Diabetes in Pregnancy

(based on NICE Guideline, NG3, February 2015)

Key Priorities Pre-conceptual Care

- Women with diabetes who are planning to become pregnant should establish good glycaemic control before conception. Continuing this throughout pregnancy will reduce the risk of miscarriage, congenital malformation, stillbirth and neonatal death. It is important to explain that risks can be reduced but not eliminated.
- The importance of avoiding unplanned pregnancy should be an essential component of diabetes education from adolescence for women with diabetes.

Pre-pregnancy

All women with diabetes who are known to be planning a pregnancy should be referred to the Community Diabetes Specialist Nursing team for pre-conception care and to Paul Pipe-Thomas, Specialist Dietitian for Diabetes. Referrals should be faxed to the Diabetes Specialist Nursing team on 01226 209884 and receipt confirmed with the administration team on 01226 209884. Slots are available for these patients to be seen by an Advanced Nurse Specialist at Apollo Court Medical Centre every Friday.

Information and Advice

- Use ‘Planning a family diabetes notes’, produced by the Birmingham Perinatal Institute
- Encourage the woman’s partner or a family member to attend pre conception appointments
- Give advice on risks of diabetes in pregnancy and how to reduce them with good glycaemic control. Aim towards HbA1c <48 mmol/mol (6.5%) if safe. Reassure women that any reduction in HbA1c towards the target of 48mmol/mol is likely to reduce the risk of congenital malformations.
- Strongly advise women with HbA1c >86 mmol/mol (10%) to avoid pregnancy
- Discuss diet, body weight and exercise including weight loss with women with BMI >27kg/m^2 and refer to dietitian
- Discuss hypoglycaemia and hypoglycaemia awareness
- Discuss retinal and renal assessment
- Discuss when to stop contraception and smoking cessation support
- Offer folic acid 5mg/day 3 months before a planned pregnancy and continue up to 12 weeks gestation

Review medication ***(Box 1)*** and self-monitoring routine (self-monitoring of capillary blood glucose will be frequent - ideal parameters 5-7 mmols/L on waking, 4-7 mmols/L pre-meal at other times of the day, <7.8mmols/L 1 hour after meals and 6-7mmols/L – as agreed with the individual – before bedtime).

Reviewed by Prof Jones Dec 2019

Box 1

Safety of medications before and during pregnancy

- Metformin may be used before and during pregnancy.
- Data from clinical trials and other sources do not suggest that the rapid-acting insulin analogues (aspart and lispro) adversely affect pregnancy or the health of the fetus or new born baby.
- Isophane (NPH) insulin is the first-choice long-acting insulin during pregnancy with the exception of patients with existing type 1 diabetes and those patients with type 2 diabetes who are well controlled with an existing analogue basal bolus regime. Insulin detemir should be considered as first-choice in these patients due to licensing approval in pregnancy. However, where patients have established good glycaemic control with insulin glargine, they should be given a choice of continuing with glargine or switching to detemir.

Before or as soon as pregnancy is confirmed:

- Stop oral hypoglycaemic agents, apart from metformin. If on a sulfonylurea 'dovetail' reduction to prevent hypoglycaemia
- Stop angiotensin-converting enzyme inhibitors and angiotensin-II receptor antagonists and consider alternative antihypertensives (eg labetolol)
- Stop statins (ideally 3 months before a planned pregnancy)

A confirmed pregnancy should be **immediately** referred to Consultant led care (Mr Raychaudhuri or Dr Khanem via community midwife or lead DSN). Inform women they will have frequent on-going input from the Joint Diabetes/Obstetric Teams

Pre-existing Diabetes and Pregnancy

- If it is achievable without causing problematic hypoglycaemia, women with diabetes should aim to keep their fasting capillary plasma glucose below 5.3 mmol/L and 1-hour postprandial plasma glucose below 7.8 mmol/L (**or** 2-hr postprandial plasma glucose below 6.4 mmol/L) during pregnancy
- Women taking glibenclamide or insulin should maintain their capillary plasma glucose above 4 mmol/L
- HbA1c should not be used routinely for assessing diabetes control during the second and third trimesters
- Women with type 1 diabetes should be offered blood ketone testing strips and a meter to test for ketonaemia and seek urgent medical advice should they become hyperglycaemic or unwell
- During pregnancy, any woman suspected of having **diabetic ketoacidosis** should be tested for ketonaemia and, if confirmed, **admitted immediately** to Barnsley Hospital to receive both medical and obstetric care
- Retinal assessment by digital imaging with mydriasis should be offered following the first appointment at the antenatal clinic (unless checked in the previous 3 months) and again at 28 weeks. If any retinopathy present at booking perform an additional retinal assessment at 16-20 weeks
- Renal assessment should be carried out (unless checked in the previous 3 months) at first contact. If serum creatinine ≥ 120 mcmol/L, urinary ACR >30 mg/mmol or total daily protein excretion >0.5 g, consider nephrological referral (do not use eGFR in pregnancy)

Gestational Diabetes

- 2-5% of all pregnancies are complicated by gestational diabetes
- Women with risk factors for gestational diabetes should be screened at 28 weeks (**Box 2**) with a 75g oral glucose tolerance test (OGTT)
- Women who have had Gestational Diabetes in a previous pregnancy should be given Folic Acid 5mg od on conceiving, which has been shown to reduce the risk of Gestational Medicine in a further pregnancy.

Box 2

Risk factors for screening

- BMI above 30 kg/m^2
- Previous macrosomic baby weighing 4.5 kg or above
- Previous gestational diabetes
- First-degree relative with diabetes
- Family origin with a high prevalence of diabetes:
    - South Asian (specifically women whose country of family origin is India, Pakistan or Bangladesh), Black Caribbean, Middle Eastern (specifically women whose country of family origin is Saudi Arabia, United Arab Emirates, Iraq, Jordan, Syria, Oman, Qatar, Kuwait, Lebanon or Egypt)

The consultant obstetrician may consider undertaking an OGTT in individual situations eg

- Current pregnancy measuring above 97th Centile
- ***Polyhydramnios***
- Glycosuria of '++' on one occasion or '+' on 2 or more occasions
- Pre-existing endocrine disorders
- Polycystic ovarian disease

75g Oral Glucose Tolerance Test (OGTT)

Obtain laboratory results within 24-48hrs

Pregnancy Impaired fasting glycaemia (IFG)

Fasting blood glucose ≥ 5.6 mmols/L
OR
1hr blood glucose ≥ 7.8 mmols/L

Refer **immediately** to the Community Diabetes Specialist Nursing team (01226 209884) to be seen at the next Medical Disorders Antenatal clinic which is held at Barnsley Hospital each Thursday morning and afternoon.

HbA1c alone should not be used to make a diagnosis of Gestational Diabetes.

Further advice can be sought from: Specialist Midwife Diabetes, Kirsty Rickerby, on 01226 432583.

Women with previous gestational diabetes

- Who have had an impaired fasting glucose test between pregnancies can be referred directly to Consultant-led care. They should plan their pregnancy and are managed in subsequent pregnancies as having gestational diabetes from booking.
- Not in the above group should be offered
    - Early self-monitoring of blood glucose **OR**
    - A 75g 2-hr OGTT as soon as possible after booking (whether in first or second trimester) followed by a 75g 2-hr OGTT at 24-28 weeks if the first test is normal

Information and advice before screening and testing

Advise that:

- There is a small risk of birth complications *(Box3)* if gestational diabetes is not controlled
- Good blood glucose control throughout pregnancy will reduce these risks
- Gestational diabetes will respond to changes in diet and exercise in most women
- Oral hypoglycaemic agents (mainly metformin) and/or insulin injections may be needed if diet and exercise do not control blood glucose levels
- After diagnosis they will have frequent ongoing input from the Diabetes Antenatal Clinic Team

- Self-monitoring of blood glucose will be frequent – ideal parameters 3.5-5.9 mmols/L pre-meal, <7.8mmols/L 1 hour after meals and 6-7mmols/L before bedtime

Box 3

Risks of gestational diabetes

- Fetal macrosomia
- Birth trauma (to mother and baby)
- Induction of labour or caesarean section
- Transient neonatal morbidity
- Neonatal hypoglycaemia
- Perinatal death
- Obesity and/or diabetes developing later in the baby's life.

Post-partum Management

- Women with pre-existing diabetes are referred back to routine care
- Remind women of the importance of contraception and the need for preconception care when planning future pregnancies
- Women with diabetes who breastfeed continue to avoid drugs for the treatment of complications that were discontinued in pregnancy (metformin safe with breastfeeding)

Post-partum advice to women who have had gestational diabetes

- Do not routinely carry out a 75g 2-hr OGTT. Offer a fasting plasma glucose (FPG) 6-13 weeks (usually at 6-week postnatal check) after the birth to exclude diabetes. If not arranged by 13 weeks, offer a FPG or HbA1c after 13 weeks.
- Offer lifestyle and contraception advice
- Discuss symptoms of hyperglycaemia
- Counsel on subsequent pregnancy and gestational diabetes
- Advise women with a FPG <6.0 mmol/L (or HbA1c <39 mmol/mol) that they are at low risk of diabetes at present, but that they should follow healthy lifestyle advice, have an annual blood glucose and HbA1c check and that they are at moderate risk of developing diabetes in the future
- Advise women with a FPG of 6.0-6.9 mmol/L (or HbA1c 39-47 mmol/mol) that they are at high risk of developing diabetes and offer appropriate advice and management
- Advise women with a FPG of ≥ 7.0 mmol/L (or HbA1c ≥ 48 mmol/mol) that they are likely to have type 2 diabetes and offer appropriate advice and management