Umbilical cord blood not suitable for assessing allergy risk

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For years, hospitals and researchers have been testing blood samples from the umbilical cords of newborn babies to assess the risk of allergy. Now a study at the University of Copenhagen has revealed that the biomarker in the blood that indicates the risk factor for allergy often comes from the mother rather than her baby.

Allergies occur when the defence mechanisms of the immune system malfunction and misread normal substances entering the body as invading pathogens. Antibodies are part of our biochemical arsenal for combating viruses, bacteria, parasites and other alien substances, but during an allergic reaction the antibody, known as IgE, is directed against usually harmless substances such as grass pollen, nuts, pets or eggs. Asthma and allergies are chronic diseases that reduce quality of life and pose an economic burden on society. New parents have therefore previously been asked if they would like hospitals to assess the risk their babies run of developing allergies in childhood. Hospitals tests the risk by measuring the amount of IgE in the blood of the umbilical cord. The results are then used to determine the need for allergy prophylaxis, e.g. whether babies need a special allergy-friendly milk substitute.

The biomarker originates from the mother

However, researchers from COPSAC (Copenhagen Studies on Asthma in Childhood) at the Faculty of Health Sciences, University of Copenhagen recently discovered indications that IgE in the blood of the

umbilical cord could originate from the mother, and decided to conduct a focused study on this.

They measured the total amount if IgE in the blood of the umbilical cord in 243 new-borns. The researchers subsequently determined how much IgE originated from the mother by using hypersensitive analyses of IgE in the blood of the umbilical cord, blood from the mother, and blood from the baby six months after birth.

"We discovered that approximately half of the tests with increased IgE levels in the umbilical blood were due to IgE from the mother," Dr. Klaus Bønnelykke, PhD says. "This may explain why many studies have showed poor results from the use of umbilical cord IgE. In future, if we want to use blood from the umbilical cord for to assess the risk of an infant developing asthma or allergy we need to take the transfer of IgE from the mother into account. Or we will need to find another method."

The discovery has been published in the *Journal of Allergy and Clinical Immunology*.

Provided by University of Copenhagen