Obesity, excess weight gain during pregnancy linked to heavier babies in African-American women

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Epidemiologists at Boston University School of Public Health (BUSPH) have found that pre-pregnancy obesity and excess weight gain during pregnancy in African-American women are associated with an increased risk of giving birth to an abnormally large baby. Macrosomia, which is defined as a newborn weighing more than 4,000 grams at birth (approximately 8.8 pounds), can cause delivery complications such as hemorrhage, infection, the need for a caesarean section, preeclampsia and perinatal mortality. The study, which appears online in the journal *Obesity*, was conducted by researchers at the Slone Epidemiology Center using data from 59,000 African-American women participating in the Black Women's Health Study.

The investigators compared mothers of 691 full term infants weighing more than 4,000 grams with mothers of 5,996 full-term infants weighing less than 4,000 grams. Overall obesity, measured by body mass index (BMI) of greater than 30, was associated with a two-fold increased risk of macrosomia. After accounting for differences in BMI, the risk of macrosomia also was significantly higher among women with a pre-pregnancy waist circumference greater than 35 inches compared with less than 27 inches.

Maternal obesity may increase the risk of macrosomia due to greater energy accumulation by the fetus from increased maternal glucose concentrations and insulin resistance. Central adiposity, or weight gain

around the waist, also is related to glucose and insulin metabolic changes, independent of overall obesity. Few studies have examined the association between central adiposity and infant birth weight.

Gestational weight gain above the range recommended by the 2009 Institute of Medicine (IOM) guidelines also was associated with an increased risk of macrosomia and the association was present within each category of pre-pregnancy BMI: 25-35 pounds for BMI 18.5-24.9 kg/m2 (normal weight); 15-25 pounds for BMI 25-29.9 kg/m2 (overweight); and 11-20 pounds for BMI ≥30 kg/m2 (obese). These data indicate that overall and central obesity predict the risk of macrosomia, and that pregnancy weight gain is a strong determinant of risk.

"In addition to maintaining a healthy weight and waistline before pregnancy, our data suggest that it is especially important for obese women to adhere to the IOM guidelines for pregnancy weight gain to reduce their risk of macrosomia," said senior author Lauren A. Wise, ScD, an associate professor of epidemiology at BUSPH.

Provided by Boston University Medical Center