

Pregnancy Management of Women with Pregestational Diabetes

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KEYWORDS

- Pregestational diabetes • Pregnancy • Insulin analogues
- Antihypertensive treatment • Prepregnancy
- Preconceptional counseling

Pregnancy in women with pregestational diabetes is complicated by increased risk of adverse outcomes for mother and infant. Obtaining and maintaining optimal glycemic control before and during pregnancy is crucial for optimizing outcomes. In addition, indications for antihypertensive treatment need to be clear.

DIABETES AND ADVERSE FETAL, NEONATAL, AND MATERNAL OUTCOMES

Large observational studies have shown an increased risk of adverse outcomes in diabetic pregnancy, including fetal and neonatal death (death occurring between 22 gestational weeks and 28 days after delivery), congenital malformations, macrosomia, preterm delivery, preeclampsia, operative delivery, and maternal mortality.^{1–11} In the data from the Confidential Enquiry into Maternal and Child Health (CEMACH) in the United Kingdom, diabetes was associated with a marked and significantly increased risk of death of the child during pregnancy or soon after delivery, compared with corresponding national rates in the general population.^{3,8} Approximately 80% of these losses were stillbirths, 80% of these babies being structurally normal. These figures are consistent with observations of a fourfold to fivefold increase in perinatal mortality^{2,5,8,10} and a fourfold to sixfold increase in stillbirth in pregnancies in diabetic mothers compared with the background population.^{2,8,10}

It is also clear from the CEMACH study³ and other studies that type 1 and type 2 diabetes confer a similar risk of perinatal mortality. Until recently, type 2 diabetes

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was uncommon in women of childbearing age. However, type 2 diabetes is being diagnosed at an increasingly young age and was present in about one-quarter of all diabetic pregnancies in the CEMACH study.³

ROLE OF PRECONCEPTIONAL COUNSELING

Intensive management of glycemic control before, as well as during, pregnancy delivers significant health benefits to pregnant diabetic women and their offspring. Preferably, this management should be a collaborative effort between an obstetrician, endocrinologist, dietician, and nurse educator before and during pregnancy. A recent study in 290 women with type 1 diabetes evaluated the impact of preconceptional care on glycemic control and outcome of pregnancy.¹² The rate of congenital malformations was about threefold lower in the preconceptional care group relative to the group starting care during pregnancy (1.8% vs 6.1%, respectively). Supplementation with folic acid before pregnancy and up to 12 gestational weeks may reduce the incidence of malformations in pregnant women with diabetes.¹³ There is no consensus regarding the dose of folic acid; at least 400 µg per day is recommended, but some countries recommend 5 mg per day.¹⁴ However, few women attend preconceptional counseling sessions, and poor glycemic control remains common among diabetic women.³ In the CEMACH study, only 35% of women with pregestational diabetes received preconceptional counseling, only 37% had a measurement of long-term glycemic control as measured by hemoglobin A_{1c} (HbA_{1c}) within the 6 months before pregnancy, and less than 39% were taking folic acid before conception.³ Overall, the risk of an adverse pregnancy outcome is halved with each percentage point HbA_{1c} reduction achieved before pregnancy.¹⁵ This information may be useful as a motivating factor to achieve glycemic goals, and to reassure patients that all improvements in blood glucose are helpful, irrespective of the final value achieved. To improve the pregnancy outcome and the health of the newborn, the planning of pregnancy with HbA_{1c} less than 7.0% (51 IFCC units)¹⁶ and supplementation with folic acid of at least 400 µg before pregnancy¹⁴ is recommended. A HbA_{1c} less than 6.0% (42 IFCC) is desirable if it can be reached without risk of severe hypoglycemia (National Institute for Clinical Excellence [NICE] guidelines).¹⁷ Insulin treatment in combination with diet and self-monitoring of the glucose levels are the cornerstones in optimizing the glycemic control in pregestational diabetes.

USE OF METFORMIN DURING PREGNANCY

Metformin is usually the drug of choice in nonpregnant patients with type 2 diabetes and many women are becoming pregnant while on metformin. First trimester use of metformin in either polycystic ovarian syndrome or diabetes does not seem to be associated with an increased risk of major malformations if correction for maternal glycemic levels is performed.¹⁸ In many centers, metformin is therefore believed to be safe to use in the pregnancy planning phase. When pregnancy is established, the women can be shifted from metformin to insulin treatment immediately or metformin could be continued until 8 to 12 gestational weeks when the organogenesis and risk of early fetal loss have ended.¹⁸

SCREENING FOR LATE DIABETIC COMPLICATIONS

Screening for late diabetic complications such as diabetic retinopathy and diabetic nephropathy before pregnancy is of utmost importance. If sight-threatening retinopathy (ie, active proliferative diabetic retinopathy or significant diabetic macular edema)

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