

# **MANAGEMENT OF ACUTE HYPOGLYCAEMIA**

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### Recognition and Diagnosis

- defined arbitrarily as laboratory blood glucose < 3.5 mmol/l
- always confirm hypoglycaemia with a laboratory measurement, but treat on basis of BM while awaiting lab result
- symptoms of hypoglycaemia are age specific, with behavioural change being common in children and neurological symptoms prominent in the elderly – always check blood glucose in patients with suspected stroke
- most patients presenting with hypoglycaemia will be on insulin or sulphonylurea drugs, e.g. gliclazide

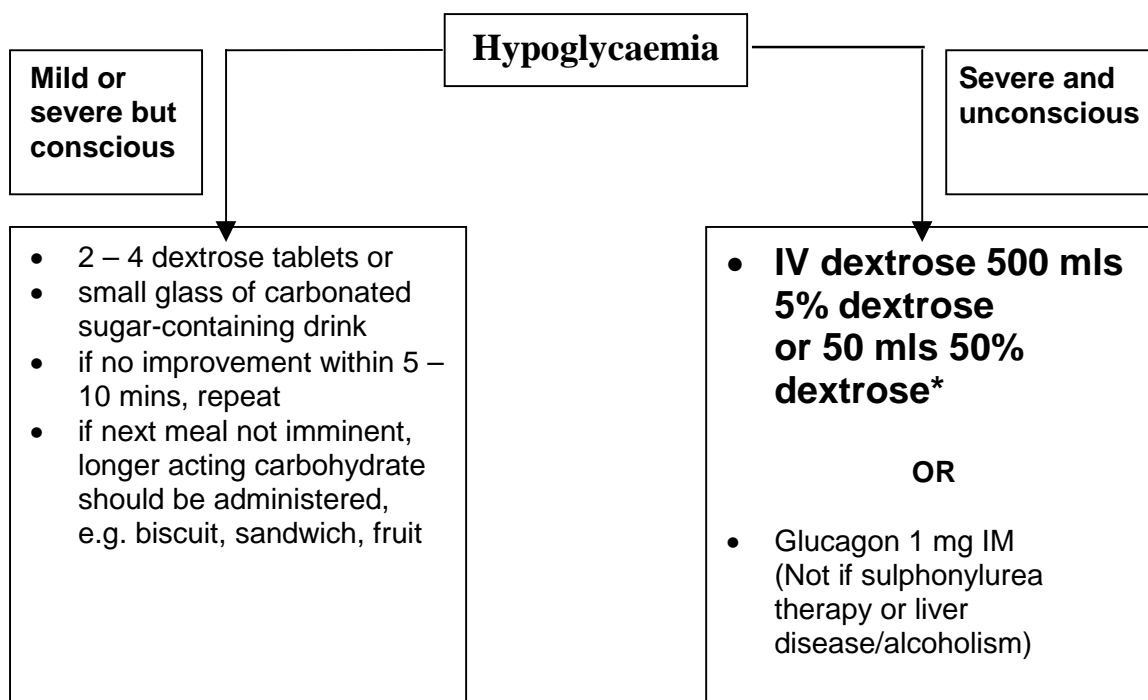
### COMMON SYMPTOMS OF HYPOGLYCAEMIA

Autonomic	Neuroglycopenic	Non-specific
Sweating	Weakness	Headache
Trembling	Visual disturbance	Nausea
Pounding heart	Difficulty speaking	
Anxiety	Tingling	
Hunger	Dizziness	
	Difficulty concentrating	
	Tiredness	
	Drowsiness	
	Confusion	

### UNUSUAL ASSOCIATIONS AND PRESENTATION OF HYPOGLYCAEMIA

<u>Cardiovascular</u>	<u>Neuropsychological</u>	<u>Miscellaneous</u>
Prolongation of QT-Interval	Focal/Generalised	Fracture of Long
Atrial Fibrillation	Convulsions	Bones/Vertebrae
Non-Sustained Ventricular	Coma	Joint Dislocation
Tachycardia	<b>Hemiparesis; TIA's</b>	Soft Tissue Injury
Silent Myocardial Ischaemia	Ataxia, Choreoathetosis	Head Injury
Angina	Focal, Neurological	Burns
Myocardial Infarction	Deficits	Hypothermia
Sudden Death	Decortication	Road traffic accidents
	Cognitive Impairment	
	Behavioural/Personality	
	Change	
	<b>Automatism/Aggressive</b>	
	<b>behaviour</b>	
	Psychosis	

## Management



\*50% dextrose must be administered into a large vein to avoid extravasation

Recovery from hypoglycaemia may be delayed if:

- hypoglycaemia has been prolonged or severe.
- an alternative cause for impairment of consciousness co-exists, e.g. stroke or drug overdose.
- patient is post-ictal (convulsion caused by hypoglycaemia).

## Sulphonylurea-induced hypoglycaemia (SIH)

- mild SIH is treated in a similar way to insulin-induced hypoglycaemia (see above).
- sulphonylurea-induced hypoglycaemic coma requires intravenous dextrose and treatment in hospital because relapse after initial resuscitation is well recognised. An intravenous bolus of glucose stimulates insulin secretion, especially in individuals who have retained pancreatic beta-cell function, and many people will require an ongoing intravenous infusion of 10% dextrose to sustain the blood glucose concentration above 5.0 mmol/l. **Inform metabolic registrar.**
- **avoid glucagon – may cause paradoxical worsening of hypoglycaemia.**

## **Follow up**

Most patients can be discharged following treatment (note exception of severe SIH), providing they have a safe means of getting home and a responsible adult to care for them. **Always discuss each case with the metabolic registrar. The metabolic registrar should advise on further management and arrange follow up of patients admitted with hypoglycaemia.** It is important to try and elucidate the reason for hypoglycaemia. The most common cause for hypoglycaemia is patient error, i.e. too much insulin or not enough carbohydrate. Others include:

- excessive exercise (hypoglycaemia can be early or occur the following day).
- excess alcohol (inhibits hepatic gluconeogenesis).
- renal failure (insulin and sulphonylureas undergo renal clearance).
- development of coincidental endocrine disease, e.g. Addison's disease (weight loss, anorexia, skin pigmentation, postural hypotension, hyponatraemia, hyperkalaemia etc), hypopituitarism, hypothyroidism.
- malabsorption and gastroparesis, e.g. coeliac disease (weight loss, abdominal pain, bloating, loose stools, glossitis, aphthous ulceration, anaemia, hypoalbuminaemia etc).

### **Risk factors for severe hypoglycaemia**

Intensive insulin therapy  
Low HbA1c  
Previous history of severe hypoglycaemia  
Long duration of diabetes  
Impaired awareness of hypoglycaemia  
Irregular life style  
Alcoholism or binge drinking

### **Risk factors for sulphonylurea-induced hypoglycaemia**

Age (not dose of drug)  
Impaired renal function  
Previous history of cardiovascular disease or stroke  
Reduced food intake; diarrhoea  
Alcohol  
Adverse drug interactions  
Use of long-acting sulphonylureas  
Recent hospital admission