Milton Keynes University Hospital NHS Foundation Trust

Management 60 minutes to 6 hours

Aim to:

Clear the blood of ketones and suppress ketogenesis
Achieve a rate of fall of ketones of at least 0.5mmol/L/hr
In the absence of ketone measurement, bicarbonate should rise by 3.0mmol/L/hr and blood glucose should fall by 3.0mmol/L/hr
Maintain serum potassium in the normal range
Avoid hypoglycaemia

ACTION 1

MONITORING	CBG/BLOOD Hourly	KETONES 2 hourly	VBG (PH, BICARB) at 60 mins then 2 hourly	VBG(POTASSUIM) hourly if out of range, 2 hourly if in
	FLUID BALANCE and NEWS 2 Hourly		U&Es Hourly	

ACTION 2

MONITORING

Consider:
Continuous cardiac monitoring in those with severe DKA
ABG and CXRAY if oxygen saturation falls.
Naso-gastric tube insertion if the patient is obtunded or persistently vomiting
Urinary catheterisation if the patient is incontinent or anuric
NB: Give low molecular weight heparin as per NICE guidance.

TREATMENT TARGETS

Blood glucose >30 mmol/L or 'hi' venous blood should be sent to the laboratory hourly or measured using venous blood in a blood gas analyser until the bedside meter is within its QA range.

Maintain an accurate fluid balance chart, the minimum urine output should be no less than 0.5ml/kg/hr.

Continue the VRIII until the ketone measurement is less than 0.6mmol/L, venous pH over 7.3 and/or venous bicarbonate over 18mmol/L (see 6-12 HOURS)

Do not rely on urinary ketone clearance to indicate resolution of DKA, because these will still be present when the DKA has resolved.

If the glucose falls below 14.0mmol/L, commence 10% glucose given at 125ml/hour alongside the 0.9% sodium chloride solution.

Monitor and replace potassium because it may fall rapidly.

Check FRiii is calculated for the correct weight

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ACTION 3	Identify and treat precipitating factors

ACTION 4	Patients presenting with newly diagnosed type 1 diabetes should be given Lantus® or Levemir® (or human NPH insulin, depending on local policy) at a dose of 0.25 units/Kg subcutaneously once daily to mitigate against rebound ketosis when they are taken off the FRIII.

ASSESS RESOLUTION OF KETOACIDOSIS

*If blood ketone measurement **is** available* and blood ketones are not falling by at least 0.5mmol/L/hr call a prescribing clinician to increase the insulin infusion rate by 1.0 unit/hr increments hourly until the ketones are falling at target rates.

*If blood ketone measurement **is not** available:*

Use venous bicarbonate. If the bicarbonate is not rising by at least 3.0mmol/L/hr call a prescribing clinician to increase the insulin infusion rate by 1 unit/hr increments hourly until the bicarbonate is rising at this rate.

OR

Use plasma glucose. If the glucose is not falling by at least 3.0mmol/L/hr call a prescribing clinician to increase the insulin infusion rate by 1.0 unit/hr increments hourly until glucose falls at this rate. Glucose level is not an accurate indicator of resolution of acidosis in euglycemic ketoacidosis, so the acidosis resolution should be verified by venous gas analysis.

If ketones and glucose are not falling as expected always check the insulin infusion pump is working and connected and that the correct insulin residual volume is present (to check for pump malfunction)

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Diabetic Inpatient Nursing Team. Review Due March 2023