

PRESS RELEASE

Phenotypes of Childhood Wheeze – How Many Kinds of Asthma Are There in Young Children?

Papers published

Spycher BD, Silverman M, Brooke AM, Minder CE, Kuehni CE. Distinguishing phenotypes of childhood wheeze and cough using latent class analysis. *Eur Respir J* 2008;**31**:974-981

Spycher BD, Minder CE, Kuehni CE. Multivariate modelling of responses to conditional items: New possibilities for latent class analysis. *Statist Med* 2009;**28**:1927-1939

Wardlaw AJ, Silverman M, Siva R, Pavord ID, Green R. Multi-dimensional phenotyping: towards a new taxonomy for airway disease. *Clin Exp Allergy* 2005;**35**:1254-1262

Background

One of the reasons for establishing the Leicestershire Cohorts was to answer the question: How many types of asthma are there in young children? This is an important question, because in the past, it has been falsely assumed that all wheezing disorders in children could be subsumed under the single diagnostic term “asthma”. Clearly, if there is more than one diagnosis, there must be more than one treatment and more than one outcome.

What have we found?

We have developed a new statistical approach to recognise different disorders (phenotypes) within the population of wheezy children and applied the methods to data from the Leicestershire Cohorts. In particular the preliminary analysis of our dataset showed that there were three distinct phenotypes of wheezy young children:

1. Children with the features of classical allergic asthma;
2. Children who seemed to have a similar form of asthma but without any evidence of allergy;
3. Children who had episodes of wheezing in the first few years of life only when they have colds, again without much evidence of allergy as a cause, and who tended to outgrow their symptoms by school age.

Current work

Currently we are refining statistical techniques, and collecting data from the children as they grow older, in order to:

1. Confirm the findings of the preliminary analysis, that there are several phenotypes;
2. To gain more information on the outcome of these phenotypes (the natural history of disease);
3. To understand the genetic basis for the different wheezing phenotypes;
4. To examine the possibility that there are differences in the spectrum of wheezing disease between children of south Asian and of European origin.

Implications

Our research will contribute to better understanding of the different types of asthma in young children. Thus, doctors will be able to give better information to parents of affected children, such as telling them if their child is likely to grow out of asthma, and what measures they can take to help their child. Keeping pets, for instance, might be harmful for some children, but beneficial for children suffering from another type of asthma. Last, the refined asthma definitions will ultimately help doctors to make more informed decisions on the best treatment.

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