

# Module B

## Treating Diabetes

### 3 Hypoglycaemia

# Learning Aims

To have a clear understanding of the definition of hypoglycaemia

To understand the risk factors for hypoglycaemia in residents with diabetes

To be able to detect the warning signs of hypoglycaemia in residents with diabetes and to act swiftly to treat

# Hypoglycaemia (a hypo) – definition and risk factors

Hypoglycaemia occurs when the blood glucose becomes very low (under 4 mmol/l). This can be as a result of:

- ⊙ Having too much insulin or taking one of two groups of medicines: (1) sulphonylureas (e.g. gliclazide, glipizide, glibenclamide) or (2) glinides (e.g. repaglinide, nateglinide)
- ⊙ Delayed or missed meals
- ⊙ Meals taken with reduced amounts of long-acting carbohydrate – potatoes, rice or bread
- ⊙ Poor appetite
- ⊙ Excessive alcohol intake or alcohol taken without food
- ⊙ Unplanned and/or excessive exercise

# Hypoglycaemia – treatment factors

- ① People treated with diet and exercise or those taking glucose-lowering medication other than sulphonylureas (SUs), glinides or insulin should not usually experience 'hypos'.



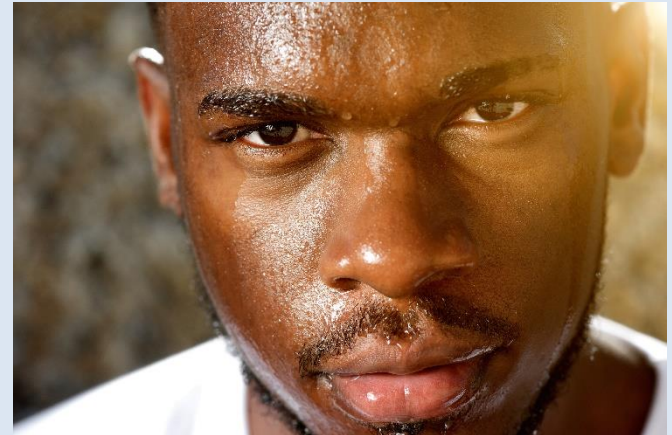
# Hypoglycaemia

- ⊙ People treated with insulin and those on SUs/glinides are at risk of hypoglycaemia, especially older people and those with renal failure.
- ⊙ These should monitor blood glucose regularly.
- ⊙ Symptoms of hypoglycaemia vary from person to person and some people with longstanding diabetes may lose all warning signs of a hypo.

# Symptoms of hypoglycaemia

The most common symptoms/signs of a 'hypo' are a sudden onset of:

- ☉ Sweating profusely
- ☉ Feeling anxious
- ☉ Trembling and shaking
- ☉ Tingling of the lips
- ☉ Hunger
- ☉ Pale



# Symptoms of hypoglycaemia (continued)

- ① Palpitations
- ① Older people may seem to be come more confused
- ① People with dementia and diabetes may become more confused than usual
- ① Irritability
- ① Difficulty in concentration
- ① Slurring of words



# Hypoglycaemia

- ① If you recognise these signs and symptoms in your patient you should check capillary blood glucose for hypoglycaemia – if below 4 mmols/l, treat immediately with fast acting carbohydrate (**see next slide** ).
- ① Treat hypoglycaemia quickly to prevent confusion or loss of consciousness.



# Treatment of hypoglycaemia in a care home setting

## Awake and able to drink safely

- Give 15-20g of fast-acting carbohydrates such as 60 mls of Glucos juice, 200 ml of pure fruit juice, or 5-6 dextrose (glucose) tablets
- Wait 10 to 15mins, re-check capillary blood glucose (BG)
- Repeat treatment until BG >4 mmol/L
- Then give 20 g long-acting carbohydrate, such as 2 biscuits or a slice of bread
- Review medications, discuss de-escalation of glucose-lowering treatments with team

## Awake, able to drink safely but confused or agitated

- If uncooperative:
- Squeeze 1.5 -2 tubes of glucogel into the inside of the cheek and massage
  - Wait 10 to 15mins, re-check BG
  - Repeat treatment until BG >4mmol/L
  - Then give 20 g of long-acting carbohydrate, such as 2 biscuits or a slice of bread
  - Review medications, discuss de-escalation of glucose-lowering treatments with team responsible for diabetes care

## Unconscious, may be fitting

- Ask for help and **dial 999**
- Place patient in recovery position
- Stop any scheduled insulin
- If trained to do so, give 1 mg glucagon IM once only if possible
- If becomes awake, give 20 g of long-acting carbohydrate, such as 2 biscuits or a slice of bread
- Liaise with paramedics on arrival for further management

Taken from: *A Covid-19 Response Action – Diabetes Management in Care Homes - A National Stakeholders Covid-19 Response Group Interim Guidance May 2020*. Available at: <https://www.diabetes.org.uk/resources-s3/public/2020-04/Covid-19%20and%20Diabetes%20-Care%20Home%20Guidance%20-%20Final%20Document%20-%2029.04.2020.pdf>

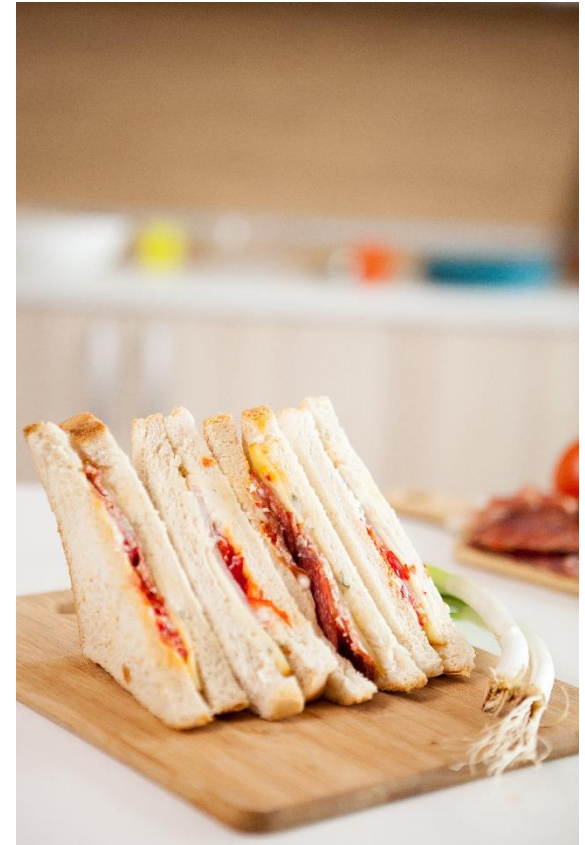
# Hypoglycaemia

- ⊙ Do **not** give hot sweet tea to someone who is hypo as they may burn themselves!
- ⊙ Chocolate has a high fat intake and is therefore absorbed slowly – not suitable for correcting a hypo.
- ⊙ See the previous scheme of treatment: it is good practice to test the blood glucose every 10-15 minutes after 'hypo' treatment is given and repeat the treatment for 2 more cycles until the blood glucose is over 4mmol/l.
- ⊙ If the blood glucose does not reach 4mmol/l after 2 treatment cycles or the resident becomes unwell or unresponsive, call 999 (ambulance) and seek urgent medical assistance advice: put the resident in the recovery position



# Hypoglycaemia

- ① Once the BG is above 4mmol/l give long-acting carbohydrate such as a sandwich or cereal bar.
- ① Hypoglycaemia can be very frightening for someone, who may take up to 45 minutes to recover adequately from a 'hypo' after treatment.
- ① Learn how to detect and manage hypoglycaemia by having formal training by a competent health professional

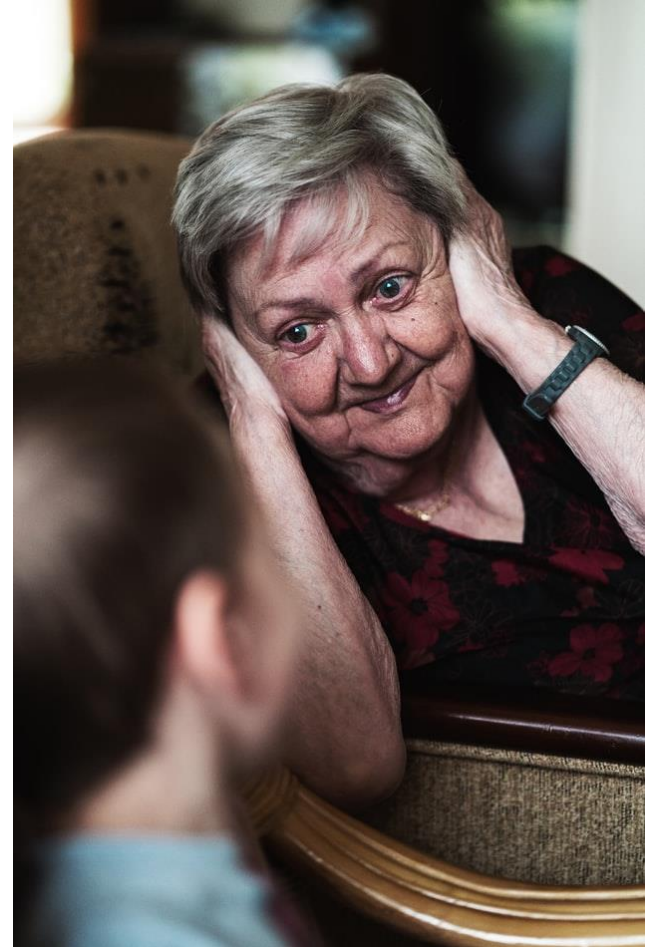


# Key points - 1

- ⊙ People are at risk of hypos if they take sulphonylureas, glinides and/or insulin.
- ⊙ Always test capillary blood glucose regularly in these individuals and record the results.
- ⊙ Blood glucose readings should be reviewed regularly to assess whether the patient is 'hypo' at any particular time of the day.
- ⊙ Remember that some residents with diabetes may develop 'hypos' at night – these may go undetected
- ⊙ Symptoms and signs of night time hypos are waking up with a headache, history of very poor sleep and waking up tired, or waking up with wet blankets and/or sheets due to excess sweating.

## Key points 2 – hypos and poor renal function

- ① Older people may develop worsening kidney function, which slows removal of their diabetes medication and may lead to a hypo – in such cases the medication needs to be reviewed.



# Key points - 3

- ① The timing of insulin injections are often aligned to meal times – check the type of insulin your resident uses and whether meals need to be taken with the injection.
- ① Monitor the nutritional intake of older frail residents, who may need a reduction of their diabetes medications.
- ① If a resident experiences a hypo, review medication as doses may need adjustment.

# Key points - 4

- ① Record any hypo treatment and inform a senior member of care staff.
- ① Never omit insulin in a resident with type 1 diabetes but check with a specialist nurse or doctor (GP) whether the dose needs adjustment
- ① An important element of a sound diabetes care policy for a care home is:
  - Availability of a fully-stocked and maintained hypoglycaemia kit.** *This can reduce ambulance call-outs and hospital admissions due to hypoglycaemia.*
- ① Always keep a 'hypo' box with suitable treatments in your care home (CQC advice)



# Driving -1

- ◎ It is unlikely that a resident with diabetes in a residential care home may still be driving a car.
- ◎ A resident with diabetes who still wishes to drive a car should always discuss this issue with their doctor (GP) as the DVLA may need to be informed
- ◎ Residents taking insulin, sulphonyureas or glinides (which may cause hypoglycaemia) and those with eyesight difficulties should discuss these issues with their doctor (GP) before any decision is taken about driving.
- ◎ If driving by a resident with diabetes is allowed by law (according to DVLA regulations), they should always carry fast-acting carbohydrate, a snack and blood glucose monitoring equipment in the car if advised to do so.



# Driving - 2



- ⦿ However, if the resident drives a vehicle, they must test before setting off and not drive if the blood glucose is less than 5 mmols/l.  
If between 4-5 mmol/l they should take a snack and re-test until it is above 5 mmol/l
- ⦿ If less than 4 mmol/l they should not drive and treat as for a 'hypo'.

# Key messages

KM

People able to treat a 'hypo' themselves and have no associated adverse events (e.g. fall) can be said to have had a 'mild hypo'. A hypo requiring third party assistance is described as a 'severe hypo'.

KM

**Never ignore the warning signs of a 'hypo'** and check residents with diabetes for hypoglycaemia if they become more confused than usual or if they lose consciousness.

KM

Always arrange **regular medication reviews** in people who have had a 'hypo' or a history of several hypos.

KM

Set up an **Alert System** that identifies your residents with a higher risk of hypoglycaemia (e.g. on insulin treatment) and monitor them closely.

# Questions

Q1. Which of the following scenarios increase the risk for hypoglycaemia?

- A. Having too much insulin
- B. Eating a large amount of food
- C. Taking a sulphonylurea
- D. The presence of renal impairment
- E. Older age

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- D. The presence of renal impairment**
- E. Older age**

# Questions

Q2. Who might not experience the warning signs of hypoglycaemia?

- A. Those who have consistently high blood glucose levels
- B. Those who have frequent 'hypos'
- C. Those who have had diabetes for a long time

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# Questions

Q3. Which two options below are common symptoms of a 'hypo'?

- A. Lack of appetite
- B. Sweating profusely
- C. Confusion
- D. A rash

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# Questions

Q4. For someone who is conscious and able to swallow, which two of the following are good treatments for hypoglycaemia?

- A. 1 cup of hot tea or coffee with sugar
- B. 25 grams of chocolate
- C. 200 ml of pure fruit juice
- D. 5-6 Dextrose tablets

# Questions

Q4. For someone who is conscious and able to swallow, which two of the following are good treatments for hypoglycaemia?

- A. 1 cup of hot tea or coffee with sugar
- B. 25 grams of chocolate
- C. **200 ml of pure fruit juice**
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# Questions

Q5. Which of the following blood glucose levels indicates that hypoglycaemia is present?

- A. Above 5 mmol/l
- B. Below 5 mmol/l
- C. Below 4mmol/l
- D. Above 4 mmol/l

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- B. Below 5 mmol/l
- C. Below 4mmol/l**
- D. Above 4 mmol/l

# Useful resources

- © Diabetes Guidance for CQC Inspectors(2015):  
<https://diabetestimes.co.uk/resources/guidance-for-cqc-staff-inspecting-the-quality-of-care-for-residents-with-diabetes-mellitus-living-in-care-homes/>
- © HYPOGLYCAEMIA IN ADULTS IN THE COMMUNITY: RECOGNITION, MANAGEMENT AND PREVENTION. Trend-UK. Available at:  
[https://trend-uk.org/wp-content/uploads/2018/09/HCP\\_Hypo\\_TREND\\_FINAL.pdf](https://trend-uk.org/wp-content/uploads/2018/09/HCP_Hypo_TREND_FINAL.pdf)

Learning completed