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Contact: Aeron Haworth
aeron.haworth@manchester.ac.uk
44-077-178-81563
University of Manchester

New genetic link to cot death identified

Babies born with specific variants of three key genes are 14 times more likely to die from cot death, new research has found.

The findings - published in Human Immunology - build on earlier research by The University of Manchester team that had already associated one of these genes with the condition.

The discovery of two further risk genes, say the paper's authors, is a major step forward in understanding the causes of cot death or 'sudden infant death syndrome' (SIDS).

"We first identified an association between SIDS and specific variants of a gene called Interleukin-10 five years ago," said microbiologist Dr David Drucker, who led the research. "Quite simply, a baby who had particular variations of this gene was at greater risk of SIDS than other babies.

"Now, we have discovered two more genes implicated in SIDS and when a baby has certain genetic variants or 'polymorphisms' of all three of these genes he or she can be up to 14 times more likely to die from the condition."

The genes investigated by the team all play a roll in the body's immune response to infection. Previous research, carried out with colleagues at Lancaster University, had shown that SIDS is associated with commonly occurring bacteria that babies up to the age of one year may lack immunity to.

Infants aged two to four months, in particular, have very weak immune systems and may not cope well with infectious agents they encounter in their environment.

Interleukin-10 (IL-10), as well as the other two genes - Interleukin-6 (IL-6) and vascular endothelial growth factor (VEGF) – are involved in the production of chemicals called cytokines which are important for the correct functioning of our immune system.

Specific variants of these cytokine-producing genes, says the research, leads to an excessive inflammatory response to bacterial infection resulting in cot death. In the case of VEGF, the polymorphism associated with SIDS could conceivably result in poor fetal lung development.

"This research greatly advances our understanding of the basic causes of SIDS, which is not a single disease but a collection of different causes of death," said Dr Drucker, who carried out the work in collaboration with paediatric pathologist Dr Anthony Barson.

"Being able to detect high-risk babies means that health care and social provision can be aimed at the most vulnerable infants. In theory, commercially available and licensed human immune serum could be given to those children most at risk."

Dr Drucker, whose previous work has also explained why smoking and sleeping position are also risk factors in SIDS, says this latest research will help establish the cause of death in certain cases.

"Forensic scientists would be able to assess the likelihood of a baby dying from SIDS through genetic measurements and so help prevent the sort of tragic miscarriages of justice that have happened in the past.

"But ultimately, this research will improve our ability to identify in advance which babies will be at risk of SIDS so their mothers can be personally advised to eliminate other risk factors such as dangerous sleeping position for their infant."

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