

Ultrasound at Term Overestimates Macrosomia

BY SUSAN LONDON

FROM THE ANNUAL MEETING OF THE SOCIETY OF OBSTETRICIANS AND GYNAECOLOGISTS OF CANADA

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

VITALS

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.

when it comes to recommending delivery interventions for a pregnancy in which the US suggests macrosomia.

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.



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%.

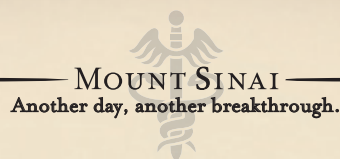
There were only weak correlations between estimated fetal weight and birth weight, as well as between the individual fetal measurements used in the Hadlock formula and birth weight.

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.”

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

DR. WAGNER



ADVANCING EARLY DETECTION OF EARLY STAGE EPITHELIAL OVARIAN CANCER

The development of new screening methods for epithelial ovarian cancer (EOC) is critical. As the fourth leading cause of death for women in the United States, it is estimated that there will be 21,880 EOC diagnoses this year, and 13,850 patients will die from this disease.

The high mortality is primarily because the majority of women are diagnosed with advanced-stage disease: If EOC is detected at an early stage, the survival rate is more than 90 percent.

With the goal of improving early detection and outcomes for women with EOC, The Mount Sinai Medical Center has taken a leadership role in the National Ovarian Cancer Early Detection Program (NOCEDP). The program is an international clinical and scientific effort to identify new screening methods for early detection. It was established in collaboration with physicians and scientists at the National Cancer Institute, the U.S. Food and Drug Administration, and other academic medical centers around the world.

Mount Sinai’s program is unique in that gynecologic oncologists, board-certified geneticists, genetic counselors, pathologists, and basic scientists work as part of a comprehensive, multidisciplinary team that provides personalized risk assessment and access to support, advocacy, and lay resources that are critical for the optimal management of women at risk.

As a state-of-the-art clinical research program, NOCEDP has achieved international recognition for scientific insights regarding the genetic, molecular, and biochemical regulation of EOC metastases. Risk factors for EOC include a personal history of breast cancer or colon cancer, a number of affected relative(s) with ovarian cancer, or a family history of a recognized inherited malignancy syndrome. Up to 10 percent of EOC is attributable to mutations in the breast/ovarian cancer susceptibility genes BRCA1 and BRCA2.

In Mount Sinai’s experience, 37.8 percent of Ashkenazi Jewish women with EOC had a mutation in one of these two genes, yet ovarian cancer most commonly occurs in a sporadic fashion, without any antecedent history of disease in the family. Insights such as this make detection of the most early-stage disease imperative.

Mount Sinai’s research contributions to NOCEDP grow from its large and diverse patient population and translational research culture. Patients participate in an intense screening program that includes a bi-annual physical and ultrasound evaluation in combination with examination by a gynecologic oncologist and genetic counselor, and an annual exam by their referring health care provider. Building on this, translational research has facilitated the identification of hundreds of potential biomarkers for EOC early detection, such as lysophospholipids and proteins, which play significant roles in the regulation of ovarian metastasis and may serve as markers for early-stage disease. Mount Sinai researchers have also identified biologically relevant targets for new therapeutics. Similarly, new diagnostic imaging technologies, such as contrast sonography, being pioneered at Mount Sinai and Vanderbilt University appear to be promising in detecting early-stage cancer in ovaries that otherwise appear normal.

The twin challenges are to identify those women at high-risk for EOC, and to provide clinical expertise to optimize health care. At the forefront of early diagnostic techniques, the work of the NOCEDP is helping develop and validate ovarian cancer early detection tests to optimize women’s health care.

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