Hyperglycaemia in Pregnancy

Disclaimer

This pathway is about gestational diabetes mellitus (GDM) and pre-existing type 1 or 2 diabetes mellitus in pregnancy.

See also [Pre-Pregnancy Planning for Type 1 and Type 2 Diabetes.](#)

Contents

Disclaimer ........................................................................................................................................... 1

Red Flags ........................................................................................................................................... 2

Background – About Hyperglycaemia in Pregnancy ...................................................................... 2

Assessment ....................................................................................................................................... 2

Management .................................................................................................................................... 3

Initial management of GDM or DM in pregnancy ........................................................................ 3

Postnatal ........................................................................................................................................ 4

Referral ........................................................................................................................................... 5

Information ..................................................................................................................................... 5

For health professionals .................................................................................................................. 5

For patients ..................................................................................................................................... 5

References ....................................................................................................................................... 5

Disclaimer ....................................................................................................................................... 5
Red Flags

- Undetected or poorly controlled hyperglycaemia
- BGL ≥ 11 mmol/L

Background – About Hyperglycaemia in Pregnancy

When hyperglycaemia is first detected during pregnancy, it is classified as either:

- Gestational diabetes mellitus (GDM), or
- Pre-existing type 1 or 2 diabetes mellitus in pregnancy.

GDM is usually asymptomatic and affects around 12% (range 10 to 30%) of pregnancies in Australia. It is generally diagnosed on routine screening at 24 to 28 weeks gestation, but it is important to test earlier in a woman at high risk.

- Pre-existing type 1 or 2 diabetes mellitus in pregnancy has a higher risk of major pregnancy complications and requires prompt referral.

  **Complications** include any of the following:
  - Miscarriage
  - Congenital malformations
  - Pre-eclampsia
  - Macrosomia
  - Higher rates of caesarean section
  - Birth injuries
  - Stillbirth
  - Respiratory distress at birth
  - Hypoglycaemia in the neonate
  - Jaundice of the neonate.
  - Development of or deterioration in maternal retinopathy and nephropathy

- Hyperglycaemia adds an intrauterine risk factor for the neonate to an already increased genetic risk for the development of obesity or diabetes in adult life.

Assessment

1. Universal testing is recommended for all pregnant women at 24 to 28 weeks gestation.
   - Recommended test is 2-hour 75 g Oral Glucose Tolerance Test (GTT).
   - Advise patient to fast for 8 to 12 hours before GTT.
   - Include gestation on request slip.

2. **High risk** women require additional testing:

   **High risk factors for hyperglycaemia in pregnancy**
   - Previous hyperglycaemia in pregnancy
   - Maternal age ≥ 40 years
   - Family history of diabetes mellitus (first degree relative with diabetes, including sister with gestational diabetes mellitus (GDM))
   - Ethnicity:
     - Asian
     - Indian subcontinent
▪ Aboriginal and Torres Strait Islander  
▪ Pacific Islander  
▪ Maori  
▪ Middle Eastern  
▪ Non-white African
  
o Pre-pregnancy BMI > 35  
o Previous macrosomia (baby with birth weight > 4500 g or > 90th centile)  
o Polycystic ovarian syndrome  
o Medications:
  ▪ Corticosteroids  
  ▪ Antipsychotics  
  
o HbA1c at first visit (before 12 weeks)  
  
o An additional GTT at 16 to 20 weeks.  
  
o Additional testing can be done at any time in pregnancy if there is cause for clinical concern:
  ▪ Excessive weight gain  
  ▪ Fetal abdominal circumference > 90th percentile  
  ▪ Accelerated fetal growth or polyhydramnios  
  
  
o Consider retesting at 32 weeks if 3 or more risk factors.

3. **Interpret the results.** If diabetes mellitus (DM) in pregnancy is diagnosed, ongoing diabetes is more likely than after GDM, but reassessment of glucose tolerance status is needed postpartum.

**Interpret the results**

**First trimester testing < 12 weeks:**
  
o Fasting glucose levels are difficult to interpret and not necessarily associated with subsequent GDM or adverse outcomes. Use HbA1c.
    ▪ If HbA1c ≥ 5.9%, check glucose tolerance test (GTT) at 16 weeks.
    ▪ If HbA1c ≥ 6.5%, likely [pre-existing diabetes](#).

**Second and third trimester testing:**
  
o Diagnose GDM if:
    ▪ fasting BGL 5.1 to 6.9 mmol/L, or
    ▪ 1 hour test BGL ≥ 10 mmol/L, or
    ▪ 2 hour test BGL 8.5 to 11 mmol/L.

  
o Diagnose DM in pregnancy if:
    ▪ fasting BGL ≥ 7 mmol/L, or
    ▪ 2 hour BGL ≥ 11.1 mmol/L, or
    ▪ random BGL ≥ 11 mmol/L and symptoms of hyperglycaemia.

---

**Management**

**Initial management of GDM or DM in pregnancy**

1. If GDM or DM in pregnancy is diagnosed, refer promptly for multidisciplinary management and education.

2. Principles of management are similar to the management of [pre-pregnancy diabetes](#).
   • Encourage appropriate exercise.
- Dietary management and self-blood glucose monitoring is the mainstay of treatment.
- Advise patient to register with the National Diabetes Services Scheme (NDSS) for subsidised blood glucose strips.
- Optimal treatment targets vary between institutions. ADIPS targets are fasting blood glucose ≤ 5.0 mmol/L, 2 hour post-prandial ≤ 6.7 mmol/L.

3. Pharmacotherapy is needed if targets are not reached – usually insulin, but metformin may be used at the discretion of the treating team.

4. Any BGL ≥ 11 mmol/L should be assessed urgently. Check ketones and if positive (> 1.5 blood ketones or > 1+ urinary ketones), arrange immediate diabetes referral.

---

**Postnatal**

1. Reinforce lifestyle advice.

2. If patient had:
   - GDM, arrange 75 g GTT at 6 to 12 weeks postpartum.
   - DM in pregnancy, encourage them to continue to monitor blood glucose in the immediate postnatal period. If substantially elevated readings, arrange specialist review via the antenatal service provider. Otherwise arrange GTT at 6 to 12 weeks postpartum.

3. Ensure effective contraception and appropriate pre-pregnancy planning. This is especially important for patients confirmed to have ongoing diabetes.

4. Arrange recalls for ongoing testing:
   - HbA1c and fasting blood glucose should be tested every 1 to 3 years depending of risk of developing type 2 diabetes.
   - Consider an oral GTT annually in women contemplating another pregnancy (30% risk of recurrence).
   - If women are not using effective contraception, test annually as though they are contemplating pregnancy.
   - Consider limitations of testing processes other than GTT.
     - **HbA1c**:
       - Medicare rebate requirements allow for funding for diagnosis in high risk people annually only.
       - If ≥ 48 mmol/mol (6.5%), it is consistent with diabetes. However, it is not a sensitive test and diabetes or prediabetes may be present with much lower HbA1c levels viz 39 to 48 mmol/mol (5.7 to 6.5%).
       - Not suitable in first 3 to 4 months postpartum.
     - **Fasting BGL**:
       - This is not a sensitive test and will miss many women who just have postprandial or post-glucose load hyperglycaemia which may be at the level of diabetes.
       - If women do have abnormal glucose tolerance before pregnancy, refer for further pre-pregnancy diabetes counselling.
Referral

Ensure that copies of relevant test results are provided with your referral.

- If new diagnosis of GDM or DM in pregnancy, arrange for prompt review by the antenatal provider to ensure multidisciplinary care by arranging urgent or routine endocrinology review.
- If patient is receiving private antenatal care refer to:
  - private endocrinologist. Note most endocrinologists will have a preferred dietitian or educator that they work with.
  - dietitian.
  - diabetes educator.

Information

For health professionals

Further information

Diabetes in Pregnancy Society – ADIPS Consensus Guidelines for the Testing and Diagnosis of Hyperglycaemia in Pregnancy in Australia and New Zealand (Modified November 2014)

For patients

- Baker Heart and Diabetes Institute – Managing Gestational Diabetes
- Better Health Channel – Diabetes: Gestational
- National Diabetes Services Scheme (NDSS) – Understanding Gestational Diabetes

References


Disclaimer

Last updated: October 2020