Medical Xpress

Premature babies at risk of ill health in later life, research suggests

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Young adults who were born prematurely show multiple biological signs of risks to future health, research from Imperial College London has found. The scientists, reporting their findings tomorrow in the journal *Pediatric Research*, say that the research indicates that urgent work is now needed to monitor preterm babies into adulthood to improve the detection of early signs of disease.

The study of 48 volunteers aged 18-27 found that those who were born at 33 weeks of gestation or less had higher blood pressure, more fat tissue despite having a normal Body Mass Index, and more fat in their muscle and liver. These traits are linked to heart and circulatory disease and type 2 diabetes. The differences in fat around the abdomen were most marked in men.

The number of preterm babies born each year is rising, and in developed countries, around 2 per cent of babies are born before 33 weeks of gestation.

Medical advances mean that a higher proportion of babies born early are surviving: 90 per cent of infants born before 33 weeks will go home. However, a few studies have suggested that the impact of preterm birth persists into adulthood, putting premature babies at risk of ill health in later life. The biological pathways involved are unknown.

"This was only a small study but the differences we found were quite striking," said Professor Neena Modi, the lead investigator in the study

from the Department of Medicine at Imperial College London. "The results suggest that we need to monitor the health of premature babies beyond infancy and childhood. Preterm men and women might be at greater risk of cardiovascular and metabolic diseases but if we look out for the warning signs, we can help them to stay healthy with lifestyle interventions, and treatment where appropriate."

Professor Neena Modi and her colleagues used whole body magnetic resonance imaging (MRI) and advanced chemical profiling techniques to investigate what biological differences might be present in young adults who were born prematurely.

They found that even though the preterm subjects did not have a higher Body Mass Index (BMI), they did have more fat tissue around their abdomens and in their muscle and liver.

Nuclear magnetic resonance (NMR) spectroscopy revealed differences in the chemical makeup of their urine, with preterm subjects producing more metabolites associated with inflammation, which is in keeping with the higher blood pressure and greater fat found in the preterm subjects.

The study involved 23 healthy men and women born before 33 weeks and 25 healthy men and women born at full term. The preterm volunteers were recruited with the help of Bliss, a national UK premature and sick baby charity.

More information: E.L. Thomas et al. 'Aberrant adiposity and ectopic lipid deposition characterise the adult phenotype of the preterm infant.' *Pediatric Research*, November 2011.

Provided by Imperial College London