

Increased SPT reaction in fatty liver

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Key words: atopic dermatitis; fatty liver; skin prick test.

● I HAVE previously reported that fatty liver is often found in children with atopic dermatitis (AD) (1). It has also been reported that plasma linoleic acid is elevated in patients with AD compared with healthy controls (2). However, the levels of serum total cholesterol and LDL cholesterol were higher in rats fed linoleic acid-rich oil than those fed γ -linoleic acid- or α -linoleic acid-rich oil. The addition of sesame-derived antioxidative sesamin to linoleic acid-rich oil decreased serum histamine (3). These results suggest that allergen responses are enhanced in children with AD and fatty liver.

Twenty-four patients with AD who had fatty liver detected by abdominal ultrasound scans (mean age 6.2 years, range 1.0–13.4 years, 11 boys and 13 girls) (group I) and 24 patients with AD but without fatty liver (mean age 6.3 years, range 1.0–13.8 years, 12 boys and 12 girls) (group II) were studied. In group I, four patients had moderate and 20 patients had slight fatty liver. All of the patients had the clinical features of moderate to severe AD by Hanifin & Rajka's grading (4, 5), and two groups were similar in severity. None of them were obese.

Both groups were treated with oral antiallergic medication (oxatomide), and skin care including washing with povidone iodine and the application of nonsteroidal anti-inflammatory ointment (azulene). Moreover, cholesterol-rich foods, such as fried chicken, were restricted. No lipid-

lowering drugs were prescribed. At baseline and after 6 months of treatment, clinical condition, serum cholesterol levels, and allergen-induced wheal responses by skin prick test (SPT) to house-dust mite (*Dermatophagoides pteronyssinus*) were studied as previously described (5). None of the patients received any oral medication for 2 weeks prior to SPT. As shown in Fig. 1, the levels of total and LDL cholesterol at baseline in group I were significantly higher than those in group II ($P<0.01$). Moreover, the diameter of wheal response to house-dust mite was also significantly greater in group I than in group II ($P<0.01$). After 6 months, AD was improved in both groups to the same extent. In group I, the levels of total and LDL cholesterol decreased significantly ($P<0.01$). Fatty liver was cured in two out of four patients with moderate fatty liver and in 20 of 20 patients with slight fatty liver. Two out of four patients improved from moderate to slight. In contrast, the levels of total and LDL cholesterol were unchanged in group II. Moreover, the wheal response was reduced significantly in group I ($P<0.01$), but it was not changed in group II.

The enhancement of allergen-induced wheal responses in patients with AD and fatty liver is not specific to house-dust mite, since identical results were observed with cat dander, dog dander, and *Candida* (data not shown). Although the number of subjects was small, these results suggest that hypercholesteremia may enhance allergen-induced wheal responses, and thus may aggravate AD. Large controlled studies would be required to definitively answer this question.

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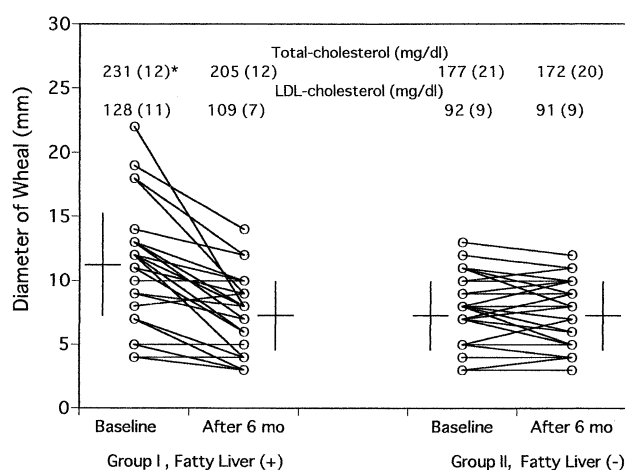


Figure 1. Changes in cholesterol levels and allergen-induced wheal responses. Serum levels of total and LDL cholesterol, and house-dust-mite-induced wheal responses were studied in 24 patients with AD with fatty liver (group I) and 24 patients with AD without fatty liver (group II). Individual values of diameters of wheal responses are reported. *Mean values and SD (in parentheses) of serum levels of total and LDL cholesterol at baseline and after 6 months are shown. Horizontal and vertical bars indicate means and SD, respectively.

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Anaphylaxis on skin exposure to grass

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Key words: anaphylaxis; contact urticaria; dermatitis; exercise; grasses.

● SYSTEMIC anaphylaxis represents the most dramatic manifestation of IgE-mediated allergy, commonly involving the pulmonary, circulatory, cutaneous, and gastrointestinal systems (1–3).

Nonrespiratory reactions to allergens of grass pollen have been described, and contact urticaria after direct skin exposure to grass has been reported (4, 5). This last entity has been thought to be a benign condition, and anaphylaxis following direct abraded skin exposure to grass has never been reported previously.

A severe reaction in a case of contact urticaria.

A 33-year-old man presented with rapidly progressing pruritus, generalized urticaria, rhinoconjunctival mucous membrane swelling, hypotension, tachycardia, collapse, and wheezing occurring within 5 min after extensive grass contact caused by a sliding action during a soccer game. Laceration, abrasions and slight bleeding of the skin (area = 16 cm × 10 cm) were seen pretibially, below the knee. He had not been bitten or stung by an insect, and had had no unusual ingestions or exposures. The patient had a history of immediate contact urticaria caused by grass during the grass pollen season, but no symptoms of rhinoconjunctivitis, asthma, atopic dermatitis, food allergy, or exercise-induced anaphylaxis. A presumptive diagnosis of anaphylaxis to grass was derived from the above-mentioned history and physical findings. Successful treatment consisted of intravenous saline infusion, oxygen, and clemastine (2 mg intravenously), with remission within 1 h.

At follow-up 8 weeks later, a diagnosis of anaphylaxis was confirmed by elevated methylhistamine (MH) (297 µmol/mol creatinine; upper limit of normal: 150) level in urine sampled immediately after arrival in the emergency room. At follow-up 8 weeks later, urinary histamine metabolite level had normalized (MH = 80 µmol/mol creatinine). A skin prick test with commercially available extracts (ALK, Denmark) was strongly positive for grass pollen (HEP 2.1). Several other inhalant and food allergens, as well as latex, were also positive, although HEP scores were lower (range 0.7–1.6).

Although this was not strictly necessary, this patient was given an epinephrine autoinjector. Furthermore, avoidance of skin contact with grass during the summer season was advised.

It seems probable that abrasion of the skin associated with the sliding allowed sufficient subcutaneous access of grass

pollen allergens to cause anaphylaxis. The increased cutaneous blood flow during the vigorous exertion of playing soccer for 40 min probably contributed to the severity of the symptoms.

This case illustrates that the route of exposure is a key factor in determining the risk of anaphylaxis in highly sensitized individuals, and that the nature of the allergen or the original route of sensitization is of less importance.

In summary, this case report demonstrates that life-threatening anaphylaxis can be caused by direct exposure of abraded skin to grass in a grass pollen-allergic patient with a previous history of contact urticaria. Such patients should be cautioned on the possible dangers of grass contact in combination with superficial skin injury incurred during sporting activities.

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