Ultrasound at Term Overestimates Macrosomia

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VANCOUVER, B.C. – An ultrasound diagnosis of fetal macrosomia at term is inaccurate in the majority of cases, and this inaccuracy may be contributing to unnecessary cesarean deliveries, new data suggest.

In an observational cohort study of 235 pregnancies at term in which US measurements led to a diagnosis of fetal macrosomia, only about a third of the infants were actually macrosomic at birth. Additionally, these pregnancies with US-diagnosed fetal macrosomia were more than twice as likely as all pregnancies in the population to end in cesarean delivery, according to results reported at the meeting.

US-estimated fetal weight "is not very accurate, and we have to counsel patients on that, when they come to ultrasounds and they are worried that they are going to have this [enormous] monstrosity of a baby," lead investigator Dr. Alese Wagner said in an interview. "You can tell them [that] most of the time, we are off."

She further recommended that physicians keep this new information in mind when it comes to recommending delivery interventions for a pregnancy in which the US suggests macrosomia.

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Major Finding: The positive predictive value of ultrasound-diagnosed fetal macrosomia, compared with actual macrosomia at birth, was just 37.4%.

Data Source: An observational cohort study of 235 pregnant women who had an ultrasound within 2 weeks of delivery indicating an estimated fetal weight of at least 4,500 g.

Disclosures: Dr. Wagner reported that she had no relevant financial disclosures.

Surprisingly, the accuracy of US in assessing fetal weight is similar to that of simple clinical palpation, according to Dr. Wagner, a third-year ob.gyn. resident at the University of Calgary in Alberta.

The study used the Hadlock formula for calculating weight from US fetal measurements, "which is supposed to be one of the better formulas for macrosomic infants," she noted. But through the years, "as the technology has gotten better – these ultrasound machines that we have now are amazing [in] what they can do – this [accuracy] hasn't gotten better," she added, speculating that the disconnect may in part be the result of reliance on simple measurements that don't take into account tissue densities.

Additionally, US assessment late in pregnancy is inherently more difficult because the fetus is so low in the pelvis and there is less amniotic fluid. Maternal body habitus also may play a role.

Using the clinical database of a tertiary referral center for the years 2005-2009, researchers identified 235 women who had a US exam within 2 weeks of delivery that indicated the presence of fetal macrosomia (defined as an estimated fetal weight of at least 4,500 g, as calculated via the Hadlock formula). However, they found that at delivery, only 88 of these infants had an actual birth weight of at least 4,500 g, for a positive predictive value of merely 37.4%, according to results reported in a poster session. The median estimated fetal weight was 4,693 g, whereas the median birth weight was 4,368 g.

Physicians can tell their worried patients that most of the time, the ultrasound calculations 'are off.'

DR. WAGNER

The mean percentage error of the estimated fetal weight was 8.6% overall. Viewed another way, 44% of the weights were off by more than 10%, and 7% were off by more than 20%.

There were only weak correlations between estimated fetal weight and birth weight, as well as between the individual fetal measurements used in the Hadlock formula and birth weight.

The mode of delivery was cesarean section in 66% of the pregnancies, compared with just 29% of all pregnancies in Calgary during the same period. "So it's [more than] double, the percentage who are getting C-sections, on what is [an inaccurate weight]," said Dr. Wagner.

Before the study, "there was a general feeling that we were pretty [far off] in the estimates of the fetal weights that we were getting closer to term, especially for the bigger babies," she commented. "People … usually thought that they were overestimating them, so it was nice to actually look at … what the actual numbers were." ■