

Research highlights problems of predicting birthweights in obese mothers

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Researchers have found what they believe to be the most accurate way of predicting the birth-weight of babies born to the growing number of obese mothers, according to a study in the UK-based journal *Ultrasound in Obstetrics and Gynecology*.

Experts from the University of Rochester Strong Memorial Hospital in Rochester, New York, USA, have recorded accurate results in more than nine out of ten cases using the gestation-adjusted projection method (GAP).

The GAP method uses a range of ultrasound measurements, taken when the mother is 34 to 36 weeks pregnant, and a mathematical formula to determine whether the baby is larger than the average size of babies for its gestational age. This data is then used to predict the final birth weight.

GAP is very useful when a pregnant woman is obese, as this often makes it difficult for medical staff to obtain a clear ultrasound image of her baby. This is particularly true at the end stages of pregnancies, when most birth weight measurements are obtained, so doing this earlier in the pregnancy is a distinct advantage. Previous research carried out at the University of Rochester has already shown GAP to be accurate when used on diabetic and non-diabetic patients.

"Obesity is a risk factor for almost all obstetric complications" explains Dr Lorelei Thornburg from the Division of Maternal Fetal Medicine at the University. "It is particularly important to identify high birth-weight

babies over 4,000 grams (just under nine pounds) as these are associated with higher complication rates for mothers and babies.

"Given that two-thirds of Americans are now obese and one in 20 are morbidly obese, it is essential that clinicians are able to predict which mothers will give birth to high birth-weight babies and to be able to reassure those who are not carrying one that is larger than average. Similar obesity rates are now being recorded in some parts of Europe as well.

"Because a simple visual ultrasound is less accurate in obese women, we need to use any measurements that we can glean from the ultrasound to predict the birth weight."

Dr Thornburg and her colleagues looked at 357 pregnant women who were obese, according to their self-reported weight before pregnancy, and 1,025 who were normal weight. All were carrying a single baby and their average age was 27.

61 per cent of the normal weight control group were white or Hispanic and 36 per cent were black. In the obese group the figures were 53 per cent and 46 per cent respectively.

The obese women were divided into three groups.

- Class one contained the 45 per cent of women with a Body Mass Index (BMI) of between 30 and 34.9.
- Class two contained the 29 per cent of women with a BMI of between 35 and 40.
- Class three contained the 26 per cent of women who were morbidly obese, with BMIs ranging from 40 to 58. 17 per cent had a BMI of more than 50.

The researchers used the GAP method to compare the estimated birth weight, based on scans taken between weeks 34 and 36 of the woman's pregnancy with the baby's weight on delivery. The data was then collated for the normal weight control group and the three obese groups.

Overall the GAP method was able to predict the birth weight within 20 per cent in 93 to 95 per cent of cases, within 15 per cent in 82 to 86 per cent of cases and within 10 per cent in 59 to 70 per cent of cases. This indicates that the overall accuracy levels between the normal weight control group and the obese patients were very similar in most cases. The researchers did note, however, that the largest errors between predicted and actual birth weight occurred in women in the most obese group.

Most importantly, the researchers were also able to rule out the risk of a high birth-weight baby in over 80 per cent of cases, regardless of the mother's BMI.

There was also a clear link between the mother's BMI and the final birth-weight of their baby. Mothers who were morbidly obese tended to produce babies that were, on average, more than 400 grams (almost a pound) heavier than the women who were normal weight.

"Overall we found that the GAP method performed equally well for the obese and normal weight pregnant women covered by our study, but did notice some decrease in accuracy in the most obese women" says Dr Thornburg.

"We believe this could be because the babies born to women in this group were significantly larger or it was much more difficult to carry out the ultrasound tests because of the mother's excess body weight.

"In our view, GAP may represent the best method for predicting the birth weight of babies born to obese mothers. It has high levels of

accuracy and provides a convenient and easy-to-use method for medical staff.

"Obesity and high-weight babies pose extra risks for pregnant women and present real and growing challenges for health professionals. Being able to identify those risks more clearly is an important step in the management of obese pregnant women and their babies."

Source: Wiley

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