

Trends in Gestational Diabetes in Idaho Medicaid Patients

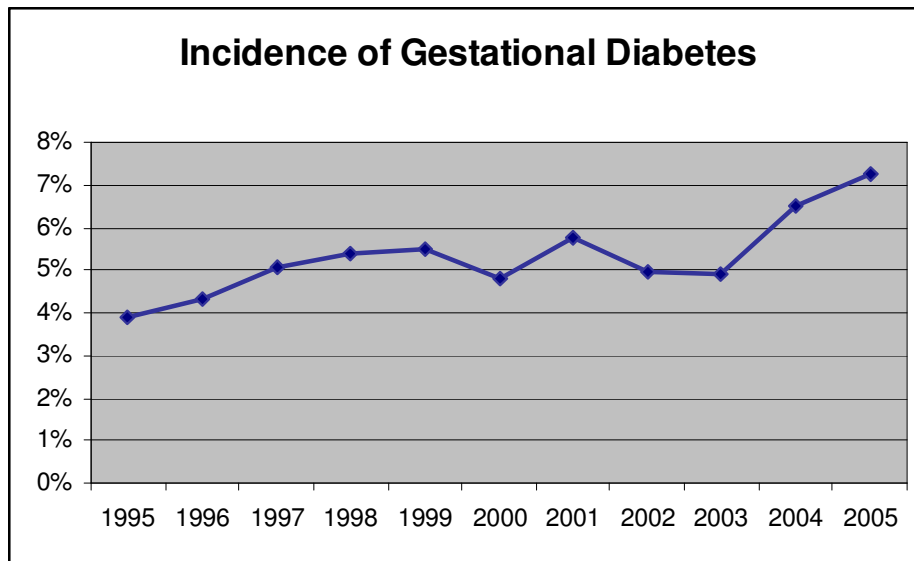
Background

According to the American Diabetes Association nearly 7% of all pregnancies are complicated by gestational diabetes mellitus (GDM).¹ Both maternal and fetal complications are increased in GDM. Recent data showed that intensive treatment of hyperglycemia significantly lowered the risk of serious perinatal complications.² Individualized medical nutrition therapy (MNT) is an integral part of GDM management. Human insulin has been the standard pharmacologic therapy when MNT fails to maintain near-normoglycemia. Use of other hypoglycemic agents in GDM is increasing.

Incidence

From January of 1995 through September of 2005, there were 87,546 pregnancies according to Idaho Medicaid records and 4,639 (5.3%) were complicated by GDM. The incidence of GDM increased over the past 10 years as shown in Figure 1. The incidence may be increasing due to the epidemics of obesity and metabolic syndrome. Also, in 2000 the ADA lowered blood glucose values diagnostic of GDM. Screening has changed little over the past 10 years and is unlikely to account for the increase in incidence.

Figure 1



Complications

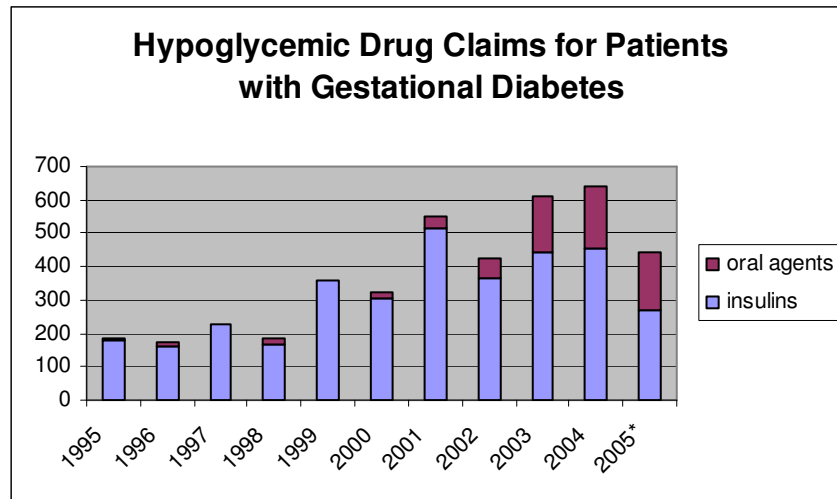
Maternal complications in GDM include hypertensive disorders, cesarean delivery, development of type 2 diabetes and GDM in future pregnancy. Fetal and neonatal complications include macrosomia, shoulder dystocia, hypoglycemia, jaundice and hypocalcemia. Perinatal morbidity was reduced in a recent study evaluating the effects of treatment of hyperglycemia on pregnancy outcomes.² More attention should be given to intensive treatment of hyperglycemia in women with GDM.

Treatment

Approximately 50% of women with GDM initially treated with MNT fail to achieve near-normal glycemic levels.³ The ADA recommends pharmacologic therapy when MNT fails to maintain fasting blood glucose ≤ 105 , 1-h postprandial ≤ 155 , or 2-hour postprandial ≤ 130 mg/dl. The American College of Obstetrics and Gynecology (ACOG) uses lower cut-off blood glucose values of ≤ 95 , ≤ 130 -140, or ≤ 120 mg/dl for fasting, 1-h postprandial and 2-h postprandial, respectively.

Of the Idaho Medicaid pregnancies complicated by GDM, only 16% were treated with a hypoglycemic agent, accounting for 4,112 prescription claims during the 10-year period. Yearly claims are shown in Figure 2. The oral agents include metformin, sulfonylureas and glitazones.

Figure 2



*Claims through September

The insulin analogs aspart (Novolog®) and lispro (Humalog®) are comparable to regular insulin in studies of women with GDM evaluating fetal/neonatal complications.^{4,5,6} These agents are more expensive but possibly lower postprandial blood glucose better than regular insulin with less hypoglycemia.

The sulfonylurea, glyburide (Micronase®, DiaBeta®) is the only oral agent studied in GDM. In a randomized controlled trial glyburide was comparable to insulin in glycemic control and both maternal and neonatal outcomes.⁷

Metformin (Glucophage®) is probably the most commonly used oral hypoglycemic agent to treat this disorder but studies in women with GDM are lacking. Studies in pregnant women with polycystic ovary syndrome have demonstrated metformin significantly lowers the risk of spontaneous abortion, pregnancy complication, and rates of GDM with no increase in fetal malformations.^{8,9,10} One prospective, randomized controlled trial is currently under way comparing metformin with insulin in women with GDM (the MiG trial).

Glitazones (Avandia®, Actos®) have not been studied in GDM or pregnancy.

Key Points

- The incidence of GDM is increasing.
- Approximately 50% of women with GDM will require pharmacologic therapy in addition to MNT.
- Intensive treatment of hyperglycemia will likely lower the risk of complications in GDM.

References available at <http://idahodur.isu.edu>

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