Risk of Newborn Heart Defects Increases with Maternal Obesity

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(PhysOrg.com) -- The more obese a woman is when she becomes pregnant, the greater the likelihood that she will give birth to an infant with a congenital heart defect, according to a study conducted by researchers at the National Institutes of Health and the New York state Department of Health.

The researchers found that, on average, obesity increases a woman's chance of having a baby with a heart defect by around 15 percent. The risk increases with rising obesity. Moderately obese women are 11 percent more likely to have a child with a heart defect, and morbidly obese women are 33 percent more likely.

"The current findings strongly suggest that by losing weight before they become pregnant, obese women may reduce the chances that their infants will be born with heart defects," said Alan E. Guttmacher, M.D., acting director of the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), the NIH Institute that conducted the study.

Congenital heart defects are the most common type of birth defect, affecting 8 in every 1,000 newborns (www.nhlbi.nih.gov/health/dci/D … es/chd/chd_what.html). These defects consist of a number of problems in the structure of the heart and range from minor to life threatening.

Previous studies have shown that maternal obesity during pregnancy is associated with complications for mothers and infants. Obesity increases

the risk for pregnancy-induced hypertension, preeclampsia (a serious form of hypertension during pregnancy), gestational diabetes, and cesarean delivery. Infants born to women who were obese during pregnancy are themselves at increased risk for overweight and type II diabetes later in life. Previous research by NICHD scientists and others has also shown an association between maternal obesity and birth defects, such as neural tube defects — serious malformations of the spinal column. In the United States, 1 in 5 women are obese at the beginning of pregnancy.

The findings were published online in the American Journal of Clinical Nutrition. The study's first author was James L. Mills, M.D., M.S., at the NICHD's Division of Epidemiology, Statistics and Prevention Research. Other authors of the study were James Troendle, Mary R. Conley and Tonia Carter, also of the Division of Epidemiology, Statistics and Prevention Research, and Charlotte M. Druschel, of the New York State Congenital Malformations Registry.

"The trend is unmistakable: the more obese a woman is, the more likely she is to have had a child with a heart defect," Dr. Mills said.

Overall, previous studies on maternal obesity and congenital heart defects were inconclusive, with some suggesting a link and others finding no association.

To conduct the current study, the researchers analyzed data in the New York State Congenital Malformations Registry, a repository of case reports on children born with birth defects in New York state, excluding New York City. Using 1.53 million births that took place in the state over the course of 11 years, the researchers compared the records of mothers of 7,392 of children born with major heart defects to those of more than 56,000 mothers of infants born without birth defects.

The researchers calculated the mothers' body mass index (BMI), a measure of an individual's proportion of body fat to her height. A normal BMI is 18.5 to 24.9; overweight is 25 to 29.9 and obese is 30 and above.

The obese mothers were 15 percent more likely than mothers with normal BMI to have children with heart defects. Women classified as morbidly obese — with a BMI of 40 or higher — were 33 percent more likely than women with normal BMI to have children with heart defects.

The risk of heart defects increased sharply at a BMI of 30 and was progressively higher with each increase in BMI.

On average, women who were overweight but not obese had no increased risk. However, the researchers saw the chances of having a child with a congenital heart defect increase for obese women, and increase sharply for morbidly obese women.

The study examined records of infants after they had been born and for this reason it cannot conclusively prove that obese women who lose weight before they conceive will reduce their infants' risks of heart defects. For conclusive proof, a study would need to enroll obese women who were not yet pregnant, follow those who succeed in losing weight before conceiving, and then determining the frequency of heart defects among the children subsequently born to them. However, until such a study can be conducted, the researchers believe it is reasonable to assume that attaining a healthy weight before conception will reduce the risk for heart defects.

"If a woman is obese, it makes sense for her to try to lose weight before becoming pregnant," Dr. Mills said. "Not only will weight loss improve her own health and that of her infant, it is likely to have the added benefit of reducing the infant's risk for heart defects."