Food intolerance and wheezing in young south Asian children in Leicestershire: prevalence and clinical significance

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The Leicester Cohorts

The Leicester Children's Asthma Centre

Background to the project

Among UK **south Asian children,** it is reported that
- the **prevalence** of asthma is lower than in white children, but
- **hospitalisation** for asthma is more common[1]

Food intolerance is associated with asthma in south Asian children
- the **prevalence** is greater in hospital populations and
- there is supportive **objective evidence** from challenge tests[2]

Could excess food intolerance explain the discrepancy between lower prevalence and greater morbidity from asthma in south Asian children born in the UK?

The aims of the project

To explore data collected from the Leicestershire Child Cohort to answer the questions:

1. Is there a difference in the prevalence of food-induced wheeze or asthma between young south Asian and white children?
2. Is there an association between food intolerance and the severity of wheezing illness?
3. Does food intolerance in preschool children predict the prognosis of wheezing?

The Leicestershire Child Cohort

The Cohort is a population-based, random sample of
- 2600 south Asian and 6100 white children
- born in Leicestershire 1993-1997
- ethnicity ascertained by maternity records **and** self reported questionnaire

Surveys were conducted by repeated postal questionnaire

	Proportion of questionnaires returned		Number replying to both surveys
	1998	**2003**	
S. Asian children	72%	42%	911
White children	84%	56%	2962

Questions included
- demographic and environmental variables
- clinical features of wheezy illness
- a question on food and drink as a trigger of wheeze

We **analysed** the results by multivariable logistic regression

The Results

(1) **Crude prevalence of wheeze and food-related wheeze (%)**

	S.Asian children	White children	P
Current prevalence of wheeze (%)			
age 1-4 years	23	32	<0.001
age 6-9 years	13	13	0.9
Prevalence of food-related wheeze among wheezy children (%)			
age 1-4 years	13	5	<0.001
age 6-9 years	22	5	<0.001

Although **wheeze** was **less prevalent** in the youngest south Asian children, **food intolerance** as a trigger was reported 3-4 times **more frequently**.

The Results

(2) **Factors independently associated with food-related wheeze in wheezy young children (after adjustment for confounders)**

	Aged 1-4 Odds ratio	Aged 6-9 Odds ratio
S. Asian ethnicity	**3.8*****	**9.1*****
Severe/frequent wheeze	2.1***	2.1**
Exercise-induced wheeze	2.1***	4.9***

As well as south Asian ethnicity, food intolerance was associated independently with severity and with evidence of bronchial hyperresponsiveness.

(3) **Persistence of wheeze, 5 years later**, was strongly predicted by food intolerance at pre-school age (odds ratio 1.9;p=0.014).

After eliminating data from parents who misunderstood the term, the association between food intolerance and persistent wheeze increased to an odds ratio of 2.4 (p=0.003).

What does this mean?

- Wheeze triggered by food is far more common (OR 4 -9) in south Asian children;
- Food as a trigger doubles the risk of severe wheeze;
- Food as a trigger doubles the likelihood of persistence of wheeze.

Food intolerance could explain some of the excess relative morbidity of wheeze/asthma in south Asian children.

The results were not affected by parental understanding of "wheeze".

The implications for research are
- to confirm these reports by objective tests, as previously described[3];
- to pursue the mechanisms of food-induced wheeze;
- to explore the role of dietetic management in clinical practice.

References:

(1)Kuehni C et al. JACI 2006; In Press, (2) Netuveli G et al. Lancet 2005;365:312-17,

(3) Wilson NM. Food intolerance. In: Silverman (ed) Childhood Asthma… 2nd edn, Arnold;2002;229-38