

Fatty liver in atopic dermatitis

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Key words: atopic dermatitis; fatty liver; cholesterol.

● Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by pruritis and elevated serum IgE levels.

It has been

reported that liver dysfunction is sometimes

found in children with AD (1), and the case of a child with severe AD and fatty liver was reported, although this was most probably due to malnutrition (2). I have studied the serum levels of total cholesterol and LDL-cholesterol, and conducted abdominal ultrasound scans in pediatric patients under 14 years of age with AD but without malnutrition.

As Table 1 shows, 357 patients with AD, who had clinical features of moderate to severe AD by Hanifin & Rajka's grading and by our skin scoring system (3, 4), were studied. Malnourished patients were excluded. A total of 344 age-

matched, nonatopic children, 118 patients with bronchial asthma (BA), and 85 patients with allergic rhinitis (AR) were included as controls after informed consent was obtained. None of them were obese. Significantly elevated levels of serum total cholesterol (>220 mg/dl) and/or LDL-cholesterol (>120 mg/dl) were found in 27.7% of AD patients compared to 10.1–12.2% of controls ($P<0.05$). They were further studied for the presence of fatty liver by abdominal ultrasound scans, and fatty liver was graded as mild, moderate, or severe (5). Fatty liver was found in 17.6% ($P<0.05$) of AD patients and in 3.2–5.0% of controls. Surprisingly, in AD, 9/99 patients with fatty liver, although classified as mild cases, were under 1 year, and the youngest patient was 0.5 years old. In contrast, in the control subjects, all of those with fatty liver were more than 2 years old. Percentages of both mild and moderate fatty liver were higher in AD patients than in control subjects. Severe fatty liver was not found in either of the groups. Moreover, the severity of fatty liver was not associated with liver dysfunction in that the serum levels of GOT and GPT were within normal limits in most of the patients with fatty liver.

The mechanisms of fatty liver in AD are currently under investigation. However, high percentages of fatty liver in AD, but not in control subjects, BA patients, or AR patients suggest that fatty acid dysregulation may be involved in the pathogenesis of AD (6). These results indicate that children with AD should be examined for fatty liver.

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Table 1. Fatty liver in controls and patients

	Controls	Bronchial asthma	Allergic rhinitis	Atopic dermatitis
Total number	344	118	85	357
Range of age (years)	0.4–13.9	0.9–13.5	1.0–13.8	0.4–14.0
Mean age (years)	4.9	5.3	5.4	4.5
Number of subjects with				
Elevated cholesterol*	35 (10.1%)**	13 (11.2%)	10 (12.2%)	99 (27.7%)
Fatty liver	11 (3.2%)	6 (5.0%)	3 (3.7%)	63 (17.6%)
Severity***				
Mild	10 (2.9%)	5 (4.2%)	3 (3.7%)	55 (15.4%)
Moderate	1 (0.3%)	1 (0.8%)	0 (0.0%)	8 (2.2%)

* >220 mg/dl of total cholesterol or >120 mg/dl of LDL-cholesterol.

**In parenthesis, percentage of total number is shown.

***Number of cases of mild or moderate fatty liver is shown.