v.1 Obstetric Anaesthetists' Association 2024. Issued under Creative Commons license CC BY-NC-SA 4.0. See www.oaa-anaes.ac.uk/qrh

2-10 Diabetic Ketoacidosis v.1

A high index of suspicion is needed to recognise diabetic ketoacidosis (DKA) in pregnancy. DKA can occur with only very modest elevation of blood glucose levels in women with pre-existing or gestational diabetes. Always check blood ketones. Ketones occur more commonly in pregnancy. DKA may manifest as abdominal pain.
This QRH is for use in **DKA** situation only. Normal blood ketone range in pregnancy is not established, outside pregnancy < 1 mmol/L is normal

START

1. **Call for help** (obstetrician, anaesthetist, diabetic team / medical on-call if out of hours)

2. **Take blood and send for blood glucose, pH and blood ketone level**

   Diagnose diabetic ketoacidosis if ➔
   - Venous pH < 7.3 *-and / or-* HCO_3^- < 15 mmol/L *-and-*
   - Blood glucose > 11 mmol/L or known diabetic *-and-*
   - Blood ketones > 3 mmol/L or urinary ketones > 2+

3. **Start IV fluid hydration** (**Box A**)

4. **Start fixed rate IV insulin infusion** at 0.1 units/kg of actual body weight/hr

   Increase fixed rate by 1 unit / hour if ➔
   - < 0.5 mmol/L fall in blood ketones per hour ***-or-***
   - < 3 mmol/L fall in blood glucose per hour ***-or-***
   - < 3 mmol/L rise in venous bicarbonate per hour

   Maximum rate no more than 14 units/hour unless under diabetic team instruction
   If woman on own insulin pump ➔ discontinue woman's pump

5. **Inform woman to continue long-acting insulin as per usual regime**

6. **Plan frequency of monitoring (maternal and fetal)**

7. **Plan frequency of blood tests** (**Box B**)

8. **Agree appropriate location for care (e.g., HDU)**

9. **Check for underlying cause for DKA**
   - Infection
   - Protracted vomiting
   - History of missed insulin doses
   - Insulin pump failure
   - Steroid therapy

Box A: Fluid and potassium replacement

First bag of fluid

If systolic BP < 90 mmHg ➔ give 500 ml 0.9% sodium chloride over 15 minutes. Monitor BP and repeat if required.

If systolic BP > 90 mmHg ➔ give 1 L 0.9% sodium chloride over 1 hour

Second bag of fluid

Replace potassium from second bag onwards, guided by venous potassium (aim K+ 4 – 5.5 mmol/L)

if K^+ > 5.5 mmol/L ➔ give 1 L 0.9% sodium chloride over 2 hours

if K^+ < 5.5 mmol/L ➔ give 1 L 0.9% sodium chloride with 40 mmol/L KCl over 2 hours. *Discuss central venous access with ICU if K^+ < 3.5 mmol/L to allow more concentrated KCL administration.*

When blood glucose < 14 mmol/L ➔ give 10% glucose at 50 ml/hr to run alongside 0.9 % normal saline

Subsequent fluids to be guided by blood results, observations and input / output. MDT input is needed to guide all fluid management in women with pre-eclampsia

Box B: Blood test suggestions

Blood glucose and capillary ketones – hourly
Venous bicarbonate, potassium – at 1, 2 and 4 hours
Electrolytes – 4 hourly