GESTATIONAL DIABETES (DIET/INSULIN/ METFORMIN) CARE OF WOMEN IN BIRTHING SUITE

DEFINITION

A disorder characterised by hyperglycaemia first recognised during pregnancy due to increased insulin resistance and relative insulin deficiency usually disappearing after delivery

INTRAPARTUM CARE

- Perform admission CTG as there is an increased risk of fetal hypoxia during labour.
- Inform the Birthing Suite Clinical Coordinator, Obstetric Team and Neonatal Registrar of the woman's diabetic status.

FOR CAESAREAN SECTION (ELECTIVE)

- Usual evening insulin and/or metformin the day prior to elective caesarean section.
- Withhold morning insulin and/or metformin on day of elective caesarean section.
- Establish intravenous access and avoid any dextrose containing intravenous fluids except for Plasma-Lyte 148 + 5% glucose.
- Monitor capillary blood glucose levels hourly.
- If capillary blood glucose:
  < 4 mmol/L commence intravenous Plasma-Lyte 148 + 5% glucose infusion with hourly blood glucose monitoring (see Appendix A).
  > 7 mmol/L commence intravenous Insulin/Plasma-Lyte 148 + 5% glucose infusion with hourly blood glucose monitoring (see Appendix A).

FOR INDUCTION OF LABOUR (IOL) OR SPONTANEOUS LABOUR

- Continue usual diet and insulin and/or metformin until labour is established.

ONCE LABOUR IS ESTABLISHED

- Discontinue subcutaneous insulin and/or metformin.
- Women with GDM can eat as usual.
- For women with diet controlled GDM or on metformin: IV access is not required unless needed for interventions.

- For women on insulin: Establish intravenous access. Take bloods for group and hold and CBC.
- Avoid glucose containing intravenous fluids except for management of hypoglycaemia in an insulin treated woman.
- Women on diet alone or diet and metformin have no risk of hypoglycaemia and only very rarely require active management of hyperglycaemia in labour.
- Monitor capillary blood glucose levels two hourly.
- Hypoglycaemia in an insulin treated woman (≤ 3.5 mmol/L) can be managed initially with 2 sachets of Hypo-Fit (36 g carbohydrate), this is expected to raise the maternal blood glucose level by 2-3 mmol/l over 10 minutes, the response is dependent on maternal weight. Administer a further 1 sachet of Hypo-fit after 10-15 minutes if required. If no response after 30 minutes run one litre of Plasma-Lyte 148 + 5% glucose at a rate of 125 mL per hour via an infusion pump until the capillary glucose reading is above 5 mmol/L and then stop the infusion, rechecking glucose at hourly intervals.
- If capillary blood glucose > 7 mmol/L commence intravenous Insulin/Plasma-Lyte 148 + 5% glucose infusion with hourly blood glucose monitoring (see Appendix A).
- For women on insulin, close fetal heart monitoring in labour is recommended.
- For women with diet controlled GDM or on metformin, fetal heart monitoring should be individualised in discussion with the woman, LMC and medical team.

FOLLOWING BIRTH

- If an intravenous management protocol has been used stop the infusions immediately following birth.
- Antenatal treatment should not be recommenced (insulin and/or metformin).
- If the woman has had her routine insulin injection shortly before birth she should eat as soon as possible after birth.
- If the woman has had recent insulin cannot eat for any reason: continue to monitor capillary blood glucose levels hourly.
  - Treat hypoglycaemia (< 4 mmol/l) with 2 sachets of Hypo-Fit (36 g carbohydrate), this is expected to raise the maternal blood glucose level by 2-3 mmol/l over 10 minutes, the response is dependent on maternal weight. Repeat treatment with 1 sachet of Hypo-Fit (18 g of carbohydrate) after 10 minutes if required.
  - If no response consider an intravenous Plasma-Lyte 148 + 5% glucose infusion commenced at a rate of 125 mL per hour (caution regarding fluid overload and electrolyte disturbances) and consult a physician.
- For women treated antenatally with metformin and /or insulin, monitor blood glucose levels before breakfast and one hour after all meals for 24 hours. If hyperglycaemia persists (fasting > 7 mmol/L and/or postprandial > 11.1 mmol/L), please advise Physician before discharge as the woman may have Type 1 or Type 2 diabetes.

All women with gestational diabetes should have postpartum follow-up for persisting impaired glucose tolerance or diabetes. It is recommended that women have serial HbA1c measurements beginning at three months post-partum and then annually thereafter, to be arranged via their general practitioner.

REFERENCES

1. National Institute for Health and Care Excellence (NICE) guideline (2011): CG63 Diabetes in pregnancy http://www.nice.org.uk/nicemedia/live/11946/41320/41320.pdf

APPENDIX A

INSULIN/PLASMA-LYTE 148 + 5% GLUCOSE INFUSION SLIDING SCALE

- Two intravenous lines are to be sited. One for insulin/Plasma-Lyte 148 + 5% glucose infusion and one for oxytocin/anaesthetic/analgesic requirements.
- No glucose containing infusions, other than the fixed rate of Plasma-Lyte 148 + 5% glucose, should be administered.
- The intravenous line for the insulin / Plasma-Lyte 148 + 5% glucose infusion should be kept patent with a small amount of saline while the infusions are prepared.

PREPARE THE PRESCRIBED INSULIN/PLASMA-LYTE 148 + 5% GLUCOSE INFUSION AS FOLLOWS:

- The Plasma-Lyte 148 + 5% glucose is mainlined to the woman with the insulin infusion attached to the mainline via Y-site.
- Plasma-Lyte 148 + 5% glucose - main line
  - Run one litre of Plasma-Lyte 148 + 5% glucose at a rate of 75 mL per hour via an infusion pump. DO NOT ALTER.
- Insulin via Y-site on main line
  - Add 100 units Actrapid insulin using insulin syringe to 100 mL 0.9% sodium chloride and run via an infusion pump.
  - Run 10 mLs through the tubing before attaching to the mainline via the Y-site. This will prime the tubing and minimise subsequent binding of insulin to the plastic of the giving set.
  - The insulin is drawn up as directed by the Fluid and Medication Management Manual Volume 12 and checked by two midwives (one of whom must be intravenous certificated).
  - Run according to the Blood Glucose/Sliding Scale of Insulin Prior to Birth.

- Blood glucose should be checked immediately prior to starting the infusions and then one hourly until the woman is ready to eat.
- Document blood glucose level on the Diabetes Testing and Treatment Form C180009 (Ref.2219).
- Document accurately fluid input in the Fluid Balance 24-Hour Sheet QF00372.

Capillary Blood Glucose Level mmol/L	Infusion rate in mLs per hour (= units of Actrapid insulin per hour)
< 3.5	No insulin Increase the rate of Plasma-Lyte 148 + 5% glucose to 125mL/hour Check BSL every 15 minutes Call physician for advice
3.5 – 5.0	0.5
5.1 – 7.0	1
7.1 – 9.0	2
9.1 – 11.0	3
11.1 – 13.0	4
13.1 – 15.0	5 Stop the Plasma-Lyte 148 + 5% glucose
> 15.0	6 Stop the Plasma-Lyte 148 + 5% glucose Call physician for advice

Date Issued: September 2017
Review Date: September 2020
Written/Authorised by: Maternity Guidelines Group
Review Team: Maternity Guidelines Group

Gestational Diabetes (Diet/Insulin/Metformin)
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