

Growth of 519 Small-for-Gestational-Age Infants During the First Two Years of Life

Tenovuo et al have carefully followed the physical growth of 519 small-for-gestational-age (SGA) infants for a period of two years. SGA infants were defined as those below the tenth percentile on growth curves generated at the authors' institution. These infants were compared to 4,517 term infants whose length and weight were appropriate for gestational age. The authors used the Rohrer's Ponderal Index (PI)

$$\frac{\text{weight (g)}}{\text{length}^3(\text{cm})} \times 100$$

to classify the SGA infants.

Infants who were small with respect to weight and length (Type I intrauterine growth retardation [IUGR]) tended to have a normal PI, while those who were small with respect to weight only or who had disproportionate growth had a low PI. The latter infants have type II, or disproportionate, IUGR.

Approximately 92% of the SGA infants and 94% of the control infants took part in the follow-up study two years after birth. In addition to the comparison studies between the two groups, the authors utilized stepwise logistic regression analysis for determining variables, such as maternal smoking and toxemia, that might best explain the small neonatal size.

The findings demonstrate that SGA infants with a low PI were taller and had a larger head circumference at age 24 months than the term infants with a normal PI. Among preterm SGA infants, the degree of IUGR appeared to have no effect on later growth. The catch-up growth in SGA infants occurred in the first three months after birth although they remained significantly smaller than the control infants.

The type of IUGR affects later growth. Type II IUGR infants (PI

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below the tenth percentile) grow better than type I SGA infants. In many cases, infants with type II IUGR have some nutritional deficit during the late stages of gestation and their growth potential is thus not permanently affected. Other studies have confirmed the finding that prolonged IUGR (which would result in a normal PI) is associated with poor growth in infancy. Later growth, however, could be predicted by the degree of weight retardation. By the age of 2 years, one in every four SGA infants, regardless of PI, still had a weight below the tenth percentile. The authors also demonstrated that the risk factors most often related to poor intrauterine growth are maternal toxemia, maternal smoking of more than ten cigarettes a day, multiple pregnancies, and the birth of a previous SGA infant. Unfortunately, these data were not analyzed with respect to the type of IUGR.

Tenovu A, Kero P, Piekkala P et al. *Acta Paediatr Scand* 1987;76:636.

Editor's comment—*Although the article describing this study is somewhat difficult to read, the information presented is significant. The study demonstrates the difference between prolonged and short-term IUGR on future growth. Similar studies of infants from different populations should be carried out to confirm these findings. In addition, long-term follow-up studies of childhood growth and final adult height in these infants are required to provide better predictive information for pediatricians who counsel parents concerning their child's growth, and to help design studies directed at increasing our knowledge about growth reduction in these children. Parents of SGA infants should be advised that these infants will most likely remain smaller than average throughout the first two years of life.*

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