insurance, and pregnancy is one of the clinical scenarios in which Medicaid coverage is almost always available. Interestingly, the rates of preterm birth decreased in both the “intervention” group (women <26 years) and the control group of women greater than 26 years. It is possible that this simply reflects trends due to improvements in management of women at high risk of preterm birth; it is also possible that this is due to improvement in insurance coverage in all pregnant women, not just those covered by their parents, with introduction of the Affordable Care Act. Even if improvements in the rate of preterm birth were relatively small, it seems logical that the costs of the increased coverage would be offset by the costs of caring for preterm infants. Neonatal intensive care unit care for preterm infants is extremely expensive, and if this trend is confirmed, the cost of prevention could certainly be worthwhile. In addition, even if this increased provision of health insurance is not cost-saving, it would seem that providing adequate and high-quality prenatal care is certainly something that we, as a society, should embrace. It was Mahatma Ghandi who said “The true measure of any society can be found in how it treats its most vulnerable members.” Young pregnancy women certainly qualify as vulnerable, and it seems hard to argue with a policy of assuring adequate care for them.—MEN

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**Early Versus 6–12 Week Postpartum Glucose Tolerance Testing for Women With Gestational Diabetes**

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**ABSTRACT**

Women with pregnancies complicated by gestational diabetes mellitus (GDM) are at a significantly increased risk of developing type 2 diabetes mellitus (T2DM), hypertension, and cardiovascular disease. Diabetes screening for women with GDM is recommended 6 to 12 weeks following delivery, although this is an arbitrary time point developed to coincide with the routine postpartum visit. Adherence to this recommendation is lacking; fewer than 50% of women with GDM receive glucose screening postpartum, and limited effectiveness has been observed in attempts to reverse this. There is evidence that insulin resistance may normalize much faster than 6 to 12 weeks after delivery, and postpartum screening before hospital discharge in women with GDM has been suggested as an option to improve screening rates.

This prospective cohort study aimed to analyze the effectiveness of an early glucose tolerance test (GTT) before hospital discharge in diagnosing impaired glucose tolerance and diabetes. Women were recruited between May 2014 and June 2016 and eligible if diagnosed with GDM by early or routine 2-step screening and were less than 72 hours postpartum. Participants underwent a 2-hour 75-g oral GTT (OGTT) during their hospitalization for delivery and repeated this test at 6 to 12 weeks postpartum. Diagnoses of diabetes mellitus and impaired glucose tolerance using results from the early GTT were compared to the results of the 6- to 12-week routine GTT. Assessment of the diagnostic ability of the early GTT was done by calculating sensitivity, specificity, positive predictive value (PPV), and negative predictive values (NPVs).

The early GTT was completed by 58 women, 31 of whom returned to complete the follow-up GTT. The early GTT was found to have 50% sensitivity, 100% specificity, 100% PPV, and 96.7% NPV for diabetes (although the sample size was small) and an area under the curve of 0.75. The early GTT had less robust test characteristics for glucose tolerance, with a sensitivity of 63%, PPV of 31%, and an area under the curve of 0.57. The early GTT had an NPV of 80% for impaired glucose tolerance. No patients received normal GTT results at the early time point and a diagnosis of diabetes at 6 to 12 weeks; however, 3 patients found to have normal glucose tolerance at the early GTT had impaired glucose tolerance on the routine GTT.
Despite significant attempts for follow-up, nearly half of the study participants did not return to receive a routine GTT at 6 to 12 weeks. The early GTT identified all study participants with diabetes and missed 3 patients found to have impaired glucose tolerance at routine GTT. Further research with a larger sample size is needed to determine whether postpartum management of women with GDM could be improved by using early GTT screening.

EDITORS COMMENT

(Each year, between 2% and 10% of pregnancies in the United States are complicated by GDM, defined as insulin resistance with initial onset or recognition during pregnancy (Obstet Gynecol 2009;113:1419–1421). Women with GDM, regardless of the level of control of GDM, are at increased risk of developing T2DM. In fact, a meta-analysis in Lancet (2009;373:1773–1779) reported that women with GDM were 7 times more likely than women with normoglycemic pregnancies to develop T2DM. Taking into account the long-term implications of T2DM and the impact of medical care on reducing the downstream diabetic complications, early identification of postpartum T2DM risk and glucose intolerance is imperative and can easily be done by postpartum glucose screening. The American College of Obstetricians and Gynecologists recommends that all women with GDM be screened 6 to 12 weeks postpartum using either a 2-hour OGTT or a fasting blood glucose (Obstet Gynecol 2009;113:1419–1421). Further, the American Diabetes Association advocates continued diabetes screening at least every 3 years after initial GDM diagnosis (Diabetes Care 2008;31:S12–S54).

While the value of postpartum glucose screening has been well documented, there is evidence that such tests are significantly underutilized. In several recent US-based retrospective studies, the frequency of postpartum screening, using either the OGTT or the fasting blood glucose, varied from 23% to 54% (Diabetes Care 2009;32:269–274; Am J Perinatol 2010;27:737–742; Obstet Gynecol 2011;117:61–68). Although the study populations differed widely by socioeconomic status and race/ethnicity, each study demonstrated that the rate of glucose screening postpartum is subpar. In another recent study from Canada, only 1 in 6 women obtained diabetes screening in the first 6 months postpartum (BJOG 2011;118:1484–1490). Reasons proposed for such lack of follow-up include confusion over the recommended guidelines, poor bridging from antepartum to postpartum care, lack of patient awareness, and the patient’s lack of interest in personal health.

So if this testing is so important, how can we improve compliance with testing? Several recently published studies have addressed this topic (Am J Obstet Gynecol 2011;204:522.e1–522.e6; Am J Obstet Gynecol 2009;200:634.e1–634.e7). For example, 1 study that utilized case-manager nurses to follow patients during and after pregnancy, while demonstrating an increase in follow-up rates from 18% to 57%, still had 43% of the population untested (Am J Obstet Gynecol 2008;198:404.e1–404.e6). Another approach would be to obtain such testing during the acute postpartum period while patients are still in the hospital. The advantage is that while the patient is still in the hospital the test can be ordered, and compliance and inconvenience are less likely to interfere with follow-up testing. The theoretical disadvantage is that patients may still be experiencing some of the hormonal effects from pregnancy on their insulin resistance leading to inaccurate test results, particularly false-positive testing.

A prior study found that 92% of the women were able to complete their glucose testing postpartum day 2, whereas only 46% returned to obtain the testing in the postpartum period as an outpatient (Am J Perinatol 2016;33:966–971). Of the abnormal values at 6 to 12 weeks, the 2-day postpartum testing identified all of the values that were diagnostic of diabetes but had less sensitivity and specificity for other abnormal glucose values. Interestingly, because the majority of women did not follow up at 6 to 12 weeks, the immediate testing certainly identified many more women with abnormal glucose testing.

This research approach was also utilized in the study abstracted above. The authors found that all of the women were able to get the testing in
the acute postpartum period, whereas only 31 of 58 (53\%) obtained testing 6 to 12 weeks postpartum. Different from the previous study, the early testing identified only half of the women who were diagnosed with diabetes at the 6- to 12-week testing. This is counterintuitive to the expected physiology that in the immediate postpartum period a woman with GDM would continue with elevated insulin resistance so that the testing would have a high sensitivity with a poorer specificity. However, it is likely that there is enough variability day to day in responses to such testing that values close to the thresholds used for diagnosis may be met one day and not the next. This is one reason why such patients do require ongoing testing.

More importantly, this testing approach appears to achieve a higher rate of women completing glucose testing. Even with a sensitivity of 50\%, it would be as good as 6- to 12-week follow-up when only half the women will obtain follow-up testing. When one considers other approaches to increase postpartum testing, the high testing rate is a big improvement. For example, in a randomized controlled study, sending a postpartum postal reminder to patients, physicians, or both increased the follow-up screening rate from 14\% to just over 50\%. In another study, routinized RN counseling in the clinic and scheduling the outpatient OGTT as part of hospital discharge planning also increased testing to only 54\% (Am J Obstet Gynecol 2011;204:522.e1–522.e6).

Thus, this simple approach of obtaining the glucose testing in the postpartum period appears to mirror the benefits that have been achieved with placement of immediate postpartum long-acting reversible contraception such as intrauterine devices and implantables. Now that there is a couple of small studies, larger studies can focus on whether there are populations that will benefit from repeated testing, perhaps. A large, intention-to-treat trial of early versus later screening would help answer the true impact. However, even more important is that once a woman is identified with impaired glucose tolerance or T2DM, how we can transition her care into a primary care setting to prevent the downstream complications of these chronic diseases? In states with Medicaid expansion, the majority of such patients should be able to access ongoing care. Unfortunately, in the states that have not undergone Medicaid expansion or for undocumented immigrants in many states, this chronic care will be challenging to arrange.—ABC

Five and 10 Minute Apgar Scores and Risks of Cerebral Palsy and Epilepsy: Population Based Cohort Study in Sweden

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ABSTRACT

Population-based studies have found an increased risk of epilepsy and cerebral palsy (CP) associated with infants found to have a low Apgar score. Research has found a temporal association, as a low Apgar score at 5 minutes has been found to confer a higher risk than a correspondingly low Apgar score at 1 minute. Children with a low score (0–3) at 1 minute and a normal score (7–10) at 5 minutes have been found to be at much higher risk than those with normal scores at both time points. Little research has been done on neurologic risks associated with a low 10-minute Apgar score.