SECTION 11: CARE OF THE CHILD WITH DIABETES

11.7 Hypoglycaemia in Children

11.7.3 Mild and Moderate Hypoglycaemia – Insulin Pump Management

Aim

To raise blood glucose level (BGL) following the onset of hypoglycaemia for children and adolescents who use an insulin pump.

Key points

- This document is to be read in conjunction with PNPM 11.7.1 Treatment of Mild to Moderate Hypoglycaemia in Children with Type One Diabetes.
- The treatment of hypoglycaemia for a child with an insulin pump is different to that for a child on insulin injections.
- If obtaining a blood glucose level is delayed when mild or moderate hypoglycaemia is suspected, begin treating with glucose.

Mild Hypoglycaemia: BGL 2- 4mmol/L

Procedure	Additional Information
Rest the child.	Activity will cause uptake of glucose by muscle cells, lowering the blood glucose level further.
Check the child's blood glucose level (BGL).	Although it is useful to have the hypoglycaemia confirmed by a blood glucose measurement, treatment is urgent and should not be withheld if undue delay is likely.[1]
If the BGL 2- 4.0mmol/L: • Continue the insulin pump • Give 4 glucodin glucose tablets immediately OR • 100 mL lemonade OR • If older than 2 years, 2 teaspoons of honey or pure sugar	Consumption of 10-20gms of an easily absorbed form of carbohydrate, will assist child to regain normoglycaemia until the next meal or snack.[2] Lemonade and chewable glucose tablets are examples of appropriate foods for the treatment of mild to moderate hypoglycaemia.[2] Do not give honey to child under 12 months due to the association with infantile botulism.[3]

Procedure	Additional Information
• After 15-20 minutes test the BGL again.[1] • If no improvement repeat the above procedure.	Simple carbohydrates should raise blood glucose levels within 5–15 minutes.
• Document in the notes and inform the diabetes medical team.	Medical staff requires knowledge of a patient's hypoglycaemic episodes in order to adjust insulin accurately.

Moderate Hypoglycaemia BGL < 2 mmol/L

Procedure	Additional Information
• Suspend or disconnect the pump. • Treat as for mild hypoglycaemia, as above.	Refer to PNPM 11.9.1 Checking Pump Settings & Stopping and/or Disconnecting Pump
Follow with a complex long-acting carbohydrate snack: • Piece of bread or toast • 3 - 4 crackers • Piece of fruit • Cup of milk **Do not** deliver a food bolus for this long acting carbohydrate snack.	Consumption of 10-20gms of an easily absorbed form of carbohydrate, followed by a snack of carbohydrate foods will assist child to regain normoglycaemia until the next meal or snack.[2]
• Test BGL again after 15-20 minutes.[1]	Simple carbohydrates should raise blood glucose levels within 5–15 minutes.
• If no improvement after 15-20 minutes repeat whole procedure.	
• Once BGL is above 4.0mmol/L, resume or reconnect the pump.	
• Document in the notes and inform the diabetes medical team.	Medical staff requires knowledge of a patient's hypoglycaemic episodes in order to adjust insulin accurately.

Procedure	Additional Information
• Consider contributing factors.	Usual causes of hypoglycaemia: • Too much insulin • Not enough carbohydrate • More exercise than usual [1]

Related policy, procedures and guidelines.
PNPM 11.7.1 Treatment of Mild to Moderate Hypoglycaemia in Children with Type One Diabetes
PNPM 11.9.2 Delivering a "Food Bolus"
PNPM 11.9 Insulin Pump Management for Inpatients with Diabetes (Continuous Subcutaneous Insulin Infusion

Useful resources.
Australasian Paediatric Endocrine Group (APEG) professional body for Australia & New Zealand

References:

1. Australasian Paediatric Endocrine Group. National Evidence-Based Clinical Care Guidelines for Type 1 Diabetes in Children, Adolescents and Adults. Canberra: Government Printer; 2011. Available from: http://www.apeg.org.au/portals/0/guidelines1.pdf Accessed November 2013

2. National Institute for Clinical Excellence. Type 1 diabetes in children, young people and adults. [Clinical Guideline 54] 2004. Available from: http://www.nice.org.uk/CG015NICEguideline. Accessed: November 2013

3. Tanzi MG & Gabay MP. Association between honey consumption and infant botulism. [Literature Review]. Pharmacotherapy.22:11:1479-1483; 2002.

4 World Health Organisation. WHO Media Centre. Botulism. Fact Sheet No.270 [Expert Opinion] 2013. Available from: http://www.who.int/mediacentre/factsheets/fs270/en/ Accessed November 2013.

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