Diabetes Mellitus: Management of Pre-Existing Diabetes Mellitus in Pregnancy

1. Purpose

This document outlines the guideline details for management of pre-existing diabetes mellitus(DM) in pregnancy at the Women's.

2. Definitions

Not applicable

3. Responsibilities

Staff providing the care for the management of pre-existing diabetes mellitus in pregnancy should follow this guideline

4. Guideline

4.1 Pre-pregnancy counselling

Specific diabetes related meaures

- The clear benefits of optimal metabolic control in reducing the risk of congenital malformations
- The clear benefits of optimal metabolic control in reducing the risk of an unhealthy baby
- An outline of routine management expectations during pregnancy including glycaemic targets; pregnancy should be delayed until HbA1c <7.0%
- Advice about contraception until conception is desired

General pre-pregancy diabetes related measures

- Folate supplements 2.5mg/day
- Not smoking
- Reduced alcohol intake
- Review all medications (including complementary) for safety in pregnancy
- Cehck rubella and varicella immune status
- Pap smear if not performed within last 2 years
- FBE, blood group and antibodies
- TFT, Thyroid antibodies, Coeliac disease screen for Type 1

Specific

- When conception is anticipated more direct action is required

Medications

- Metformin can be continued with women with type 2 DM or PCOS. All other oral hypoglycaemic agents are contraindicated during pregnancy. Women with pre-existing diabetes treated with oral agents should ideally be commenced on insulin prior to conception if diabetes control is unsatisfactory.
- In special circumstances, oral agents may be of more benefit than no therapy at all.
- Antihypertensive therapy should be optimized for pregnancy. Drugs contraindicated in pregnancy should be changed prior to conception. These include; ACE inhibitors and A2 receptor blockers
- Lipid lowering therapy must be ceased

Education

- Formal review by a diabetes education and a dietician, with the goal of ensuring adequate sel-management skills including sick day care. Hypoglycaemia management must be reviewed, including glucagon use by the partner. Suggestion for dealing with morning sickness could be discussed.

Complications review

- Nephropathy- a timed urine sample and serum creatinine to quantigy the microalbumin excretion rate and creatinine clearance
- Retinopathy- refer to ophthalmologist,optometrist or for fundal photos if not performed in the last 12 months. Retinopathy requiring treatment should be dealt with prior to pregnancy.
- Consider the possibility of macrovascular disease and formally investigate if indicated.

Miscellaneous

- Thyroid and renal (electrolytes, urea, creatinine and uric acid) function should be measured
- Screen for coeliac disease if not previously done (total IgA, anti-gliadin and anti-transglutaminase antibodies)
- Establish a plan for very early review when pregnancy is confirmed

Contraindications to pregnancy

- The medical role is to advise women of the risks they run in undergoing a pregnancy. The decision is the woman's (couple's).
- Poor glycaemic control Hb1c>7.0% until corrected.
- Active proliferative retinopathy until treated.
- Severe nephropathy creatinine >/= 0.25mmol/L
- Macrovascular disease

4.2 First Visit in Pregnancy

General pregnancy measures

- Perform routine antenatal screening tests, including MSU for microscopy and culture
- Provide advice about treatment of nausea and vomiting in pregnancy
- Perform Pap smear if not done in last 2 years

Diabetes related measures

- Repeat steps for pre-pregnacy coucelling
- Glycaemic control
    - All patients should perform home glucose monitoring at least 4 times each day before breakfast, and 2 hours after each meal
    - The targets ≤5 5.0mol/L fasting and ≤ 6.7 mmol/L after meals
    - Insulin therapy will usually be basal-bolus with at least 1 dose of medium/long-acting insulin each day and short/rapid-acting insulin before each main meal or insulin pump
    - Patients should be advised to undertake 30 minutes of exercise (e.g. brisk walking) at least 4 times per week unless medically contraindicated
    - The dietician should review all patients
    - Hb1c should be measured at the first visit and repeated monthly. The target level is <6.0%.

Screening for fetal anomalies/ aneuploidy

Midtrimester maternal serum screening is not reliable in pre-gestational diabetes. These patients shoukd be offered combined first trimester screening ofr aneuploidy with HCG and PAPP-A measures at 10 weeks and an ultrasound examination for dating, nuchal translucency, gross morphology and plurality at 12 weeks.

4.3 Subsequenct Visits in Pregnancy

Frequency of visits

Three weekly until 28 weeks, then 2 weekly until 34 weeks , then weekly until delivery. Patients should be seen at each visit by the obstetrician and diabetes physician.

- Patients should see the ophthalmologist each trimester

Fetal surveillance

- Ultrasound examination for morphology at 19 -20 weeks
- Ultrasound examiniation for growth at 28-30 weeks and 34-36 weeks. More frequent ultrasound examination, including umbilical artery blood flow measurement, may be indicred with the following complicating factors:
    - Microvascular (e.g. nephrology or proliferative retinopathy) or macrovascular disease
    - Hypertension pre-existing or pregnancy-induced
    - Fetal macrosomia
    - Intrauterine growth restriction
    - Poor glycaemic control
    - Smokers

Cardiotocography should be performed weekly from 36 weeks gestation. Earlier and more intensive (more frequent CTG, Doppler flow studies, biophysical profiles) fetal monitoring may be indicated in the presence of the above complications

4.4 Subsequenct Visits in Pregnancy

Timing

- Patients with optimal glyaemic control and no complicating factors (see above) should be delivered at 38-40 weeks, with the method depending on obstetric factors. If an elective caesarean section is to be performed, it should be at 38-39 weeks.
- Patients with one of the complicating factors mentioned above should be delivered at 38-39 weeks, or earlier if indicated. Elective caesarean section should be performed at 38 weeks.
- If delivery before 36 weeks is indicated, **Betamethasone** to promote fetal lung maturity should be administered if possible. This will usually require admission for sliding scale insulin.

Method

- If the estimated fetal weight at the time of delivery is < 4,000 g, vaginal delivery is usally appropriate unless there are other obstetric indications for caesarean section
- If the estimated fetal weght at the time of delivery is > 4,250 g, elective caesarean section should be strongly considered because of the risk of shoulder dystocia
- If the estimated fetal weight at the tine of delivery is 4,000 – 4,250 g, the decision about the route of delivery sgould be discussed with the patient taking inot account the riks for the particular patient.
- Management of Hypoglycaemia (Clinical algorithm)

5. Evaluation, monitoring and reporting of compliance to this guideline

To be developed.

6. References

Not applicable.

7. Legislation related to this guideline

Not applicable.

8. Appendices

Not applicable.

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