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Scientists find predisposition to bronchiolitis in some babies

Scientists have found that a large proportion of infants who suffer from bronchiolitis have an inherent predisposition to the disease

LIVERPOOL, UK ‹19 October 2007: Scientists have found that a large proportion of infants who suffer from bronchiolitis have an inherent pre-disposition to the disease.

The disease is the most prevalent acute wheezing disorder in infants and is the most common cause of admission to hospital in the first year of life in the developed world. Around 25 in every 1,000 babies are admitted to hospital for bronchiolitis - needing oxygen and help with feeding - and of these, 10% need the support of a ventilator.

Bronchiolitis frequently develops in infants suffering from respiratory syncytial virus (RSV) infection. Although most infants infected with RSV have only mild symptoms such as a cough and wheeze some develop potentially life-threatening bronchiolitis. Babies born prematurely are particularly susceptible to the condition but what has puzzled scientists is that the majority of babies admitted to hospital are previously healthy and have not had an obvious reason for becoming so ill.

A new study by University of Liverpool scientists, based at Alder Hey Children's Hospital, has found that previously healthy babies with severe disease have a different immune response to those with only mild symptoms. The study involved nearly 200 infants under two years old admitted to Alder Hey over a five-year period. On admission to hospital, those with severe disease were taking more than 50 breaths per minute and their blood oxygen levels were dangerously low.

The study found that those with severe bronchiolitis had lower levels of interferon-gamma and substance P in their airway secretions. Gamma interferon is an important substance made in

the body which is used to fight viral infections. The role of substance P is less understood but is thought to be involved in the local inflammatory response in many parts of the body.

Dr Calum Semple, Senior Lecturer in Child Health at the University of Liverpool and Consultant Respiratory Paediatrician based at Alder Hey, said: this work helps to explain a common observation about children who had bronchiolitis as babies. Parents often tell us that every time their child gets a cold it goes straight to his chest and many parents and doctors believe that bronchiolitis in infancy is the cause of these chest problems in childhood.

This study shows that it is the difference in the child's ability to fight viruses that predisposes them to bronchiolitis in the first place. That poor ability to fight the condition is an innate feature of their immune system. Bronchiolitis just happens to be the commonest respiratory virus around and therefore the first virus a baby is likely to come across.

Because the gamma interferon response is an important feature of the immune system in these children, they won't handle subsequent respiratory viruses very well either. The association between bronchiolitis in babies and 祖hestiness in childhood is not causal or consequential but due to a common immune predisposition and is probably genetic.‧/p>

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The research is funded by the Department of Health and published this week by the Public Library of Science (PLoS) in the journal PLoS One.

Notes to editors:

1. The University of Liverpool is one of the UK's leading research institutions. It attracts collaborative and contract research commissions from a wide range of national and international organizations valued at more than ⌟100 million annually.

2. Alder Hey Hospital provides world-class care to more than 200,000 children and young people every year. The hospital is a major teaching and research centre for pediatrics in the UK. For further information:

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