

Maternal Factors Tied to Fetal Growth Restriction

BY MARY ANN MOON

Pregnant women who smoke, don't take folic acid supplements, or have higher than average blood pressure or hematocrit levels are at greater risk than others for fetal growth restriction during the first trimester, according to a report.

In turn, such growth restriction is associated with a greater risk of poor outcomes such as preterm birth, small size for gestational age (SGA) at birth, and a compensatory accelerated rate of postnatal growth that persists until age 2 years, said Dr. Dennis O. Mook-Kanamori and his associates at Erasmus Medical Center, Rotterdam, the Netherlands.

These findings from a population-based prospective study involving 1,631 pregnant women suggest that growth patterns as early as the first trimester have a far-reaching influence, perhaps affecting disease risk in adulthood as well as in childhood, the investigators said.

They assessed fetal crown-to-rump length via ultrasound during the first trimester among women participating in a larger study in the Netherlands concerning fetal life.

Higher than average diastolic blood pressure and hematocrit levels, smoking, and nonuse of folic acid supplements significantly correlated with shorter crown-to-rump length.

There was even a dose-response relation between the number of cigarettes smoked and the degree of growth restriction.

Maternal weight and height showed no relation to the development of fetal growth restriction, which indicates that the researchers were indeed measuring true in utero growth restriction rather than small stature.

Fetuses in the lowest 20% of crown-to-rump length had a 7% risk of preterm birth, an 11% risk of SGA, and an 8% risk of low birth weight (LBW). In contrast, these rates were 4%, 4%, and 3.5%, respectively, among fetuses that did not show growth restriction.

This indicates a two- to threefold increase in risk for these complications, Dr. Mook-Kanamori and his colleagues said (JAMA 2010;303:527-34).

First-trimester fetal crown-to-rump length also correlated with head circumference, femur length, and weight not only throughout pregnancy and at birth, but also at 1-year and 14-month assessments.

This correlation had disappeared by the time the study subjects were evaluated at age 2 years.

"Increased postnatal growth rate is a well-established risk factor for metabolic and cardiovascular disease in later life," the researchers noted.

In an editorial comment accompanying this report, Dr. Gordon C.S. Smith of the University of Cambridge (England) said these findings suggest that "complications of late pregnancy may, at least for some women, already be de-

termined in the first 3 months post conception, even before a woman has sought prenatal care."

It is possible that combined ultrasound and laboratory screening in the first trimester may help identify fetuses with growth restriction who are thus at risk of later complications.

"The challenges for future research are to produce robust screening tests with acceptable levels of detection and prediction, and to identify interventions that are effective in improving outcome when a pregnancy has been identified as high risk," Dr. Smith wrote (JAMA 2010; 303:561-2). ■

VITALS


Major Finding: Shorter fetal crown-to-rump length in the first trimester is associated with several maternal factors, including higher than average diastolic blood pressure.

Data Source: A population-based prospective study involving 1,631 pregnant women.

Disclosures: Funding sources included Erasmus Medical Center and the Netherlands Organization for Health Research. Dr. Mook-Kanamori reported no relevant conflicts of interest. Dr. Smith reported being a member of GlaxoSmithKline's preterm labor advisory boards.

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