
<tr>
<td>shaky</td>
<td>blurry/double vision</td>
<td>convulsions/seizures</td>
</tr>
<tr>
<td>hungry</td>
<td>difficulty concentrating</td>
<td></td>
</tr>
<tr>
<td>pale</td>
<td>confused</td>
<td></td>
</tr>
<tr>
<td>dizzy</td>
<td>poor coordination</td>
<td></td>
</tr>
<tr>
<td>mood changes</td>
<td>difficulty speaking</td>
<td></td>
</tr>
<tr>
<td>tired/sleepy</td>
<td>headache</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tired/sleepy</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>nightmares</td>
</tr>
</tbody>
</table>

What should you do if you suspect hypoglycemia?

If possible, test the blood sugar with a meter to confirm hypoglycemia; then proceed with the treatment described on the next page.
Management of Hypoglycemia in Hyperinsulinism (continued)

Treatment of mild hypoglycemia (2.5–____ mmol/L):

For patients 1 month to 12 months of age:
- Give 6 grams of sugar by mouth once. Give \( \frac{1}{8} \) cup (30 mL or 1 ounce) of 20% sugar water. Prepare 20% sugar water solution by mixing 1 tablespoon (15 mL) of table sugar in \( \frac{1}{4} \) cup (60 mL or 2 ounces) of sterile water and shake for 1 minute. Discard after 24 hours. **DO NOT USE HONEY**!

For patients from 1 year to less than 5 years of age:
- Give 6 grams fast-acting carbohydrate by mouth once: 1½ dextrose tablets (Dex4®) or 45 mL (1½ ounces) of orange or apple juice.

For patients from 5 years to 10 years of age:
- Give 12 grams of fast-acting carbohydrate by mouth once: 3 dextrose tablets (Dex4®) or 90 mL (3 ounces) of orange or apple juice.

For patients greater than 10 years of age:
- Give 16 grams of fast-acting carbohydrate by mouth once: 4 Dextrose tablets (Dex4®) or 120 mL (4 ounces) of orange or apple juice.

Recheck blood sugar 15 minutes after treatment and repeat treatment until blood sugar is above 4.0 mmol/L.

Follow with a snack (e.g. cheese and crackers) or meal. For 1–12 months, follow with breast milk or formula.

If you cannot get blood sugar to stay above 4.0 mmol/L, page the endocrinologist on call at 604-875-2161.

Treatment of moderate hypoglycemia (2.0–2.4 mmol/L):

- **Give octreotide (Sandostatin®)_____ units subcutaneously (small syringe, short needle).**
- **Give diazoxide_____ mg orally.**
- If it is less than 1 hour before the regular dose time, this is an early dose.
- If it is more than 1 hour before the regular dose time, this is an extra dose.
- Recheck the blood sugar 15 minutes later.
- If above _____ mmol/L, follow with treatment for mild lows.
Management of Hypoglycemia in Hyperinsulinism (continued)

Glucagon for severe lows (seizuring or loss of consciousness):

What is glucagon and when do I use it?

Glucagon is a hormone made by the alpha cells in the islets of the pancreas. It raises the blood sugar level by stimulating the liver to release some of its store of carbohydrate (glycogen) into the blood.

Glucagon is to be used when the child is having a severe hypoglycemic reaction, when s/he is unconscious, is having a seizure, or is so uncooperative that juice or sugar water cannot be given by mouth.

Please note that paramedics cannot give glucagon; therefore, we suggest you give glucagon yourself even if you've called 911.

Glucagon can also be used in small doses to treat milder hypoglycemia during times of stomach illness, or when your child is unable to keep any food or fluids down or refuses to eat (see “mini-dose” glucagon instructions below).

Glucagon cannot be taken by mouth. To use the emergency kit, mix the glucagon according to the package insert. Give the injection into the muscle, that is, “straight in”, not at an angle. Your child’s glucagon dosage is:

<table>
<thead>
<tr>
<th>Dosage</th>
<th>Weight Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mL (100 units, 1 mg)</td>
<td>over 20 kg</td>
</tr>
<tr>
<td>½ mL (50 units, ½ mg)</td>
<td>under 20 kg</td>
</tr>
</tbody>
</table>

• The child may take a little time to respond fully, possibly 10-20 minutes.
• Check blood sugar every 15 minutes until stable.
• Repeat glucagon if sugar is still below ___mmol/L after 15 minutes and child cannot take juice by mouth.
• Contact physician for further instructions at 604-875-2161 (ask to speak with the Pediatric Endocrinologist-on-call).
• If unconscious, turn the child onto his/her side and call 911 for emergency transport to hospital.

Mini-dose glucagon for stomach illness for food refusal:

• Glucagon _____ units subcutaneously. This is 1 unit per year of age, minimum 2 units, maximum 15 units. Use a small insulin syringe and short needle.
• Check the blood glucose every 30 minutes.
• If after 30 minutes the blood glucose levels remain below 3.0 mmol/L, then repeat the glucagon using double the dose.
• Dose may be repeated every 30-60 minutes as needed to keep blood glucose levels above 3.0 mmol/L.
• Contact physician for further instructions at 604-875-2161 (ask to speak with the Pediatric Endocrinologist-on-call) if you are unable to maintain the blood glucose above 3.0 mmol/L with food and liquids or with the mini-dose glucagon.