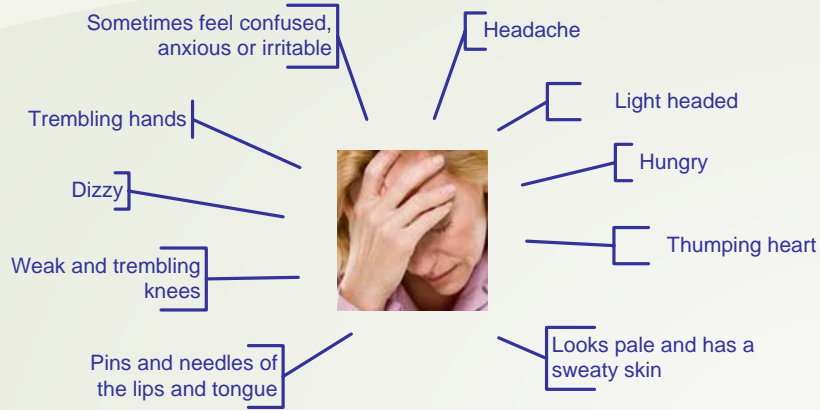


Differentiating between HYPOglycaemia and HYPERglycaemia – Signs and Symptoms

HYPOGLYCAEMIA



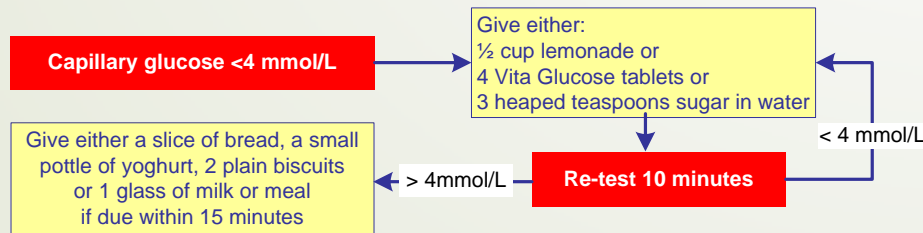
Other Signs & Symptoms: nightmares, restless sleep, sweating, hangover in the morning.

Note: patient may be asymptomatic (hypoglycaemic unawareness) but still require treatment if the capillary glucose is less than <math><4\text{ mmol/L}</math>. If in doubt recheck capillary glucose level and ensure a good drop of blood is obtained.

Hypoglycaemia can progress to stupor, seizure or coma and will become a medical emergency if not treated promptly.

Treatment of HYPOGLYCAEMIA in the conscious patient

Hypoglycaemia happens suddenly - minutes to hours.



NB: Notify GP if capillary glucose level is not above 4 mmol/L within 30 minutes but continue with hypo treatment.

Be wary of hypos in the elderly who are on **sulphonylureas (Glipizide, Gliclazide or Glibenclamide)**. **Glibenclamide** is not recommended for use in the older adult because of its very long duration of action. Re-check capillary glucose again in 3-4 hours after treating the hypo as the action of these medications can cause the capillary glucose to fall again.

HYPERGLYCAEMIA

Signs & Symptoms of HYPERGLYCAEMIA. Capillary glucose (CG) >20 mmol/L

Polydipsia (extreme thirst), polyuria (increased urination), weight loss, blurred vision, fatigue, gradual onset and skin infections.

As hyperglycaemia progresses → lethargy and loss of alertness → rarely progresses to COMA.

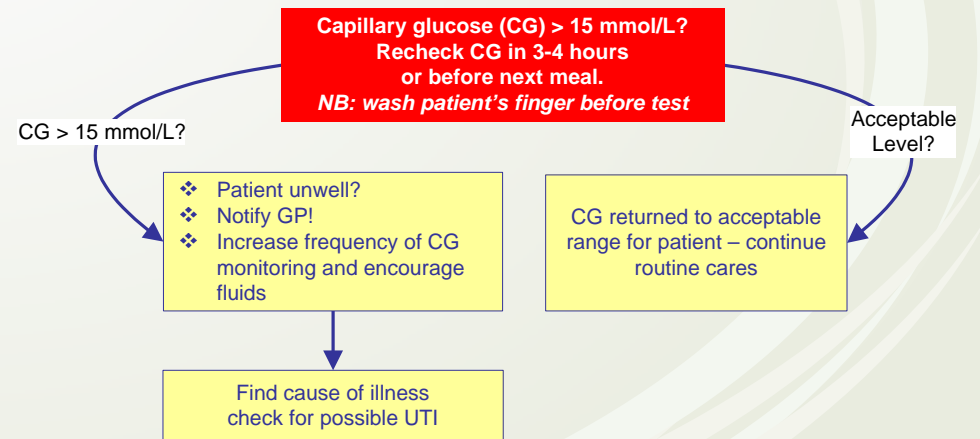
Hyperosmolar non ketotic coma (HONK): Neurological symptoms more common. Dehydration more common in elderly.

Diabetic Ketoacidosis (DKA): hyperventilation with 'fruity' breath and abdominal pain, nausea less common in elderly.

Signs of volume depletion common in both HONK and DKA, including decreased skin turgor, dry axillae and oral mucosa, low jugular venous pressure and if severe, hypotension and tachycardia.

Both are medical emergencies.

Treatment of HYPERGLYCAEMIA in the conscious patient



NB: A one off high capillary glucose reading after eating a sweet treat is not of concern provided the capillary glucose has dropped again before the next meal. Continued high readings above 15 mmol/L are of concern and GP should be requested to review.

Hyperglycaemic emergencies happen gradually – hours to days

If unconscious.....This is a medical emergency. If no doctor is immediately available dial 111

KEY RECOMMENDATIONS FOR TYPE 2 DIABETES

KEY MESSAGES:

NB: In the elderly most will have a high CV risk and individualised targets need to be realistic and safe.

- ❖ Screen for renal, retinal and foot complications.
- ❖ Aim for HbA1c between 7.0% and 8.0% assuming no hypoglycaemia. HbA1c over 8% may still be acceptable in patients with no symptoms and life expectancy less than 12 months.
- ❖ Aim for blood pressure below 130-140/80 mm Hg but this may need to be raised to avoid postural hypotension.
- ❖ Annual cardiovascular risk assessment.
- ❖ People with microalbuminuria or overt nephropathy should be on an ACE inhibitor or A2 receptor blocker plus aspirin.
- ❖ Use statin to try and keep LDL cholesterol < 2.5 if appropriate.

Glycaemic control:

- ❖ Diet focussed on glycaemic control, cardiovascular risk reduction, weight reduction if is appropriate and tolerated.
- ❖ Physical activity.
- ❖ Monitor blood sugar.
- ❖ Aim for HbA1c 7-8%* check every 3-6 months (advised to be higher in those with frequent hypoglycaemic episodes, hypoglycaemic unawareness, frailty or significant morbidities).
- ❖ Refer to specialist: when HbA1c targets cannot be reached because of frequent or severe hypoglycaemic episodes, complications of diabetes.

Prevent vision loss:

- ❖ Retinal screening every 2 years to check for retinopathy.
- ❖ Aim for HbA1c 7-8%* BP 130-140/80 mmHg* where appropriate.
- ❖ Retinopathy: as above + laser treatment and ongoing monitoring by ophthalmologist.
- ❖ Retinopathy is the major cause of vision loss.

Reduce renal disease:

- ❖ BP 130-140/80* mmHg.
- ❖ HbA1c 7-8%*.
- ❖ Microalbuminuria: ACE inhibitor or A2 receptor blocker (if not contraindicated) if BP allows.
- ❖ Overt diabetic nephropathy or proteinuria: as above + refer to specialist.

Reduce cardiovascular (CV) risk:

- Assess CV risk annually using the National Heart Foundation cardiovascular risk chart.
1. Total cholesterol <4mmol/L, LDL <2.5, Triglycerides <1.7, mmol/L BP <130-140/80 mmHg*. Diet as for glycaemic control + physical activity + smoking cessation.
 2. CV risk >15%: as above + aspirin, drug treatment to lower BP (include ACE inhibitor), lipid modification, glycaemic control where appropriate.
 3. CV risk >20% if previous CV disease (myocardial infarction, angina, ischaemic stroke or TIA).
 - ❖ After MI: aspirin (if not contraindicated), new or increased blood pressure lowering agent, especially ACE inhibitor + statin.
 - ❖ After stroke: aspirin (if not contraindicated), new or increase blood pressure lowering agent, statin.
 - ❖ Overt diabetic nephropathy or other renal disease: aspirin (if not contraindicated), ACE inhibitor or A2 receptor blocker (if not contraindicated), 2nd blood pressure lowering agent, statin.
 - ❖ Reassess every 3-6 months.
 - ❖ A 10 mmHg reduction in blood pressure reduces diabetes related death by 15%, diabetes complications by 15% and MI by 11% for those with BP >150 mmHg.

For the elderly, individualise the target HbA1c

Preventing active foot problems & lower limb amputation:

- ❖ No problems: daily visual inspection + supportive well fitting closed shoes + podiatry.
- ❖ Diabetes podiatry review
- ❖ High risk feet: (e.g. previous tissue loss, deformity, peripheral vascular disease, neuropathy) daily visual inspection, podiatry, custom built foot wear or orthotic insoles.
- ❖ Peripheral vascular disease and tissue loss: as above + refer to vascular specialist, closely monitor wounds, regular wound care.
- ❖ Clinically infected diabetic foot ulcer: Broad spectrum antibiotic.
- ❖ Cellulitis or osteomyelitis (suspected or present): refer promptly for intravenous antibiotics.

Annual Diabetes review:

The Diabetes care improvement package objectives as at March 2012 are:

1. Systematically screen for the risk factors and complications of diabetes to promote early detection and intervention.
2. Agree on an updated treatment plan for each person with diabetes.
3. Update the information in the diabetes register used as a basis for clinical audit and planning improvements to diabetes services in the area.
4. Prescribe treatment and refer for specialist or other care if appropriate.

% Units	New units (mmol/mol)	
<6%	<42	Non diabetic range
6-6.5%	42-48	?too low (if on insulin or sulphonylurea) check for hypos
6.5-7%	48-53	Excellent but still be mindful of hypos in the older person
7-8%	53-64	Good
8-9%	64-75	Bit high?
9-10%	75-86	Too high – poor control
10% or >	86 or >	Exceptionally poor control

* Use as a guide only – see ‘Key Messages’ at the top of this page