Royal Berkshire NHS
NHS Foundation Trust

Insulin and Metformin dose adjustment by Diabetes Specialist Midwives protocol (CG494)

Approval

Approval Group	Job Title, Chair of Committee	Date
Maternity & Children's Services Clinical Governance Committee	Mr Mark Selinger, Consultant Obstetrician	2nd May 2014

Change History

Version	Date	Author, job title	Reason
1.0	February 2012	R Crowley, Trainee Diabetes Specialist Midwife & D Graham Diabetes Specialist Midwife	Trust requirement
2.0	February 2014	R Crowley, Trainee Diabetes Specialist Midwife & D Graham Diabetes Specialist Midwife	Review due

Introduction and Rationale

Pregnancies complicated by pre-existing and gestational diabetes need close supervision by a Diabetes Multi-Disciplinary Team (MDT). This will include regular evaluation of home blood glucose monitoring results and adjustment of blood glucose lowering medications to bring the results within nationally advised targets. This will optimise the care offered to the women in terms of their pregnancy outcomes, reduce their hospital visits and reduce the antenatal clinic workload. To achieve the best glycaemic control, it is appropriate that these adjustments are able to be made by all of the MDT, including the diabetes specialist midwives, both in and outside of the clinic setting, whether the woman is at home or admitted. At present the medications used are Metformin and Insulin. Metformin requirements may increase from the initial dose prescribed by the physician and Insulin requirements can alter on a very frequent basis, both up and down.

This protocol has been developed in line with NMC document: The Standards for Medicines Management (2007), which allows for the titration of medication by registrants.

"Where medication has been prescribed within a range of dosages it is acceptable for registrants to titrate dosages according to patient response and symptom control and to administer within the prescribed range". (p. 46 standard 13 NMC 2007).

It also follows guidance from, the Nursing and Midwifery Council Code of Professional Conduct (2008).

Purpose of the treatment for which the drug is given

Insulin and Metformin treatment is aimed at alleviating the symptoms of hyperglycaemia, thereby reducing morbidity in both mother and fetus associated with hyperglycaemia. In accordance with NICE guidelines (2008), Insulin and Metformin are the main pharmaceutical treatments available to maintain good glycaemic control in pregnancy. Glibenclamide may also be considered but is not currently used at RBFT.

Name and form of medicine

The list of insulin's which are appropriate for use in pregnancy and may be adjusted by the Diabetes Specialist Midwives is attached (See Appendix One). Insulin and Metformin are prescription only medicines (POM).

Department to which the protocol applies

The Maternity Department, Royal Berkshire NHS Foundation Trust.

Author:	R Crowley, D Graham	Date:	February 2014
Job Title:	Diabetes specialist midwife, Diabetes specialist midwife	Review Date:	May 2016
Policy Lead:	Group Director Urgent Care		2.0 ratified 2nd May 2014 CG mtg
Location:	Maternity CG Shared drive/ Obstetrics & Midwifery/ Medical conditions & complications/ CG494		

Eligibility

Patients eligible for treatment under this protocol are maternity patients/women with pre-existing type 1 or type 2 diabetes, and patients diagnosed with gestational diabetes.

Initiation of treatment

The initiation of Metformin and/or insulin therapy, the dose, type, and frequency of the medications will be prescribed by a physician or non-medical prescriber, and recorded in the Diabetes Care Records. See Appendix 3.

For those patients already taking Metformin and/or insulin at the commencement of care by the MDT, the insulin dose, type, and frequency will also be assessed as to its suitability for use in pregnancy and duly recorded by the MDT in the Diabetic Antenatal Clinic. See Appendix 3

A target range of blood glucose levels will be agreed by the MDT and recorded in the Diabetes Care Records at the commencement of treatment, and appropriate drug dose adjustment will be made to achieve those targets where possible. Once an optimum dose of Metformin is achieved, it is not often changed until the birth where it may need to be discontinued.

Insulin treatment requires greater vigilance and, in some cases, may need to be altered frequently. Titration may be both upwards and downwards, as necessary, to achieve good glycaemic control. When necessary, initial prescription and changes of insulin type and regimen, (e.g. from twice daily to basal bolus), will be ordered by a physician or non-medical prescriber.

Subsequent insulin dose adjustment

Patients will be seen regularly by the MDT in the joint antenatal diabetic clinic in accordance with NICE guidance, to monitor their condition and adjust their insulin requirements in accordance with the clinical picture.

Between the antenatal clinic visits, or when women are admitted, the dose of insulin will be adjusted by the Diabetes Specialist Midwives on an individual patient basis, depending on the blood glucose readings, and the clinical profile. This may be done by telephone or by email, and the details of the adjustment will be recorded contemporaneously in the midwifery notes. Any adjustments required that exceed the agreed prescription

parameters, will be referred to the appropriate physician or non-medical prescriber from the MDT for review.

Criteria for staff selection to adjust blood glucose lowering medication

Registered Midwives employed as Diabetes Specialist Midwives, and Midwives in development posts as Trainee Diabetes Specialist Midwives, under the supervision of the Lead Diabetes Specialist Midwife, working within the Maternity Department at the Royal Berkshire NHS Foundation Trust

Specialist qualifications or essential training

Trainee Diabetes Specialist Midwives should hold an approved qualification in diabetes management from a recognised academic institution.

New to post Diabetes Specialist Midwives should undergo a minimum period of 3 months supervised insulin and Metformin adjustment (depending on previous experience), their mentor being the Lead Diabetes Specialist Midwife, and/or a diabetologist working in the Trust. This experience will entail,

1. the recording of several days of detailed blood glucose readings from the woman
2. assessment of those readings against targets set by the MDT for the woman
3. calculation of the appropriate medication adjustment required to safely achieve the targets
4. safe communication of medication changes with the woman by telephone or email,
5. accurate and contemporaneous record keeping of the changes

This training experience will be recorded using the proforma in appendix 2.

Audit

Annual audit of all diabetic maternity patients is already in place.

1. To assess the achievement of CNST requirements
2. To assess adverse outcomes in diabetic pregnancies

Continuing professional development

Registered midwives are responsible for keeping their knowledge and skills up to date. Diabetes Specialist Midwives will keep their knowledge and skills current by regular attendance at professional meetings, such as The Diabetes UK Conference and The Diabetes Specialist Midwives Network Meetings.

Appendix 1

Insulin's that may be adjusted by Diabetes Specialist Midwives according to the above protocol.

Rapid Acting Analogues

Novorapid (Insulin Aspart)

Humalog (Insulin Lispro)

Apidra (Insulin Glulisine)

Short Acting Neutral Insulin's

Actrapid

Humulin S

Insuman Rapid

Hypurin Bovine Neutral

Hypurin Porcine Neutral

Intermediate insulin's

Insulatard (Isophane Insulin)

Humulin I (Isophane Insulin)

Hypurin Bovine Isophane

Hypurine Porcine Isophane

Insuman Basal

Long acting insulin's

Levemir (Insulin Detemir)

Lantus (Insulin Glargine)

Tresiba (Insulin Degludec, not currently used in pregnancy)

Biphasic Insulin's, Analogue Mixtures

Novomix 30 (Biphasic Insulin Aspart)

Humalog Mix 25 (Biphasic Insulin Lispro)

Humalog Mix 50

Humulin M3

Insuman Combi 25

Insuman Combi 50

Hypurin porcine 30/70

Other Insulin's not mentioned above after training by diabetes physician.

The above insulin treatments may be adjusted upwards. The usual frequency of dose adjustment upwards will be not less than 3 days from the last adjustment. Rarely adjustment upwards will be needed more frequently however this must be undertaken with caution. Insulin may be adjusted downwards as necessary to prevent hypoglycaemia. Increases of up to 4 units per individual dose are acceptable. If greater dose increases are required, then a diabetes physician or non-medical prescriber should be consulted.

Author:	R Crowley, D Graham	Date:	February 2014
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Appendix 2

Competencies	Date	Signature
Demonstrates knowledge of Trust policy, legal aspects and professional accountability		
Can skilfully assess patient condition and ensures the guideline being followed is correctly applied		
Keeps contemporaneous records of all advice, decisions and action taken		
Knows when to refer patients to a medical practitioner		

Record of supervised Insulin adjustments

M Number	Diabetes Type	Signature	Date

Appendix 3

Record of current insulin's/ Record of initiation of insulin's Date …./…./….

Name ……..Dose……..Frequency……

Name ……..Dose……..Frequency……

To be titrated by up to 4 units per dose, to bring blood glucose within the target range set by the multi-disciplinary team

Doctor's/NMP's signature……

Record of insulin type change Date ..../…./….

Name ……..Dose……..Frequency……

Name ……..Dose……..Frequency……

To be titrated by up to 4 units per dose, to bring blood glucose within the target range set by the multi-disciplinary team

Doctor's/NMP's signature……

References

1. NMC Standards for Medicines Management, (2007), Nursing and Midwifery Council London
2. NMC Code of Professional Conduct (2008), Nursing and Midwifery Council London
3. BNF British National Formulary, 2010, British Medical Association, Royal Pharmaceutical Society, London
4. National Institute of Clinical Excellence (2008) Nice Guideline No. 63 Diabetes in Pregnancy

Written: R Crowley, Trainee Diabetes Specialist Midwife & D Graham Diabetes Specialist Midwife (Feb 2012)

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