

Cockroach allergy and asthma

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Key words: asthma; asthma attack; children; cockroach; dust mites.

● COCKROACH allergy is less frequent in European than in American children (1), but also less well characterized. This study was undertaken to determine whether clinical features differ among French children hospitalized for acute asthma attack according to their sensitivity to cockroach.

During the last 3 years, 324 children were hospitalized for acute asthma attacks in our unit. Among children who had had skin prick tests ($n=122$), 34 had a positive response to *Blattella germanica* (monosensitive, $n=13$; multiple sensitive, i.e., cockroach and dust mites and/or grass pollens, $n=21$), and 18 others, treated as controls, were positive only for dust mites. All children were treated by the same protocol, including discontinuous salbutamol nebulizations (150 µg/kg; daily

number in accordance with severity), prednisolone (1 mg/kg/day), and nasal oxygen when the value of pulsed oximetry was less than 92%. Demographic data and data on ethnic origin, and place and mode of residence were collected. The number of hospitalized episodes and days, mean hospital stay per episode, delay between the onset of the episode and the emergency room admission, the consumption of salbutamol nebulizations on the first day, and the need of oxygen, intravenous salbutamol, or intensive care unit hospitalization were noted. Data, expressed as mean $\pm$ SD, were compared with the Kruskal-Wallis test.

The cockroach-monosensitive children were mainly black children from central Africa and the Comoro Islands (61.5% vs 14.3% for multiple sensitive children and 16.7% for dust-mite sensitive children; $P=0.002$). Socioeconomic status was similar between groups: parents with unqualified jobs in 82.3% of subjects, low-cost public housing in poor city neighborhoods in 61.7%. The 52 children were hospitalized for 73 acute asthma attacks within the 3 studied years (Table 1). Cockroach-monosensitive children had a shorter delay in hospital admission, a higher

consumption of salbutamol, a higher total of hospitalized days, and a longer hospital stay per episode than children allergic to cockroach and other allergens or children with only allergy to dust mites. Follow-up and compliance were poor for all children, as only six of them, two per group, had regular scheduled medical visits and antiasthma treatments.

This study reveals that the clinical features of acute asthma attacks differ in children who are sensitive only to cockroach from those in children with other sensitivities. These results are in accordance with those of American studies (2–4), but not with those of European studies (1). In the USA, cockroach allergy induces an increased risk of unscheduled medical visits and hospitalization for asthma in black inner-city children of low socioeconomic status. Conversely, in German children living in Dresden (former East Germany), cockroach sensitization has not been shown to be an independent risk factor for asthma in 5–11-year-olds. Our patients were mainly black children, and racially based genetic differences in the regulation of IgE immune responses to cockroach, perhaps in relation to the presence of HLA-DRB1*01 alleles (5), may be suspected. On the other hand, as

Special clinical picture in children.

Table 1. Characteristics of acute asthma attacks ($n=73$) occurring in 52 children with different atopic status and requiring hospitalization between October 1995 and October 1998 (results are expressed as mean [SD])

	Cockroach-monosensitive children ($n=13$)	Multiple sensitive children* ($n=21$)	Dust-mite-monosensitive children ($n=18$)	Kruskal-Wallis test
Age (years)	9.08 (3.90)	8.52 (4.27)	6.56 (1.08)	0.34
Proportion of boys	$n=10$ (76.92%)	$n=12$ (57.14%)	$n=11$ (61.11%)	0.49
Mean number of hospitalized acute asthma attacks per child in 3 years	1.93 (1.86)	1.55 (1.10)	1.33 (0.59)	0.87
Total number of hospitalized days per child in 3 years	12.69 (15.16)	5.05 (3.15)	2.56 (0.78)	0.03
Mean hospital stay per acute asthma attack (days)	5.19 (3.67)	3.44 (1.83)	2.17 (0.97)	0.01
Delay in hospital admission (hours)	9.21 (6.53)	24.93 (20.95)	24.17 (9.47)	0.0001
Number of salbutamol nebulizations on first hospitalized day	6.26 (1.15)	4.60 (1.38)	4.04 (0.69)	0.0001
Need of oxygen	$n=4$ (21.05%)	$n=3$ (10.00%)	$n=2$ (8.33%)	0.88
Need of intravenous salbutamol and/or intensive care unit	$n=2$ (10.05%)	$n=2$ (6.66%)	$n=1$ (5.55%)	0.95

*Multiple sensitive children were sensitive to cockroach and other allergens.

a high cockroach-allergen concentration in the family room, independently of race and income, may also induce an increased risk of bronchial inflammation through nonallergenic or allergenic mechanisms (6), it should be noted that the indoor environment may be appreciably different between Dresden and Marseille (France).

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Urticaria to hydrocortisone

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Key words: hydrocortisone; immunospot; specific IgE; urticaria.

● TOPICAL corticosteroids are well-known contact sensitizers. Immediate allergic or allergic-like reactions to systemic corticosteroids also occur but less frequently (1). We have seen two atopic patients who developed urticaria from a hydrocortisone injection or infusion.

Patient 1 (21 years of age) had had atopic flexural eczema in childhood and hand eczema for the last 2 years.

She had used various topical corticosteroid preparations without any noticeable side-effects. After being stung by a wasp or bee, the patient took three 50-mg tablets of hydrocortisone. Within 30 min, she developed rhinorrhea, shortness of breath, and fatigue, and had to go to a local medical center.

Possible IgE-mediated allergy to injected drug.

There she received 50 mg Solu-Cortef[®] IV (hydrocortisone succinate, benzyl alcohol as a preservative), after which her symptoms worsened. She was then treated with epinephrine IV, which relieved her condition. The patient was transferred to the nearest central hospital, and there she again received 100 mg Solu-Cortef IV. Within 2 min, she started to cough, wheeze, and develop urticaria all over the skin. IV epinephrine was then administered, with a favorable response.

Patient 2 (46 years of age) had a history of childhood atopic eczema and had suffered from seronegative rheumatoid arthritis, bronchial asthma, hypothyrosis, and epilepsy for years. Various drugs were suspected to have caused immediate allergic or pseudoallergic reactions, including sulfonamides, penicillins, lorazepam, clindamycin, ASA, and parenteral corticosteroids. The patient received 100 mg Solu-Cortef IV several hours after an arthrodesis operation. Within 15 min, she developed urticaria over her trunk. Atarax[®] was given *per os*,

Table 1. Results of skin tests

Subject	Prick/ ID	Hydrocortisone	Prednisolone	Methyl- prednisolone	Betamethasone (Betapred [®])
1	Prick	5×4/7×5 ¹ (10 mg/ml) ²	3/6×4 50 mg/ml	4×3/6×4 (50 mg/ml)	0/6×4 (4 mg/ml)
1	ID	n.d.	7×5/4 ³ (0.1 mg/ml)	7×6/4 (0.1 mg/ml)	0/4 (4 mg/ml)
2	Prick	n.d.	0/6 (25 mg/ml)	n.d.	n.d.
2	ID	n.d.	20 ps, generalized itching (2.5 mg/ml)	n.d.	n.d.

¹ Diameter(s) of corticosteroid-induced wheal/diameter(s) of positive control wheal on prick test in millimeters.

² Corticosteroid concentration in parenthesis.

³ Diameter(s) of corticosteroid-induced wheal/diameter(s) of negative control wheal on intradermal test.

ID: intradermal test; HSA: human serum albumin; n.d.: not done; ps: pseudopodia.