Pediatric and Developmental Pathology – A Japanese study has found that maternal rather than fetal factors are associated with fetal growth restriction. A comparison of maternal and fetal angiotensin-converting enzyme genotypes with the size of babies at birth found evidence of this connection. This finding lends support to the hypothesis that reduced placental blood flow leads to fetal growth restriction.

The current issue of the journal *Pediatric and Developmental Pathology* reports results of a study of 470 pairs of mothers and babies in Japan. Mothers and babies were genotyped using maternal and cord blood, and the weight, length, head circumference, and incidence of small-for-gestational age status were recorded for full-term newborn infants.

The renin-angiotensin system is a hormone system that regulates blood pressure and fluid balance in the body. The maternal renin-angiotensin system affects the regulation of uteroplacental blood flow. A disorder in the maternal system may contribute to reduced placental blood flow, preeclampsia, and intrauterine growth restriction.

This study focused on both maternal and fetal insertion or deletion polymorphism of the angiotensin-converting enzyme gene. Pairing of either insertion/insertion, insertion/deletion, or deletion/deletion gene alleles was identified. In adults, this insertion or deletion polymorphism is considered a marker of renin-angiotensin system function, and has been associated with cardiovascular disorders. Its role in incidents related to pregnancy has not been as clearly defined.

In this study, researchers found that the incidence of small-for-gestational age in babies whose mothers had one or two deletion alleles was greater than that in babies whose mothers had two insertion alleles. No significant differences between these groups were found when analyzing the infants' alleles.

This investigation provides evidence that the maternal renin-angiotensin system, rather than the fetal system, has a greater effect on fetal growth. Fetal growth may be restricted by reduced blood flow for a fetus whose mother has a D allele.

Full text of the article, " Maternal Deletion Allele of Angiotensin-Converting Enzyme Gene Is Associated with Fetal Growth Restriction ," *Pediatric and Developmental Pathology* , Vol. 15, No. 2, 2012, is available at http://www.pedpath.org/toc/pdpa/15/2 .

About *Pediatric and Developmental Pathology*

Pediatric and Developmental Pathology is the premier journal dealing with the pathology of disease from conception through adolescence. It covers the spectrum of disorders developing in-utero (including embryology, placentology, and teratology), gestational and perinatal diseases, and all diseases of childhood. For more information about the journal or society, please visit: http://www.pedpath.org .