

# Nuchal Translucency Predicts Fetal Heart Disease

*When screening is added to first-trimester exam, it can pick up defects that otherwise would have been missed.*

BY TIMOTHY F. KIRN  
Sacramento Bureau

RENO, NEV. — An increased nuchal translucency thickness can predict congenital heart disease in a euploid fetus and indicate pregnancies that should be referred for fetal echocardiography, according to data from the large First and Second Trimester Evaluation of Risk for Aneuploidy study.

When nuchal translucency thickness found on ultrasound in the first trimester

is at least 2 multiples of the appropriate gestational median (MoM), the risk of a major congenital heart defect is 14 times higher than normal, Lynn L. Simpson, M.D., said at the annual meeting of the Society for Maternal-Fetal Medicine.

Moreover, as the MoM increased, so did the likelihood of having such a defect: When the MoM was at least 3, the risk was 51 times higher than normal.

Overall, the sensitivity of nuchal translucency screening for major congenital heart defects is low (less than 20%) and

therefore is not a good screening test on its own, said Dr. Simpson of the department of obstetrics and gynecology at Columbia University, New York.

However, when nuchal translucency screening is added to the standard first trimester evaluation, it can pick up cases of major congenital heart defects that otherwise would have been missed.

With the cutoff of a nuchal thickness that is at least 2 MoM, about 1% of all infants would end up possibly being referred for fetal echocardiography, Dr. Simpson said.

The First and Second Trimester Evaluation of Risk for Aneuploidy (FASTER) study had 33,968 patients enrolled whose

records could be reviewed for cardiac outcome. Among those, there were 195 cases of congenital heart disease (an incidence of 5.7/1,000), of which 43 were defined by the authors as major defects. Major defects were those associated with a poor perinatal outcome or ductal dependency after birth.

The majority of cases of major cardiac defect occurred in fetuses with a nuchal translucency thickness less than the 2 MoM cutoff (81%), hence the low sensitivity of the test. But because the specificity of the test is very high in the absence of aneuploidy, the negative predictive value of the test at the 2 MoM cutoff is greater than 99%, Dr. Simpson said. ■

## Pregnancy-Induced Hypertension Tied to Metabolic Syndrome

BY SHARON WORCESTER  
Tallahassee Bureau

ORLANDO, FLA. — Pregnancy-induced hypertension and polycystic ovarian syndrome may be risk markers for later development of metabolic syndrome, Stephen Franks, M.D., said at an international conference on women, heart disease, and stroke.

The findings are important because they suggest that identification of those at risk for metabolic syndrome, and interventions to reduce that risk, can begin as early as adolescence, when polycystic ovarian syndrome (PCOS) typically emerges, said Dr. Franks of the Imperial College London.

The prevalence of metabolic syndrome in women is "staggeringly high," and the hazard ratio for cardiovascular mortality in women with metabolic syndrome is nearly 2.8. For diabetes, the hazard ratio is 6.3.

"So there is an enormously increased risk of heart disease and diabetes; it would be very useful if we could try to predict [metabolic syndrome] and identify those

factors that alert us to the possibility of a high risk for metabolic syndrome," Dr. Franks said.

Several studies show that pregnancy-induced hypertension—including gestational hypertension and preeclampsia—is associated with increased prevalence of markers of metabolic syndrome as well as a higher lifetime risk of heart disease. In one study of nearly 2,700 women with prior gestational hypertension or

preeclampsia and an average age of 31 years, the conditions were shown to be associated with increased systolic and diastolic blood pressure, as well as higher body mass index, waist-hip ratio, and other metabolic syndrome markers, compared with a reference population.

PCOS, which affects more than 5% of women of reproductive age, also appears

to be associated with risk for metabolic syndrome. Since it presents so early, it may be the first identifiable sign predicting metabolic syndrome, Dr. Franks said.

The definitions of metabolic syndrome vary from study to study, so it is difficult to

say just how common metabolic syndrome is in those with PCOS, but one review article suggests the prevalence is about 50% among obese women with PCOS, he said.

Obesity, which already is established as a marker for metabol-

ic syndrome, appears to act as an amplifier of other etiologic factors, including pregnancy-induced hypertension and PCOS.

Furthermore, at least one study showed that PCOS patients who are obese in their teen years and who remain obese in adulthood have an even greater risk of developing metabolic syndrome.

A fundamental abnormality seen in

obese PCOS patients is increased insulin resistance and higher insulin levels, compared with age- and weight-matched controls. In the normal population, as body mass index increases insulin levels also increase, but in PCOS this curve is steeper. In one study of more than 300 women with an average age of 57 years and a history of PCOS, the risk of diabetes was increased nearly threefold compared with controls.

Estimates of PCOS prevalence in young women range from 10% to 40% and the relationship between PCOS and obesity suggests the prevalence is set to increase.

"Adults are getting fatter, children are getting fatter, and obese children become obese adults," Dr. Franks said.

But there is hope, because even modest reductions in weight with caloric restriction and exercise is proven to modify a woman's risk profile, he said.

Young women with PCOS or pregnancy-induced hypertension—particularly those who are obese—should be identified as being at risk for metabolic syndrome, and interventions should be initiated. ■

**Obesity may amplify other etiologic factors for metabolic syndrome, including pregnancy-induced hypertension and PCOS.**

## Preeclampsia Presentation Varies Depending on Race and Ethnicity

RENO, NEV. — A retrospective study examining 473 pregnancies complicated by preeclampsia has uncovered a number of significant racial and ethnic differences in the expression of the disorder.

African American women with preeclampsia tend to have more severe hypertension and more often require antihypertensive medication than the population at large, according to a poster presentation by Amy Goodwin, M.D., of Case Western Reserve University, Cleveland, and associates at the annual meeting of the Society for Maternal-Fetal Medicine.

While 37% of the full sample had severe hypertension at diagnosis, 45% of African American women had severe hypertension. African American women were also significantly more likely to require antihypertensive medication intrapartum (12% vs. 8.8%), post partum (18% vs. 13%), and at discharge (35% vs. 27%).

Non-Hispanic Caucasian women more frequently manifest severe hypertension with hemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome. While 24% of the full sample exhibited HELLP, the rate among Caucasian women was 30%.

Hispanic women tend to present with preeclampsia later in gestation and with less severe disease than the rest of the population. They presented at a mean of 36 weeks of gestation vs. 34.4 weeks for the rest of the population, and a smaller proportion of them exhibited severe hypertension at diagnosis (27% vs. 37%).

The study found no significant differences by race or ethnicity in a number of other factors including proteinuria, eclampsia, intrauterine fetal distress, intrauterine growth retardation, abruptio, and recurrent preeclampsia.

—Robert Finn

## Score on Cardiovascular Profile Predicts Survival in Fetuses With Heart Failure

RENO, NEV. — A less-than-perfect score on a five-item, 10-point cardiovascular profile predicts a poorer outcome for a fetus with heart failure, according to a poster presented by Aleksandra Roczek, M.D., at the annual meeting of the Society for Maternal-Fetal Medicine.

Fetuses in this high-risk group warrant closer follow-up and management from both the obstetric and prenatal cardiology point of view, concluded Dr. Roczek of the University of South Florida, Tampa.

Poor scores on three of the five items—cardiomegaly, hydrops, and venous Doppler measurements—were especially predictive of mortality, Dr. Roczek noted.

She and her colleagues conducted a retrospective examination of 92 pregnancies where fetuses were judged to be

at risk for heart failure on the basis of echocardiography and Doppler velocimetry. Of those fetuses, 53 (57%) survived and 39 (43%) did not.

The cardiovascular profile score awards two points each for absence of hydrops, normal venous Doppler, heart function, arterial Doppler, and heart size. The score in each domain is decreased by two points for severe signs and by one point for intermediate signs.

Fetuses with abnormal venous Doppler had a mortality rate of 64%. Mortality was 62.5% in fetuses with hydrops, and 60% in fetuses with cardiomegaly.

The other two factors were less predictive of mortality. Fetuses with abnormal heart function had a 33% mortality, and those with abnormal arterial Doppler had a 17% mortality.

—Robert Finn