University Hospital Galway

EMERGENCY DEPARTMENT

GalwayEM.ie

Diabetic Ketoacidosis (https://galwayem.ie/index.php/index.php/guidelines/medical-emergencies/diabetic-ketoacidosis)

Category
Medical Emergencies (https://galwayem.ie/index.php/guidelines/medical-emergencies)

History and initial examination should be brief but must include an assessment of precipitating cause of DKA. There should be a thorough search for sepsis (including blood cultures if pyrexial) and the cardiovascular system should be assessed looking for signs of shock or evidence of recent myocardial infarction.

Causes
Infection
Infarction (MI)
Ischaemia (CVA)
Intoxication (alcohol)
Implantation (pregnancy)
Ignorance (compliance)

Symptoms
- Thirst
- Polyuria
- Abdominal pain

Signs
- Flushed appearance
- Sighing respiration (Kussmaul breathing)
- Odour of ketones on breath -
- Dehydration
- Altered mental state progressing to coma IDOSIS AND

Investigations

1. Blood glucose (capillary)
2. Test for ketones in plasma or urine
3. U&E & Blood glucose (venous)
4. Blood gases
5. MSU, ECG, Chest x-ray

Immediate management

UHG DKA protocol (http://guh-qpulse/QPulseDocumentService/attachment/?n=CLN-DIAB-005&id=50040)

Blood glucose > 20 mmol/L in the presence of ketones or metabolic acidosis (HCO3 <15) should be managed vigorously
- IV crystalloid; Sodium chloride 0.9% in following regimen
  - 1L over 1/2 hr
  - 1L over 1 hr
  - 1L over 2 hr
  - 1L over 4 hr
  - Further replacement dictated by the patient's condition, usually 4-6 L over next 24 hr

- Intravenous Insulin infusion 1 unit/ml in sodium chloride 0.9% via syringe pump at 6 units/hr; if no fall in glucose after 2 hr (very unusual - check pump and patency on IV cannula) double dose and continue doubling at hourly intervals until response occurs.

- Potassium need depends on initial plasma concentration
  - K < 4.5 infuse at 20 mmol/hr
  - Recheck potassium after an hour in all patients

All patients on IV potassium must have continuous ECG monitoring.

Bicarbonate should **not be used routinely** and should only be used if the pH fails to improve after resuscitation with 2-3 L of sodium chloride 0.9%. Discuss with senior doctor.

General management
- A nasogastric tube should normally be inserted in unconscious patients and the stomach aspirated
- Give a broad-spectrum antibiotic after blood cultures taken (e.g. co-amoxiclav 625 mg orally 8 hrly) if patient is febrile and no obvious cause can be found
- Insert a urethral catheter to monitor urine output if patient is hypotensive or comatose or fails to pass urine within 3 hr of starting IV fluids
- Although patients with hyperosmolar coma have an increased risk of venous thromboembolism, prophylactic heparin increases the risk of GI bleeding, so treat only **proven** venous thromboembolism

Hyperglycaemic hyperosmolar syndrome (HHS)†† (Previously non-ketotic hyperosmolar coma)
Consider HHS if:
- Osmolality > 320 mOsmoles/Kg
- Ph > 7.3
- Glucose elevated

Should be treated in the same way; but with more cautious IV fluids; usually 3L over first 24 hr and all these patients should receive prophylactic low molecular weight heparin

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