

caused by various agents added to the rubber preparation (8).

In conclusion, our observations suggest that the incidence of occupational asthma in health-care workers might be correlated to indiscriminate use of antibiotics (amoxicillin) and derivatives in hospital departments.

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References

1. Nutter AF. Contact urticaria to rubber. *Br J Dermatol* 1979;101:597-598.
2. Heese A, von Hintzenstern J, Peters KP, Kock HU, Hornstein OP. Allergic and irritant reactions to rubber gloves in medical health services. Spectrum, diagnostic approach and therapy. *J Am Acad Dermatol* 1991;25:831-839.
3. Coutts I, Dally B, Newman-Taylor J, et al. Asthma in workers manufacturing cephalosporins. *BMJ* 1981;283:950.
4. Pepys J, Hutchcroft BJ. Bronchial provocation tests in etiologic diagnosis and analysis of asthma. *Am Rev Respir Dis* 1975;112:829-859.
5. Vandenplas O, Delwiche JP, De Jonghe M. Asthma to latex and amoxicillin. *Allergy* 1997;52:1147-1149.
6. Vandenplas O. Occupational asthma caused by natural rubber latex. *Eur Respir J* 1995;8:1957-1965.
7. Taylor JS. Rubber. In: Fisher AA, editor. *Contact dermatitis*. Philadelphia: Lea & Febiger, 1986:603-643.
8. Spaner D, Dolovich J, Tarlo S, Sussman G, Butto K. Hypersensitivity to natural latex. *J Allergy Clin Immunol* 1989;83:1135-1137.

Open challenge to nuts in children

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Key words: challenge test; food allergy; nuts.

● ALLERGIC reactions to nuts are potentially fatal (1). Consequently, the diagnosis of nut

allergy imposes severe restrictions on patients of strict dietary monitoring, carrying injectable epinephrine at all times, and fear of death. Therefore, suspected nut allergy should be verified to avoid unnecessarily onerous lifestyle restrictions. Allergy tests, either skin prick tests (SPT) or serum specific IgE, are useful in confirming this diagnosis, as the proportion of false-negative test results in IgE-mediated allergy is low (2). If these give negative results, the history needs to be confirmed by a nut challenge, because either the perceived reaction has not been precipitated by nuts or, as has been recently demonstrated, a small number of subjects believed to be nut allergic are on later challenge found to tolerate nuts (3). The double-blind, placebo-controlled challenge is

An open nut challenge procedure is described to confirm or refute nut allergy where suspected, but allergy tests are negative.

regarded as the reference standard for food challenges, but it is a time-consuming and expensive procedure (4).

We report on the results of nut challenges in a group of children perceived to be nut allergic from a clear history of symptoms following nut exposure but who had negative allergy test results. Our findings confirm the value for food challenges where indicated (4), and we propose a simple open nut challenge procedure carried out on a day ward.

- Seventeen children aged 1-10 years were identified in our clinic between March 1997 and May 1998. All had a history of nut allergy; symptoms experienced and responsible nuts are shown in Table 1. These patients underwent nut challenges, as they all had a negative SPT (Alk) and/or negative serum specific nut IgE (Alastat, Diagnostic Products Corporation) results.
- Open nut challenges were carried out on the paediatric day ward. Written guidelines detailing the symptoms of and rescue treatment for anaphylaxis in children,

Table 1. Nut challenge in 17 patients: clinical characteristics and test and challenge results

Age (years) at symptoms	Challenge	Presenting symptoms	Suspected nut	Results of		
				SPT	Serum	Challenge
4	9	Facial urticaria	Peanut	NEG	NEG	NEG
1.5	2	Facial urticaria	Peanut	ND	NEG	NEG
1	5	Facial urticaria	Peanut	NEG	NEG	NEG
7	9	Urticaria, lip angioedema, wheeze	Peanut	ND	NEG	NEG
2.5	3	Urticaria, angioedema	Peanut	NEG	NEG	NEG
4.5	5	Facial urticaria	Almond	NEG	NEG	NEG
2.5	4	Urticaria	Peanut	NEG	NEG	NEG
1	1.25	Urticaria, angioedema	Peanut	NEG	NEG	POS
0.9	1.5	Urticaria, angioedema	Peanut	ND	NEG	NEG
7	7.5	Urticaria, vomiting	Coconut	NA	NEG	NEG
4.5	5.25	Nausea, dyspnoea	Coconut	NA	NEG	NEG
6	7.5	Urticaria	Brazil nut	NEG	ND	NEG
2	2.3	Urticaria	Peanut	ND	NEG	POS
1.5	4	Urticaria, lip angioedema	Hazelnut	ND	NEG	NEG
0.7	8	Urticaria, angioedema, conjunctivitis	Peanut	ND	NEG	NEG
0.5	2.5	Urticaria, facial angioedema	Peanut	ND	NEG	NEG
9.5	10	Urticaria, abdominal pain	Almond	NEG	NEG	NEG

NEG: negative; POS: positive; ND: test not done; NA: test not available.

including an emergency drug chart, are available on the ward. On arrival, the child's weight and vital signs (blood pressure, pulse, and respiratory rate) are recorded, the emergency drug chart is completed, and an intravenous cannula is inserted. The child is examined for any evidence of allergy by the day-care nurse before progressing to the challenge. Any abnormal respiratory findings such as wheeze or breathlessness preclude the test from being performed until the child is well. Evidence of and distribution of eczema are clearly marked out, as this is a common coexisting condition in food allergy which may also be the only sign of a reaction. Throughout the challenge procedure, vital signs are recorded, and the child is examined for any reaction before each subsequent dose is ingested. The nut challenge involves the child's ingesting visually measured doses of nut at 15–30-min intervals. It starts with a nut touching the oral mucosa and progresses to the ingestion of a portion the size of a pinhead, which is then doubled until a minimum of 5 g of nut has been ingested. The challenge procedure is specific to each individual, using the principle of starting with a quantity smaller than that which caused the presenting reaction, and given at time intervals longer than the time to the reaction. The challenge also considers the child's age, as children over 7 years are given whole nuts while younger children receive peanut butter or ground tree nuts. In those children where difficulties in ingesting the nut are encountered, the measured dose is given in or with a familiar food that the child has eaten before (e.g., peanut butter on chocolate buttons). Children complete a 60–120-min (no reaction) or 4-h (mild reaction) observation period after the end of the challenge before discharge home. Fifteen of the 17 children showed no symptoms after open challenge (Table 1). All these children continued to ingest foods containing nut without incident. Two children reacted, one with hives on the left cheek and abdomen after 45 min, and the other with mild urticaria under the left eye 2 h after the start of the challenge. Neither

experienced a major or life-threatening reaction.

With the increase in public awareness of nut allergy, coincidental allergy-like symptoms may be attributed to nuts, labelling children as having a lifelong, potentially fatal allergic condition and subjecting them to many lifestyle restrictions. As the skin and blood tests are highly predictive of the absence of IgE-mediated allergy (2, 4), we have found that the parents of our patients welcome our supervised challenge procedure in an informal but safe setting where a negative test places the diagnosis of nut allergy in doubt.

Hourihane et al. (5) recently suggested that some children may show resolution of their nut allergy. The 15 children in our study with negative nut challenges may fall into this category or may coincidentally have reacted to another food or other factor which we have not identified. The two patients who reacted when challenged are important, as they demonstrate the possibility of persistence of symptoms despite a negative test, a phenomenon not described by Hourihane et al. (5), and the need to conduct all nut challenges in a setting where any allergic reaction can be safely managed. These children may need a repeat blinded, placebo-controlled nut challenge in future to avoid any bias.

In conclusion, we propose an easy, economical, yet effective and safe dietary challenge for nuts. Our study also confirms that history alone, that is, in the absence of confirmatory allergy tests, is not adequate to make the diagnosis of nut allergy. We recommend that all hospital-based allergy clinics should offer these challenges as an integral part of the treatment and management of food allergy.

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References

1. Sampson HA, Mendelson L, Rosen JP. Fatal and near fatal anaphylactic reactions to food in children and adolescents. *N Engl J Med* 1992;**327**:380–4.
2. Sampson HA, Al Bero R. Comparison of results of skin tests, RAST and double blind placebo controlled food challenge in children with atopic dermatitis. *J Allergy Clin Immunol* 1984;**74**:26–33.
3. Hourihane JO'B, Dean TP, Warner JO. Peanut allergy in relation to heredity, maternal diet and other atopic diseases: results of a questionnaire survey, skin prick testing and food challenges. *BMJ* 1996;**313**:518–21.
4. Diagnosis of food allergy. In: Mygind N, Dahl R, Pedersen S, Thestrup-Pedersen K. *Essential allergy*. Oxford: Blackwell Science, 1986:143–7.
5. Hourihane JO'B, Roberts SA, Warner JO. Resolution of peanut allergy: case-control study. *BMJ* 1998;**316**:1271–5.

Prevalence of latex-specific IgE in blood donors: an Italian survey

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Key words: blood donors; IgE antibodies; latex.

● ALLERGY TO latex has been recognized as a relevant medical problem since the mid-1980s, and its prevalence seems to be

increasing. Some subsets of subjects with higher risk have been identified; they include health workers (1), children with spina bifida (2), and rubber-plant workers (3). However, only sparse data are available on the prevalence of latex allergy in the general population (4). Therefore, we evaluated the prevalence of allergy to latex in 1025 healthy adults (blood donors) by measuring their serum latex-specific IgE levels.

All donors were informed of the aim of the study and gave their written permission for

Of 1025 donors, 3.5% were positive, most of them also to grass pollen, but very few were clinically allergic to latex.