Hypoglycaemia

About Hypoglycaemia in diabetes

Symptomatic hypoglycaemia
Usually occurs at a blood glucose (BG) < 3.9 mmol/L with the typical symptoms of sweating, hunger, tremor, or anxiety.

- Nocturnal hypoglycaemia can either lead to sleep disruption or delays in treatment. Hypoglycaemia symptoms may not wake some patients with long-standing diabetes.
- Hypoglycaemia is more common in the elderly on insulin and may lead to adverse outcomes such as falls, fractures, and rest home care.

Asymptomatic hypoglycaemia or hypoglycaemic unawareness
Where patients have significant hypoglycaemia without developing symptoms. This is uncommon and more likely in patients with Type 1 diabetes, particularly if it's long-standing. Repeated minor episodes of hypoglycaemia lead to loss of awareness. This can progress to the point that patients need outside help or lose consciousness before they are aware of any symptoms.

Severe hypoglycaemia
Specified as any hypoglycaemic episode which requires outside assistance to recognise or treat.

Red Flags

- Loss of consciousness
- Slow to respond

Assessment

Symptoms

- **Ask About Hypoglycaemia symptoms**
    - Hunger, sweating, shakiness
    - Nervousness, dizziness, or light-headedness
    - Sleepiness, confusion
    - Difficulty speaking, weakness

- **Ask about Frequency, severity, and awareness of hypoglycaemic episodes.**
    - At what glucose level do you first notice a hypo?

    - Have you ever had a low blood sugar detected by a family member before you were aware?
    - How often does your partner or another family member prompt you to check if your glucose is low?
    - Are you argumentative if this occurs?
    - Have you required help from another family member to manage hypoglycaemia(e.g., fetch food, drink, or administer this)?
    - Have you had an ambulance call-out or required glucagon in the last 12 months?
    - Do you ever pick up readings on blood glucose meter < 3 mmol/L without symptoms? Readings < 2 on blood glucose meter are a major warning sign that the patient is having asymptomatic episodes.

- If possible, ask family members whether they notice hypoglycaemia before the patient does and how often it occurs.

Consider

Causes of hypoglycaemia

- Missed or delayed meals
- Too little carbohydrate with meals
- Extra physical activity not covered by extra carbohydrate or a reduction in insulin dose
- Dose of insulin or antidiabetic medication is too high
- Alcohol on an empty stomach or too much alcohol
- Too much time between injection and meal
- Changing the time that insulin is given
- Addison disease (a rare presentation of hypoglycaemia in Type 1 diabetes)

Whether patient has hypoglycaemic unawareness.

- Where patients have significant hypoglycaemia without developing symptoms. This is uncommon and more likely in patients with Type 1 diabetes, particularly if it's long-standing.
- Repeated minor episodes of hypoglycaemia lead to loss of awareness. Patients may need outside help or lose consciousness before they are aware of any symptoms.

Management

Acute Management

1. Ensure patient is seated or lying down, and perform finger prick blood glucose level.

2. If blood glucose level < 4 mmol/L, treat immediately with 15 g of fast-acting carbohydrate.

    15 g of fast-acting carbohydrate
    - 1 x Hypo-Fit gel, if available
    - 3 or 4 glucose tablets (equalling 15 g carbohydrate)
    - 1 tablespoon of glucose powder dissolved in water
    - 1/2 to 1 glass (or a small box) of fruit juice
    - 1 tablespoon of jam or sugar
    - 5 to 7 mentos

3. Wait 10 minutes, then retest.
    - If blood glucose is:
        - < 4 mmol/L, repeat above treatment.
        - > 4 mmol/L, advise to have a snack or meal.

4. If symptoms suggestive of hypoglycaemia, where blood glucose cannot be performed, treat with 15 g of fast-acting carbohydrate. If no improvement after 15 minutes, consider medical assistance to exclude other causes of the symptoms.

5. If impaired consciousness and unable to swallow 15 g of carbohydrate, administer glucagon if available, or seek emergency medical assistance. IV dextrose can be given if available.

    Glucagon
    - Administer glucagon by intramuscular injection to the upper outer aspect, front of thigh.
    - If glucagon is administered, test blood glucose at 15 minutes and 1 hour to ensure stable glucose levels.
    - See Glucagon Injection.

Post-hypoglycaemia Management

1. Provide education to the patient and family or caregiver:
    - Hypoglycaemia.
    - Consider the use of glucagon and provide carer instructions.

2. Determine and correct the likely cause.

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3. Assess recent blood glucose readings, medication, and doses.
    - Consider reducing insulin dose by at least 10%.
    - If hypoglycaemia continues, reduce dose by a further 10% and request non-acute diabetes assessment.

4. Review driving advice and operation of machinery. Advise patients after a severe hypoglycaemic episode to stop driving and consider ongoing fitness to drive.

5. If asymptomatic hypoglycaemia at night is suspected, ask the patient to set their alarm for 2.00 to 3.00 am and to check their blood glucose.

6. After treating the most likely causes and ongoing recurrent hypoglycaemia or hypoglycaemia unawareness, request assessment for continuous blood glucose monitoring.

7. Consider requesting a diabetes specialist review for patients who experience severe hypoglycaemia in the community, especially if patient is elderly or has co-morbidities.