Diabetes in Pregnancy: Management in Labour

1. Purpose

The standard management of labour applies to women with diabetes, and includes the following special considerations:

- Timing of birth. Refer to guideline: Diabetes Mellitus - Management of Pre-existing Diabetes Mellitus in Pregnancy and refer to 'Timing'
- Continuous electronic fetal monitoring is recommended although may not be necessary for women with uncomplicated gestational diabetes (GDM) in spontaneous labour
- Ensure adequate analgesia with a lower threshold for epidural in labour
- Labour should not be prolonged
- The paediatric registrar should be notified of impending birth
- Birth should be supervised by an experienced accoucheur (Senior midwife or Obstetric registrar)
- Prepare for the possibility of shoulder dystocia. Refer to guideline: Shoulder Dystocia
- Active management of third stage. Refer to guideline: Third Stage Labour - Management.

This clinical guideline outlines the requirement for the management of diabetic woman in labour at the Women's.

2. Definitions

Not applicable.

3. Responsibilities

Clinical staff caring for a woman with diabetes in labour should follow this guideline.

4. Guideline

4.1 Glycaemic control

Pre-induction

- Induction booked by Diabetes Clinic. Refer to guideline Induction of Labour
- Usual insulin while having prostaglandin
- Usual insulin dose night prior to planned amniotomy (ARM)
- Morning of ARM - fasting glucose level, light breakfast, adjust usual short-acting insulin according to fasting glucose level and breakfast.

Birth Centre

- Oral food and fluids at discretion lead clinician.

4.2 Monitoring

Urine

- Test for ketones. If ketones are present at a moderate or high level, consider hydration and contact Diabetes Nurse Educator (DNE) (or Diabetes Physician if DNE is not available)
- Test for protein.

Blood glucose monitoring

- Type 1 and Type 2 and GDM on insulin 2-hourly
- GDM not on insulin 4-hourly.

Intravenous therapy

- Not routinely required for diabetes management
- Normal Saline should be used if requires IV therapy, no need for routine IV Dextrose
- Caution with fluid overload in severe pre-eclampsia.

Insulin

- Sliding scale - all 2-hourly.

Low dose

For Type 1 diabetes and women with GDM on insulin receiving < 40 units/day antenatally.

Blood glucose level (mm/l/L)	NovoRapid S/C (Humalog if patient using this already)
0-6	nil
6.1-8.0	2 units
8.1-10.0	4 units
10.1-14.0	6 units
>14	8 units and call RMO

High dose

For Type 2 diabetes and women with GDM on insulin receiving > or= to 40 Units/day antenatally.

Blood glucose level (mm/l/L)	NovoRapid S/C (Humalog if patient using this already)
0-6	nil
6.1-7.0	4 units
8.1-10.0	6 units
10.1-14.0	8 units
>14	10 units and call RMO

Intravenous insulin infusion

Suitable for patients requiring intensive therapy and/or poor control on a sliding scale, for example severe pre-eclampsia. Consult with Diabetes Physician.

Via syringe pump

- 50 units NovoRapid insulin in 50 mLs of Normal saline

Aim to keep blood glucose level 4-7mmol/L

- Start rate of 1-2 units/hour depending on initial blood glucose level
- If blood glucose level > 7 mmol/l, increase insulin by 1 unit/hour
- If blood glucose level < 4 mmol/l, decrease insulin by 1 unit/hour
- If blood glucose level 4-7 mmol/L, maintain rate.

Note: do not use this regimen for diabetic ketoacidosis.

Consult Endocrinologist on call for all patients with DIABETIC KETOACIDOSIS.

4.3 Management of hypoglycaemia

- Treat orally if possible
- Refer to Hypoglycaemia – Infant Management (clinical algorithms)

4.4 Elective caesarean section

- usual insulin the night before caesarean section
- book first on the theatre list in the morning
- morning of caesarean section - withhold usual insulin
- measure blood glucose level in theatre prior to anaesthetic
- avoid IV Dextrose unless hypoglycaemic
- postoperatively use low-dose sliding scale
  - 0700: 1200: 1700: 2200: until oral intake established
  - then, fasting and before each meal.

4.5 Postpartum

Insulin requirements fall dramatically postpartum

Monitor glucose levels to avoid profound and/or prolonged hypoglycaemia. Management of Hypoglycaemia (clinical algorithm)

Type 1 and Type 2

- blood glucose monitoring within 2 hours of birth then:
  - QID: fasting and before each meal
  - sliding scale insulin (low dose)
  - regular review by Diabetes Clinical Nurse Consultant and Physician until discharge
  - type 2 women will usually not require insulin in the postnatal period unless blood glucose levels are consistently elevated
  - Oral hypoglycaemic agents are not recommended while breastfeeding except for low dose metformin.

GDM

- Blood glucose monitoring B.D. for 48 hours
- Insulin is ceased post birth
- If blood glucose levels > 7.0 mmol/L, continue to monitor until discharge - fasting and 2 hours after meals
- If blood glucose levels are persistently elevated after 72 hours, contact Diabetes Clinical Nurse Consultant

Note: Refer to summary in Appendix below: Women with Diabetes: Postnatal Management and Follow-up.

4.6 Neonatal management

All well infants of mothers who have diabetes (type 1, type 2 or gestational diabetes, controlled by insulin or diet) should be transferred to the postnatal ward with their mother.

Refer to the guideline 'Hypoglycaemia, Infant Management' for guidance on neonatal observations for babies of a diabetic mother.

Note: Mother managed with insulin prior to or during pregnancy is not an indication alone for transfer of infant to SCN.

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

Compliance to this guideline or procedure will be measured by review of incidents reported through VHIMS.

6. References

Refer to the Women's procedure: Hypoglycaemia Infant Management.

Refer to NETS Neonatal Handbook: Management Neonatal Hypoglycaemia.

7. Legislation/Regulations related to this guideline

Not applicable.

8. Appendices

Appendix 1: Women with Diabetes: Postnatal Management and Follow-up

Appendix 1

Women with Diabetes: Postnatal Management and Follow-up

	GDM DIET	GDM INSULIN	TYPE 2	TYPE 1
Insulin	N/A	NO	NO May require on discharge if BGL's are elevated or oral agents	YES, reduced dose
Monitoring of BSL Target levels post birth: • pre breakfast: o <6mmol/L • pre-prandial: o 4-6mmol/L • 2 hr post-prandial o <8mmol/L	BD Pre breakfast and 2 hours post main meals for 48 hrs. Contact Obs/med Reg if BSL's >8mmol		QID Pre breakfast and pre main meals Continue on discharge Obs/Med Reg to review	QID Pre breakfast and pre main meals + Sliding scale Continue on discharge Obs/Med Reg to review
Follow-up in diabetes clinic	NO • GP in 6 weeks		YES in 6/52, booked by Diabetes Educator • Diab Phys (Diabetes Physician) • Diab diet (Diabetes Dietitian)	YES in 6/52, booked by Diabetes Educator • Diab Phys (Diabetes Physician)
Postnatal GTT	YES 6 weeks organised by Diabetes Educator		NO	NO
Weekend discharge	Contact Diabetes Educator (ext 2153) and leave patients name and UR number and follow-up GTT and/or appointments will be arranged.			

Questions?

Diabetes Educators:

- Monday – Friday 8am-4pm, ext 2153
- Lan Page '*Diabetes Educator*' 52163 or via Switchboard

Obstetric Medicine Registrar:

- Monday – Friday, 8.30am – 5pm
  - Lan Page 52157 or via Switchboard
- After hours:
  - Endocrinologist (on-call 24 hour) page via Switchboard

Dietitian:

- Mon-Fri, 8am- 4pm, ext 3160