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Twins' birthweight reveals risk of asthma and eczema

London/Zurich 6 June 2010 - Babies whose birth weight is low are more prone to asthma whereas heavier babies are at greater risk of eczema in childhood, according to two Swedish studies of more than 10,000 twins. The findings, presented at a congress in London today, suggest this is due to the development of the lungs and the immune system being impaired.

Dr Catarina Almqvist Malmros, a paediatrician and associate professor at the Swedish medical university Karolinska Institutet analysed data from a questionnaire completed by the parents of nine to 12 year old twins on the Swedish Twin Registry. The twin registry estimates how genes or environment influence different diseases. The study was linked to the national Swedish Medical Birth Registry which includes birth weight and how long into the pregnancy the babies were born.

Speaking at the congress of the European Academy of Allergy and Clinical Immunology, Dr Almqvist Malmros said, "We can see a clear link between a baby's birth weight and eczema or asthma that is independent of whether the babies were born prematurely and environmental or genetic factors."

The studies examined twins born under 2000g (4.4lbs) and more than 3500g (7.7lbs). The rate of atopic eczema increased with birth weight, from 13% in twin children born under 2000g to 17% in children more than 3500g. The association of birth weight with asthma, however, was the opposite, with 22% risk of asthma among the smallest babies born under 2000g, and 12% among those born more than 3500g. Where the twins were different weights at birth, the smaller twin was more likely to develop asthma than the larger twin, while atopic eczema was more likely to occur in the larger twin.
Twins share the same DNA, conditions in the uterus and in early infancy, so twin studies are an ideal way to examine the relationship between foetal growth and childhood disease. Low birth weight is a possible symptom of malnutrition in the womb and impaired lung development.

"Studying genetic and environmental factors in twins when one twin has asthma and the other one does not is a powerful method to identify those at risk of allergic diseases. The results open up ways to prevent and reduce the prevalence of allergies," she said.

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Hot Topic 1

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- **Publications:** Familial factors do not confound the association between birth weight and childhood asthma, Ortqvist AK, Lundholm C, Carlström E, Lichtenstein P, Cnattingius S, Almqvist C, *Pediatrics* 2009 Oct;124(4):e737-43. Epub 28 September 2009. PMID: 19786434.

  Impaired fetal growth decreases the risk of childhood atopic eczema – a Swedish twin study. Lundholm C, Örtqvist AK, Lichtenstein P, Cnattingius S, Almqvist C. *Clin Exp Allergy*, Apr 23 [Epub ahead of print]. PMID: 20455897.

  The Twin Registry:
  http://ki.se/twinregistry

- It is estimated that 150 million people around the world suffer from asthma and 2-5% children have atopic eczema.

About EAACI:
EAACI - The European Academy of Allergy and Clinical Immunology is a non-profit organisation active in the field of allergic and immunologic diseases such as asthma, rhinitis, eczema, occupational allergy, food and drug allergy and anaphylaxis. EAACI was founded in 1956 in Florence and has become the largest medical association in Europe in the field of allergy and clinical immunology. It includes 5'500 individual members from 107 countries, as well as 40 National Allergy Societies.

Throughout 2011, EAACI will develop different activities to celebrate the 100th anniversary of immunotherapy in Allergy, which will aim at increasing the knowledge in this field among healthcare professionals, increase awareness in the general population, and finally, promote the availability of immunotherapy for allergic patients.

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