

New research shows that ultrasound can be used to detect placenta problems in small unborn babies

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A Doppler ultrasound that measures the blood flow of small unborn babies can reveal whether or not the placenta is working properly. In

case of repeated deviations from these Doppler measurements, additional monitoring of the unborn baby would be necessary. Such deviations indicate a higher risk of oxygen deficiency and other health problems for the baby. This study by Amsterdam UMC in collaboration with UMC Groningen and 17 other Dutch hospitals is published in the *British Journal of Obstetrics and Gynaecology*.

Around 10% of unborn babies are classed as small for their gestational age. If these babies are still healthy, there is no need for intervention during pregnancy. But in the case of [small babies](#) with a malfunctioning [placenta](#), action must be taken and sometimes it is necessary for the baby's birth to be induced.

"This means it is incredibly important to track down which babies are smaller due to the placenta," says Wessel Ganzevoort, associate professor of obstetrics at Amsterdam UMC and leader of this study.

Doppler measurement

For almost 50 years, growth ultrasounds have been made to detect small babies, and then to see if they follow their own growth pattern or if they begin to grow more and more slowly. In this study, small babies also underwent a Doppler ultrasound in addition to the standard growth measurement. This ultrasound measures the resistance of the blood vessels in the [umbilical cord](#), which provides information about the blood flow to the placenta.

The ultrasound can also measure the blood supply to the child's brain. If the supply is higher than usual, it can be a signal that the placenta is not functioning as well. The baby has then "opened" the blood vessel in the brain to protect the brain against the deficiency caused by a malfunctioning placenta. With a placenta that functions suboptimally, the risk of health problems (such as lack of oxygen) in the child and

ultimately mortality around birth increase.

Part of the study was also to see whether the outcomes for the child were better if the delivery was induced before a gestational age of 37 weeks. This did not lead to better outcomes. The advice is therefore to wait until at least 37 weeks of pregnancy to induce labor. This is because it is better for the baby to stay in the womb as long as possible, as long as there are no additional risks of health problems.

Added value

"What was possible with a Doppler ultrasound was already known, but it is not yet standard practice in all hospitals. This research now shows that this measurement certainly has added value for detecting pregnancies in babies that are too small with a malfunctioning placenta," says Mauritia Marijnen, Ph.D. candidate at Amsterdam UMC and first author of the study.

"By adding this Doppler ultrasound to the care plan of these undersized babies, the higher risk of problems surrounding childbirth can be better detected and monitored. Small babies for whom the measurement is normal can also be monitored less intensively. There is therefore a greater chance that the delivery will take place naturally, without intervention," concludes Ganzevoort.

More information: Doppler ultrasound of umbilical and middle cerebral artery in third trimester small for gestational age fetuses to decide on timing of delivery for suspected fetal growth restriction: a cohort with nested RCT (DRIGITAT), *British Journal of Obstetrics and Gynaecology* (2024).

Provided by Amsterdam University Medical Center

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