



Health

Hunter New England
Local Health District

Hypoglycaemia

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Learning Outcomes



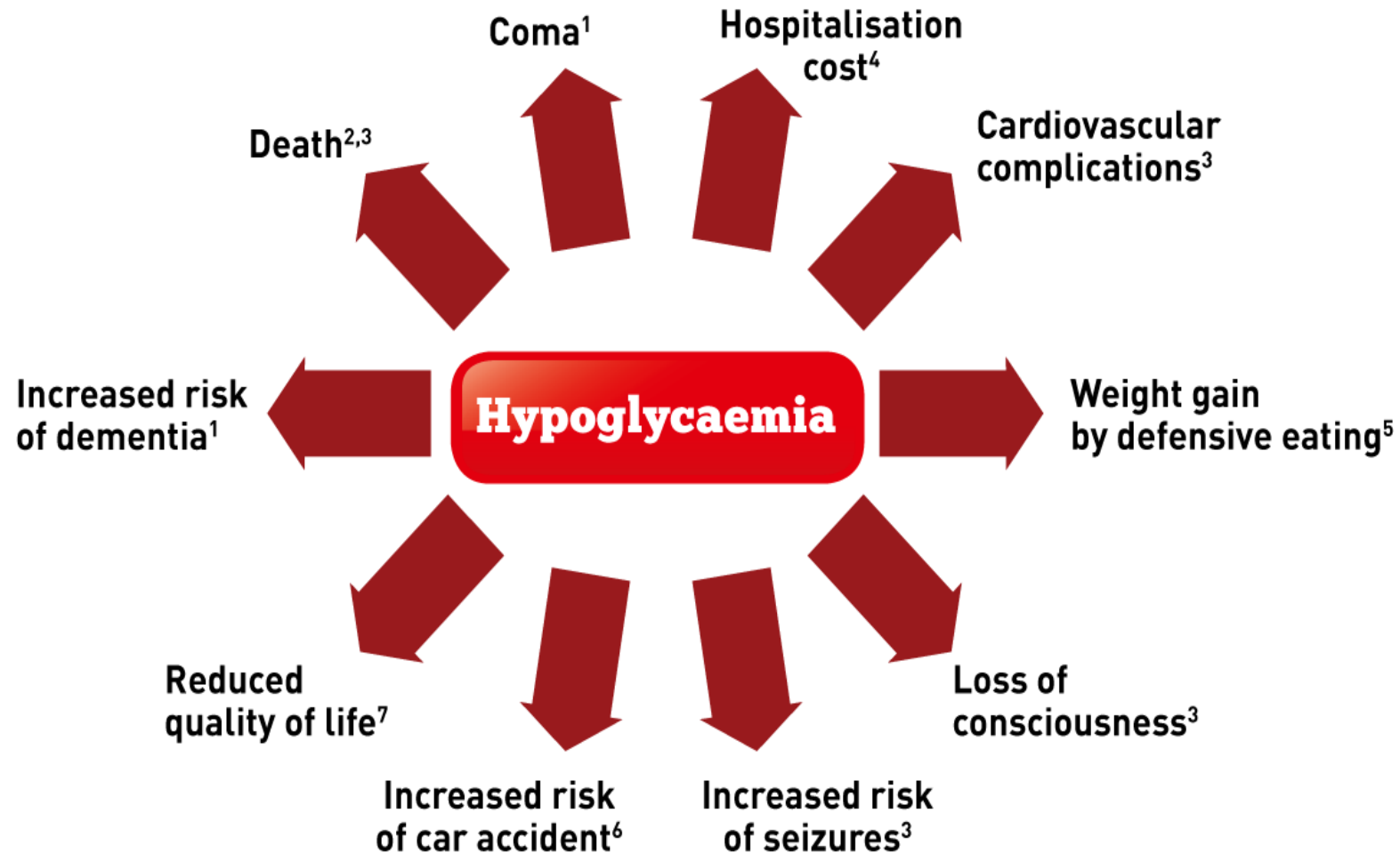
- Define hypoglycaemia
- Describe causes, signs, symptoms and treatment
- Demonstrate technique to use glucagon pen.

Hypoglycaemia Fundamentals



- Defined as a BGL that falls < 4.0 mmol/L or with the presence of signs/symptoms.
- Hypoglycaemia symptoms may be felt at different levels.
- People using insulin and certain oral glucose lowering medications can be at risk of hypoglycaemia.
- Hypoglycaemic episodes require immediate treatment.
- Can impact a person's daily life and activities.
- Hypoglycaemia unawareness can develop.
- Identified as a cause of MIs in those with established CVD.

Outcomes of Hypoglycaemia



Causes of Hypoglycaemia



- Too much insulin or diabetes medication. Accidental overdose.
- Insufficient carbohydrate.
- Delayed or missed meal.
- Vomiting and/or diarrhoea.
- Extra strenuous or unplanned physical activity- may occur hours after activity.
- Too much alcohol (especially on an empty stomach): the liver will metabolise the alcohol as a priority, causing a delay in the release of stored glucose.



Symptoms of Hypoglycaemia- Autonomic



- Autonomic (early) symptoms are those caused by the activation of the sympathetic or parasympathetic nervous system.
- **These symptoms can be more prominent in people with a short duration of diabetes and can diminish over time and with frequent episodes.**
 - Sweating
 - Shaking
 - Tingling lips
 - Hunger
 - Weakness
 - Palpitations



Symptoms of Hypoglycaemia- Neurological



- **Neurological symptoms evident in more moderate to severe levels of Hypoglycaemia**
 - The neurological symptoms are caused by the deprivation of glucose on the brain.
 - The brain needs to be constantly bathed in sugar.
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- | | |
|------------------|----------------------------|
| ■ Confusion | ■ Changes in concentration |
| ■ Headache | ■ Aggressive behaviour |
| ■ Unsteadiness | ■ Loss of consciousness |
| ■ Blurred vision | ■ Fitting |
| ■ Slurred speech | |

Hypoglycaemia Unawareness



- Hypoglycaemic unawareness is an absence of the early warning signs of a low blood glucose level (BGL). It is very serious and dangerous.
- Hypo unawareness occurs more frequently in people who have had diabetes for many years
 - **Or** in people who experience frequent hypoglycaemia,
 - **Or** who maintain lower blood glucose levels.
- Inability to recognise the symptoms of hypoglycaemia increases the risk of severe or unconsciousness hypoglycaemia occurring.
- Will have implications for many daily life activities eg driving, operating machinery and some occupations.
- Education and support for partners/carers and the patient is important in managing impaired hypo awareness.

Advice for Hypoglycaemia Unawareness



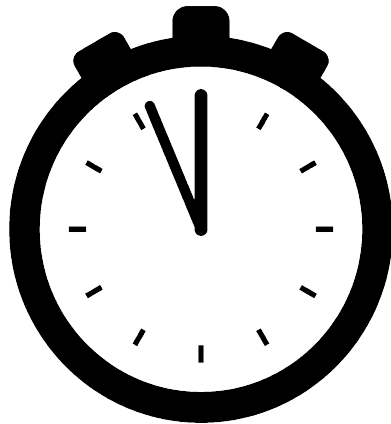
People who develop hypoglycaemic unawareness are advised to:

- monitor blood glucose levels more frequently/use CGM.
- treat any low BGL even when there are no symptoms
- ensure meal (CHO intake) patterns and exercise are matched.
- discuss blood glucose targets with their specialist/GP and modify as needed (run BGL's higher for a time frame)

Hypo Management- The “RULE of 15”



- Give 15 grams of fast acting carbohydrates
- Wait 15 minutes and recheck BGL
- Give 15 grams of longer acting carbohydrate once over BGL >4mmols.



TREATING MILD-MODERATE HYPOs - Rule of 15

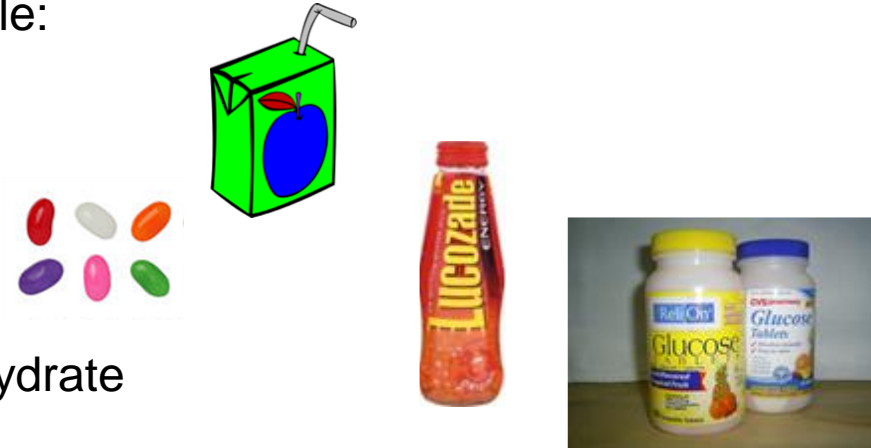


1. If BGL < 4.0mmol/L – CHECK BGL - if unable to test, treat as hypo anyway.

Take 15g of fast acting carbohydrate, for example:

- 100 ml Lucozade™
- 5-7 jellybeans
- 150ml glass of soft drink (not diet)
- 3 teaspoons of sugar or honey
- ½ glass of juice -125ml popper
- glucose tablets equivalent to 15g of carbohydrate

Not chocolate/not cake/icecream.



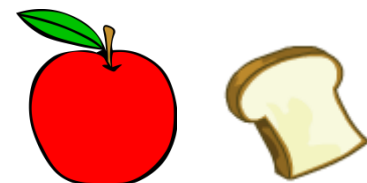
2. Wait 15 minutes.

Then if BGL still < 4 repeat quick acting carbohydrate until BGL \geq 4

3. Once BGL \geq 4

if meal is more than 20 minutes away, then eat **15 grams of longer acting** carbohydrate, for example:

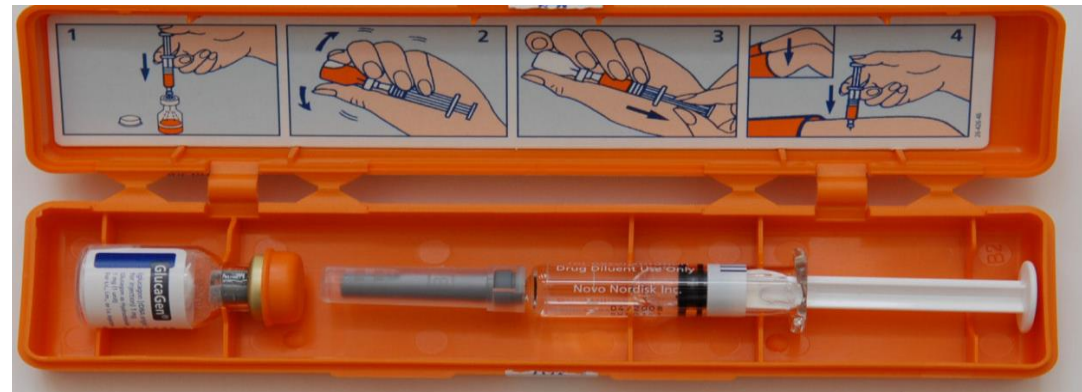
- 6 Jatz Cracker
- a piece of fruit
- glass of milk
- slice of bread



Severe Hypoglycaemia



- If BGL too low or not treated appropriately, symptoms may worsen.
- If **severe** the person is unable to treat themselves. They may be unable to take treatment orally, follow simple instructions or be unconscious or fitting.
- **Glucagen® Hypokit** is an injection of artificial glucagon. Glucagon is a natural hormone produced by the body.
 - It raises the level of glucose in the blood by releasing stored glucose from the liver.



Prevention and Management of Hypoglycaemia



- Regular carbohydrate intake
- Exercise planning.
- Check BGL prior to driving and every 2 hours whilst driving- also adding snacks.
- Light to Moderate alcohol intake.
- Carrying fast acting carbohydrate
- Have glucagon available if applicable
- Monitor blood glucose levels.
- If recurrent hypoglycaemia, a medical check-up is needed – particularly if impaired hypo awareness



Fear of Hypoglycaemia



Fear of Hypos is very real for many people with diabetes.

They can fear:

- losing consciousness/ having an accident or injuring yourself
- having a hypo while asleep
- being embarrassed or attracting unwanted attention/being judged.
- relying on others for help.
- losing independence or the ability to drive

Negative impacts on mental and physical health

- May overeat/use less insulin = Hyperglycaemia
- Not go out or Become obsessive

Educate and refer for help with mental health as needed

Hypoglycaemia in the workplace



- It is the responsibility of all Health Care Professionals to familiarise themselves with the location and content of the hypo treatment kits in their workplace.
- People with diabetes need to ensure their safety, particularly when using machinery by monitoring their BGLs frequently and treating hypos promptly.
- The person with diabetes should inform workplace colleagues of their condition and inform them of potential signs of hypos, but this is a personal decision.



Hypoglycaemia: PN Practical tips.

- Regular hypoglycaemia education and monitoring is very important in all people at risk, particularly those who are at higher risk of falls and injury, have specific occupations and in our elderly patients (living alone etc).
- Relaxed individualised HbA1c target and BGLs in people over 65yrs..
- Check fasting Glucose levels as well as HbA1c.
- Monitor with care plans.
- Food and BGL diary can be a useful tool.
- Check their knowledge of Hypo treatment regularly.
- Discuss SU's and hypo risk.
- PN's can have a major influence on what people with diabetes understand about their condition and improving health outcomes. If they understand WHY they are more likely to DO.



QUESTIONS

