

Scientists develop 'gas gauge' to prevent pregnancy loss

August 3 2009

To combat the many fetal deaths that occur annually because the placenta is too small, researchers at Yale School of Medicine have developed a method to measure the volume of the placenta, which provides nourishment to the fetus.

Limits in current technology keep doctors from being able to monitor the growth of the placenta, which, like the gas tank of a car, is the source of fuel for the fetus. The placenta can be so small that the fetus literally runs out of food and oxygen and dies, according to lead author Harvey J. Kliman, M.D., a research scientist in the Department of Obstetrics, Gynecology and Reproductive Sciences. He and his colleagues published the results of their findings in the August 3 issue of the *American Journal of Perinatology*.

Fetal death, or intrauterine fetal demise (IUFD), affects 30,000 women each year in the United States. Until now, there has been no easy way to determine how much “gas” is left in the placenta’s tank.

Kliman decided to study this issue after noting that many late-term pregnancy losses were associated with very small placentas. He theorized that in much the same way that an obstetrician uses ultrasounds to follow the growth of the fetus, or a pediatrician weighs and measures children to ensure they are growing normally, the growth of the fetus’ placenta could be monitored.

When Kliman asked perinatologists (maternal fetal medicine specialists)

why they did not look at the placenta when performing routine ultrasounds, the answer was always the same: The placenta is a curved structure and is too difficult to measure. If they had to measure the placental volume they would need a very expensive machine, specialized training and more time.

With the help of his father, Merwin Kliman, a mathematician and electrical engineer, Kliman developed an equation that used the maximal width, height and thickness of the placenta. Kliman and his team at Yale then validated the method by comparing the volume predicted by the Estimated Placenta Volume (EPV) equation taken just before delivery to the actual weight of the placenta at the time of delivery.

“In this study, we showed that the equation predicted the actual placental weight with an accuracy of up to 89 percent,” said Kliman. “The method works best during the second and early third trimesters, just when routine ultrasound screening is done on many women in the U.S.”

In addition to validating the equation, the team is also collecting EPV data from centers around the world to create the normative curves that doctors can use to determine if the [placenta](#) is normal, too small or even too big. “I hope that the EPV test becomes routine for pregnant women,” said Kliman.

Source: Yale University ([news](#) : [web](#))

Citation: Scientists develop 'gas gauge' to prevent pregnancy loss (2009, August 3) retrieved 11 May 2024 from <https://medicalxpress.com/news/2009-08-scientists-gas-gauge-pregnancy-loss.html>

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