

Pregnancy Risks Associated with Obesity



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KEYWORDS

• Obesity • Pregnancy • Prenatal care • Gestational diabetes • Macrosomia

KEY POINTS

- Obesity has been shown to be associated with increased rates of preeclampsia, gestational diabetes, fetal macrosomia, stillbirth, postterm pregnancy, and increased rates of cesarean delivery.
- Providing prenatal care to obese women is done by all types of prenatal providers and needs to take into consideration the increased risks of complications and challenges of providing such care.
- Because of the issues related to obesity in pregnancy, best practice would be for preconception care to lead to weight loss before pregnancy.

INTRODUCTION

Obesity has increased dramatically in the United States over the last several decades.¹ In 1990, states with the highest rates of obesity approached 15%. Today, approximately two-thirds of Americans are overweight or obese.² The obesity epidemic extends to the pregnant population, with 40% of women qualifying as either overweight or obese,³ and 28% of pregnant women qualifying as obese. In 1999, 1 in every 10 pregnant women weighed more than 250 lb, whereas 1 in 20 pregnant women weighed more than 300 lbs.⁴

Obesity is defined as having a body mass index (BMI) of 30.0 kg/m² or greater, whereas overweight is defined as having a BMI of 25.0 to 29.9 kg/m².¹ Obesity can further be subclassified into class I (BMI of 30.0–34.9 kg/m²), class II (BMI of 35.0–39.9 kg/m²), and class III (BMI of ≥ 40.0 kg/m²).⁵ Recently, these categories have been expanded to include an additional category of super obesity (BMI of ≥ 50.0 kg/m²). Commonly, those with class II and class III obesity who are not in the super-obese range

Disclosures: The authors have no sources or funding or conflicts of interest to disclose.

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Obstet Gynecol Clin N Am 42 (2015) 335–353

<http://dx.doi.org/10.1016/j.ogc.2015.01.008>

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are labeled as having severe obesity. In addition, if a BMI is 35.0 kg/m² or greater and there is a concomitant health condition such as diabetes, this is commonly deemed morbid obesity.

Obesity has been associated with many complications during pregnancy, including preeclampsia, gestational diabetes mellitus (GDM), fetal macrosomia, stillbirth, post-term pregnancy, and cesarean delivery. This article seeks to review the association of obesity with maternal and fetal adverse outcomes in both the antepartum and the intrapartum environments as well as provides recommendations for care of the obese gravida.

MATERNAL COMPLICATIONS OF OBESITY IN PREGNANCY

Hypertensive Disorders of Pregnancy

There is a longstanding, wide-ranging body of literature that supports a relationship between increasing maternal weight and the hypertensive disorders of pregnancy. Several observational studies demonstrate an association between obesity and gestational hypertension, with a reported 2.5-fold to a 3.2-fold increased risk.^{6,7} A link has also been drawn between obesity and preeclampsia,⁶⁻¹⁴ with several studies also demonstrating a linear relationship between BMI and preeclampsia risk.^{11,15} One systematic review found the risk of preeclampsia to double with each increase of 5 to 7 kg/m² in BMI,¹⁶ and one retrospective cohort study found that obese patients of Latina descent have an even greater increase in preeclampsia risk.¹⁷ In another prospective cohort study, increases in BMI between the first and second pregnancies were found to also increase preeclampsia risk.¹⁸ Weight has also been found to correlate with the incidence of both severe preeclampsia⁷ and eclampsia.¹⁰

Diabetes

Many observational studies have examined the link between obesity and gestational diabetes risk, with most showing an association between obesity and an increased risk of GDM.^{6-8,10,13,14} One observational study found a linear relationship between BMI and incidence of GDM, and a systematic review and meta-analysis found that the overall risk for GDM in obese patients was 3.76 times higher than in nonobese patients (OR 3.31-4.28), with the prevalence of GDM increasing by 0.82% for every increase of 1 kg/m² in BMI.¹⁹ Obesity has been shown to be associated with higher rates of GDM in all racial/ethnic groups, with particularly high incidences in Latina and Asian women.¹⁷

Given that obesity predisposes to insulin resistance, many obese patients will have preexisting type 2 diabetes mellitus (T2DM) before pregnancy.^{20,21} Several studies have described the detrimental effect of increasing maternal obesity on perinatal outcomes in women with diabetes. One study examining gestational diabetic women in Japan revealed increased rates of adverse outcomes with increasing BMI.²² In the United States, another retrospective study demonstrated that increasing BMI among diabetic gravidas increased rates of preeclampsia, macrosomia, and cesarean section.²³

The most recent recommendations from the American Diabetes Association are to screen patients with "severe" obesity for pregestational diabetes at the initial prenatal visit, with a screening test at 24 to 28 weeks for GDM if the initial screening test is normal.²⁴ These guidelines do not specify a BMI cutoff above which patients should receive screening, but using the definitions from above, that would be class II obesity and higher. Additional candidates for early screening according to these guidelines include women with glycosuria, a diagnosis of polycystic ovary syndrome, a strong

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