NBT

KETONE MEASUREMENT GUIDELINES

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Diabetic Ketoacidosis (DKA) is a life-threatening condition, predominantly associated with Type 1 diabetes.\textsuperscript{1}

DKA is characterised by hyperglycaemia, metabolic acidosis and ketosis.\textsuperscript{2}

DKA is associated with a serious risk of mortality in some individuals, often in the context of only moderately elevated capillary blood glucose levels.\textsuperscript{3}

Testing for ketones is indicated to differentiate ketoacidosis from simple hyperglycaemia or in monitoring response to treatment of DKA.\textsuperscript{4}

Dipstick urinalysis is an established practice for detection of ketones in patients at risk of developing DKA.

Concentrations of ketone bodies (β hydroxybutyrate but not acetoacetate) in capillary or venous blood can be measured using a quantitative bedside test.

Use of this blood ketone testing is indicated only

a) When changes in blood ketone levels need to be carefully monitored over time – i.e. in the management of ketoacidosis\textsuperscript{4}.

b) When urine testing is not possible (e.g. in patients with End stage Renal Failure and/or on dialysis)\textsuperscript{5} or is unreliable.

A ‘Ketone Measurement Policy’ has been introduced to ensure appropriate use of urine and blood ketone testing.

REFERENCES


**INDICATION FOR KETONE TESTING**

- Monitoring treatment response in DKA
  - See NBT DKA guideline

- Early identification of at risk patients
  - Check ketones in all patients with diabetes if they are seriously clinically unwell (i.e. EWS ≥4)
  - or if they have capillary blood glucose >14 mmol/L

- Urine obtainable?
  - Yes:
    - Test urine ketones
      - Negative or 1+: no further action
      - Positive 2+ or more: risk of diabetic ketoacidosis. Inform medical staff. See NBT DKA guideline for further management
  - No:
    - Test capillary blood ketones
      - Below 0.6 mmol/L: in the normal range. no need to change anything
      - 0.6 mmol/L to 1.5 mmol/L: may indicate a developing problem. Inform medical staff. Retest in 2 hours
      - Above 1.5 mmol/L: risk of diabetic ketoacidosis. Inform medical staff. See NBT DKA guideline for further management