Royal Berkshire NHS
NHS Foundation Trust

Diabetes – Labour guideline (GL820)

Approval

Approval Group	Job Title, Chair of Committee	Date
Maternity & Childrens Services Clinical Governance Committee	Mr Mark Selinger, Consultant Obstetrician	6th June 2014

Change History

Version	Date	Author, job title	Reason
6.0	Sept 2010	D Graham (Diabetes Specialist Midwife)	Think Glucose referral forms introduced
6.1	Sept 2011	A de la Horra (Audit Midwife)	Auditable standards added
7.2	May 2012	D Graham (Diabetes Specialist Midwife)	Changes made due to introduction Trustwide of new insulin sliding scale
8.0	May 2014	D Graham (Diabetes Specialist Midwife)	Review due

This guidance is intended for the insulin dependent diabetic or diet/Metformin controlled diabetic whose blood glucose in labour rises consistently ≥ 7.0 mmol/L
This guideline is not for use with diabetic ketoacidosis, diabetic hyperemesis or blood glucose derangement resulting from steroid administration, in these cases please use the appropriate guideline

Overview:
For those taking insulin in pregnancy or needing insulin for the first time during labour, due to a blood glucose consistently > 7.0 mmol/L, careful management of the diabetes is required. A variable rate intravenous insulin infusion (VRIII) (commonly called an insulin sliding scale) is used to titrate the required insulin dose against the measured blood glucose with an IV infusion of glucose running at a constant rate

Pre-labour or induction of labour

1. On admission, send a 'Think Glucose' referral to fax ext 7314 (diabetes midwives)
2. On the day of induction, during the initial induction of labour procedures, the woman should eat normally and give her usual insulin until labour is established or ARM performed
3. Monitor blood glucose as usual, i.e., pre-meals & bed, minimum
4. Consider siting an IV cannula on admission

Labour/ARM

- An intravenous cannula should be sited if not already inserted, for the sole use of the VRIII
- Commence the VRIII, as follows,
- IV glucose 10%, 500 ml with KCl 10mmol, running constantly at 100 ml/hour (pre-mixed bags mandatory)

PLUS, through same cannula:

- Intravenous insulin, 50 units Soluble Insulin in 49.5 ml 0.9% sodium chloride.
- This is now available on Delivery Suite in pre-filled syringes.
- Check the expiry date carefully as the shelf life is short.
- In case of non-availability of a pre-filled syringe, 50 units of Actrapid or Humilin S (Soluble Insulin) may be drawn up and mixed in a 50 ml syringe with 49.5 ml of 0.9% sodium chloride drawn up from a 50 ml infusion bag

The rate of insulin infused is dependent on the blood glucose results, as per the table below

Blood glucose (mmol/L)	Metered IV insulin (units per hour)
4.0 or below	Stop insulin, measure blood glucose in 30 mins.
4.1 – 7.0	1.5
7.1 – 9.0	2.5
9.1 – 11.0	4
>11.0	6

- Aim to maintain blood glucose levels between 4-7 mmol/L
- check blood glucose hourly during first stage of labour and half hourly during second stage of labour
- If general anaesthetic check blood glucose ½ hourly
- Do not continue long acting analogue insulin in a labouring woman on a VRIII

Post partum

- Inform Diabetes Midwife 7245 (leave message on answerphone out of hours)

Gestational Diabetics on VRIII during labour

- Stop the VRIII as soon as convenient after delivery of the placenta and check blood glucose as per the instructions in the Diabetes Care Record
- Insulin and Metformin doses taken during pregnancy should be stopped
- Rarely a gestational diabetic may be suspected of having developed type 1 diabetes during the pregnancy. These women will need careful postnatal blood glucose monitoring on the Delivery Suite to assess their diabetic status. Individual postnatal monitoring instructions and management will be written in the Diabetes Care Record on the Delivery Management page.

Postnatal type 1 diabetics or type 2 diabetics on insulin pre-pregnancy

- If blood glucose unstable/woman vomiting or unwell due to other complications refer to the diabetes specialist midwife or the obstetric team
- Continue the VRIII until allowed to have and able to tolerate food and drink
- Aim to transfer off the VRIII at a regular meal time
- Give a carbohydrate-rich meal, (2 slices of toast, minimum)
- If meal tolerated, the appropriate dose of subcutaneous insulin for the time of day

should be administered.

- The VRIII should then be continued for a further ½ hour after which it may be stopped.
- Appropriate subcutaneous insulin doses are normally written on the Delivery Management page of the diabetes care record. The woman should also have a copy of these doses
- If the Delivery Management page of the Diabetes Care Record is not completed (usually due to premature delivery at <36 weeks), reduce the pre-pregnancy doses by 1/3 on the first day post-partum. The pre-pregnancy doses will be found at the top of page 2 of the Diabetes Care Record. The doses may be gradually increased to the pre-pregnancy levels over the following days, according to the blood glucose readings,.
- If a woman, post Caesarean section or other surgery, has not tolerated a proper meal by 19.00 hours, she should be kept on a VRIII overnight
- The woman should not self-administer insulin unsupervised if she ahs received morphone or other narcotic analgesia or is post general anaesthetic

Postnatal type 1 diabetic returning to continuous subcutaneous insulin infusion therapy (CSII) (commonly called an insulin pump)

- Ask the woman to resite her CSII and set it running as soon as convient after the birth of the baby.
- There must be an overlap of not less than 60 minutes between starting the CSII and stopping the VRIII
- Continue the VRIII until the next meal time when the bolus dose can be given after the meal, if it has been tolerated. The bolus dose should be reduced by about 1/3 of the pre-pregnany bolus.

Postnatal type 2 diabetics on Metformin or Glibenclamide during and or before pregnancy

- A trial without oral anti-diabtic medication may be given
- The VRIII may be discontinued after delivery of the placenta
- Type 2 diabetics usually only need diabetes treatment if the blood glucose, without insulin, is consistently above 10.0 mmol/L
- Ask the woman to check her blood glucose, initially, 2 hourly with decreasing frequency according to normality of the readings
- If blood glucose readings are consistently above 10.0 mmol/L, or if the woman is symptomatic of diabetes at readings < 10.0 mmol/L but above 6.0 mmol/L, diabetes treatment will be required as follows:

Bottle feeding

- Pre-pregnancy anti-diabetic medication can be reintroduced.
- Some of these medications, particularly, Metformin and Glibenclamide can cause gastric upset and need to be reintroduced at the minimum dosage, increasing according to gastric tolerance, until the pre-pregnancy dose is achieved
- Many anti-diabetic medications are not appropriate for pregnancy and consideration should be given to the liklihood of the woman becoming pregnant again. If another pregnancy is likely in the near future, insulin may need to be reintroduced. In this case referral to the diabetes medical team should be considered

Breast feeding

- Metformin may be used by breast feeding women. The BNF does not state that Glibenclamide is absolutely contra-indicated but advice should be sought from the paediatricians first. See above notes regarding their reintroduction
- Many anti-diabetic medications are not appropriate for breast-feeding women and, in the presence of raised blood glucoses, insulin may have to be used for those whose pre-pregnancy medication is inappropriate
- Recommended dose of subcutaneous insulin may be documented in the yellow Diabetes Care Record on the Delivery Management page. If in doubt refer to the diabetes specialist midwife or the diabetes medical team

Hypoglycaemia

All insulin dependent diabetic women who are allowed to eat should have ready access to fast-acting carbohydrate at their bedside

Pregnant women are advised to aim for blood glucose readings between 3.5 – 5.9 mmol/L before meals. Midwives should consider that a blood glucose of less than 4.0 mmol/L, in a hospitalised woman, is hypoglycaemia and should take action to restore the blood glucose above 4.0 mmol/L.

Treatment of Hypoglycaemia:

Orange juice, Coca Cola, Lucozade or Jelly Babies may be products that the woman already has available.

Products to reverse hypoglycaemia are available in the orange coloured Hypoglycaemia Box kept by the drug cupboard on the Delivery Suite

For mild hypoglycaemia – give 20 – 30 gms of glucose:

Patient must be conscious, able to swallow and allowed to eat for the following products Glucogel oral gel; 10 gm tube; GlucoTabs; 4 gm tablets; GlucoJuice; 15 gm bottle.

The following products are available to correct severe hypoglycaemia:

20% IV glucose bags in the Emergency Crash Trolley with instructions – give 75 ml

Glucagon Kit (in fridge); 1mg vial of powder to be mixed with water from prefilled syringe included in the kit; May be given IM of IV; normally only required by severely affected or unconscious woman.


Maternity Blood Glucose Chart V2 July

For printable version of Maternity Blood Glucose monitoring chart see Stationery / Diabetes care /Maternity Blood Glucose chart v2.doc

References:

1. National Institute of Clinical Excellence Diabetes in Pregnancy: Management of diabetes and its complications from pre-conception to the postnatal period NICE clinical guideline no. 63 March 2008 Available from http://nice.org.uk
2. Catherine Nelson-Piercy, Handbook of Obstetric Medicine 2002; 82-99

Written: Ms P Street (Consultant Obstetrician) 2004
Reviewed: April 2005, Sept 2006, Jan 2007, Jan 2009, Sept 2010, Sept 2011 – Auditable standards added, May 2012 changes made following introduction of a Trustwide drugs chart with pre-printed insulin scale (VIII) – D Graham, 26/4/12, May 2014
Review due: June 2016