Higher BP, Fasting Glucose Found in IVF Children

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C hildren born as a result of in vitro fertilization have significantly higher blood pressure and fasting glucose levels than those conceived naturally—a finding suggestive of fetal programming during an early development window, Dr. Manon Ceenen and colleagues reported. Although the possible mechanism behind this finding remains unknown, the study “underscores the importance of the continuing worldwide monitoring of postnatal development of IVF children,” Dr. Ceenen and her coauthors wrote in the Journal of Clinical Endocrinology and Metabolism (2008 Feb 19; doi:10.1210/jc.2007-2432).

Dr. Ceenen and her coauthors at the Free University Medical Center, Amsterdam, compared the cardiovascular mediations of 225 IVF and 225 naturally conceived children (average age, 12 years). The parents of all the children had been part of a Dutch study on the long-term health effects of hormone stimulation in 26,400 subfertile women. Of the 51 IVF group, 20,000 women received IVF treatment.

Compared with naturally conceived children, those conceived through IVF had been weighed significantly less on average at birth (3.2 vs. 3.4 kg). In addition, there were significantly more preterm infants among the IVF group (29 vs. 6%).

Average systolic blood pressure was significantly higher in IVF children than in the control group (109 mm Hg vs. 105 mm Hg); mean diastolic blood pressure was also significantly higher in the IVF group (61 mm Hg vs. 59 mm Hg). Children born via IVF were twice as likely as those naturally conceived to have a systolic blood pressure of at least 114 mm Hg and to have a diastolic blood pressure of at least 65 mm Hg.

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These relationships remained significant even after the investigators adjusted for confounders (birth weight, gestational age, ultrasound measurements, potential benefit justifies the potential risk to the fetus.

It is not known whether exposure of the mother’s hypothalamic-pituitary-adrenal axis to maternal hyperandrogenism and fetal environment during pregnancy may be associated with precocious activation of the hypothalamic-pituitary-adrenal axis, they noted. The authors could not explain the observed relationships between IVF and cardiometabolic status. Both population and animal studies show a link between prenatal environment and early gestational development.

For instance, maternal malnutrition in early pregnancy has been linked to later cardiovascular disease in the offspring. Preconceptional undernutrition has been associated with the preconception activation of the hypothalamic-pituitary-adrenal axis, the authors wrote. They said this premature activation might be associated with fetal programming effects.

Furthermore, it cannot be excluded that raised blood pressure after IVF may be amplified throughout life, as blood pressure is known to track from childhood into adult life,” they noted.