Weight at birth tied to heart disease and diabetes risk in adulthood

April 1 2009

Lower weight at birth may increase inflammatory processes in adulthood, which are associated with chronic diseases such as heart disease and diabetes, according to a new study accepted for publication in The Endocrine Society's *Journal of Clinical Endocrinology & Metabolism* (JCEM).

Both the fetal and infancy periods are sensitive, critical stages of growth and development. Studies have previously suggested babies with lower weight at birth are at a higher risk for developing chronic diseases but until now, there has been little understanding to explain why. This study suggests an association between lower weight at birth and inflammation in adulthood may provide that explanation.

Inflammation is a normal physiologic response of the body, and serves as a host defense which provides protective response to infection or tissue injury. If the source of infection or injury is not repressed, low-grade inflammation can persist and may promote the development of heart disease or diabetes.

Earlier studies have found that babies born small for gestational age have weak immune systems, but at six years old have more white blood cells than babies born at a normal weight. White blood cells are cells of the immune system that defend the body against both infectious disease and foreign materials. These findings suggest that age might amplify the association between early growth and inflammatory processes.

In this study, researchers followed 5,619 children born in 1966 and followed them up until they reached adulthood. As compared to children with 'normal' weight in the first year of life, researchers observed that babies born relatively smaller and gained the least weight during infancy had a higher number of white blood cells, an indicator of inflammation, in adulthood.

"Our findings suggest that the link between poorer growth early in life and these adult chronic diseases may involve inflammation as a common underlying factor," said Dr. Dexter Canoy, MD, PhD, of the University of Manchester in the UK and lead researcher of the study. "Ensuring appropriate growth during this narrow 'window' in early development may confer lifelong benefits to health."

Source: The Endocrine Society