

First Trimester Prenatal Diagnosis: Three Reports

Prenatal diagnosis of severe congenital diseases and malformations, which permits selective termination or altered management of affected pregnancies, has become an accepted part of modern medical practice. In the 1970s, amniocentesis and real-time ultrasound evaluation of the fetus during the second trimester were introduced for prenatal diagnosis. In the early 1980s, first trimester sampling of the chorionic villus (the fetal part of the placenta) was developed as an alternative modality for prenatal diagnosis. By the end of 1985, sampling procedures of more than 1,000 chorionic villi had been performed for prenatal diagnosis during the first trimester in ongoing pregnancies.

The article by Jackson in *Seminars in Perinatology*¹ reviews the technique and the indications for first trimester chorionic villus sampling. The technique involves localization of the placenta with ultrasound, and the vaginal removal (by suction under ultrasonic supervision). The test is most easily and safely done between the beginning of the 9th week and the end of the 11th week of gestation. Chromosomal, DNA, and most biochemical assays can be done on chorionic villus material, and the results of such testing are usually available within the first trimester.

The safety and accuracy of chorionic villus sampling have been established by the Internal Chorionic Villus Sampling (CVS) Registry, which was established by Jackson et al two years ago.² It is now clear from these data that the incidence of significant complications after CVS is less than 5%. In institutions with experience in the technique, the miscarriage rate after CVS is between 2% and 4%. The background spontaneous abortion rate is approximately 2% or 3%. Thus, additional risk of CVS-caused miscarriage seems small and is probably in the range of 1%.

Separation of fetal from maternal tissue is extremely important for accurate CVS results. One complication that has been observed is a higher rate of chromosomal mosaicism in chorionic tissue than in amniotic tissue.

Transabdominal CVS has recently been described by Smidt-Jensen et al.³ It may be that this technique will avoid or minimize occurrence of infection, which has occasionally been seen in vaginal sampling.

1. Jackson L. *Semin Perinatol* 1985;9(3):209-218.
2. Jackson LG, Wapner RA, Barr MA. *Lancet* 1986;i:674-675.
3. Smidt-Jensen S, Hahnemann N,

Influences in Child Growth Associated With Poverty in the 1970s: An Examination of Hanes I and Hanes II, Cross-Sectional U.S. National Surveys

The association between poverty and growth deficits in children has been reported in developing countries as well as in the United States. In this study, a sample population of 13,750 black and white children aged 1 to 17 years was taken from the Health and Nutrition Examination Surveys, HANES I (1971-1975) and HANES II (1976-1980). These were employed to examine the associations between height, weight, triceps skinfold thickness, subscapular skinfold thickness, and dietary intake measures. The poverty index ratio (PIR) was used to define the poverty threshold. This index represents a more specific measure of poverty than income by including family size and composition, sex of head of household, farm/nonfarm residence, and the current Consumer Price Index. The PIR is widely used by the U.S. Government.

Overall, children above the poverty threshold were taller, heavier, and fatter than children in families living below the poverty level. Specifically, on the average, poor children were 1.3 to 1.9 cm

Hariri J, et al. *Prenat Diagn* 1986; 6:125-132.

Editor's comment—There are several advantages to first trimester prenatal diagnosis. These include safety for the mother if termination of pregnancy is deemed necessary and a chance to confirm results by second trimester amniocentesis, if appropriate. Earlier testing is also easier to handle psychologically for most families.

Since prenatal diagnosis is available and since it can be applied to detect many types of growth problems, physicians should be aware of these new advances and the availability of first trimester diagnostic techniques.

shorter, 2% to 3% lighter in weight, and 3% to 8% leaner (by skinfold measurements) than children above the poverty level. An interesting finding was that there were no reported differences in energy consumption and macronutrient intakes between the two groups. However, a trend toward improved growth among the poor children was noted between the time of the HANES I (1971-1975) and HANES II (1976-1980) surveys.

Jones DY, Nesheim MC, Habicht JP. *Am J Clin Nutr* 1985;32: 714-724.

Editor's comment—This study suggests that caloric intake does not appear to play a role in the growth failure reported among poor children. Both groups of children consumed equal diets, yet children who were below the poverty threshold were smaller in both weight and height, and had less reserve fat as measured by skinfold thickness than children above the poverty threshold. Other factors that may be associated with poverty, such as more frequent infections, insufficient medical care, and poor sanitation, may have had a negative influence on the growth of the children below the poverty threshold. The authors, however, do not discuss these concerns as they relate to growth.