

Case Study Responses

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Note: Readers are encouraged to visit www.InsulinJournal.com to review the details of a Case Study published in the July 2008 issue of *Insulin*.

This was the case of a 28-year-old woman with a 25-year history of type 1 diabetes mellitus, who visited her doctor for preconception counseling.

Question 1. What is the target glycosylated hemoglobin (A1C) before conception and during gestation?

Answer: a. <6%

It is clear from multiple studies that maintaining normal blood glucose and A1C levels before conception is critical. Failure to do so is associated with increased risk of miscarriage.¹ Because fetal development during the first trimester is the period of organogenesis, poor control is associated with increased incidences of fetal abnormalities, particularly central nervous system and cardiac abnormalities.

Question 2. What are the targets for glucose during pregnancy?

Answer: c. Fasting <95 mg/dL and 2-hour postprandial <120 mg/dL

As described above, good control of blood glucose levels early in pregnancy reduces the risk of fetal abnormalities (similar to that in the general nondiabetic population).² Continued maintenance of normal blood glucose levels prevents macrosomia, which is associated with increased difficulties during labor and post partum.

Question 3. If the patient is found to be pregnant during this visit, what additional evaluations should be performed for surveillance of complications and management?

Answer: d. Full ophthalmologic exam, including retina exam

Because diabetic retinopathy may progress during pregnancy, it should be identified early and followed.³ Interestingly, progression of retinopathy may point to other microvascular events and has been related to reduced fetal growth.

Question 4. What is the target thyroid-stimulating hormone (TSH) during pregnancy?

Answer: b. <2.5 mIU/L

Thyroid physiology changes during pregnancy, with increased thyroid binding globulin causing significant changes in the normal ranges for both total and free thyroxine and triiodothyronine, and for TSH.⁴ To prevent hypothyroid mothers from adversely affecting fetal neurological development, TSH levels should not rise above 2.5 mIU/L, an indication of hypothyroidism.⁵

REFERENCES

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3. McElvy SS, Demarini S, Miodovnik M, et al. Fetal weight and progression of diabetic retinopathy. *Obstet Gynecol*. 2001;97:587-592.
4. Mandel SJ, Spencer CA, Hollowell JG. Are detection and treatment of thyroid insufficiency in pregnancy feasible? *Thyroid*. 2005; 15:44-53.
5. The Endocrine Society. Management of thyroid dysfunction during pregnancy and postpartum: An Endocrine Society clinical practice guideline. <http://www.endo-society.org/guidelines/final/upload/Clinical-Guideline-Management-of-Thyroid-Dysfunction-during-Pregnancy-Postpartum.pdf>. Accessed December 2007.

Readers are invited to consider a new Case Study (see page 241) and submit responses to www.InsulinJournal.com before the deadline.