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Improvement in atopic dermatitis in infants with the introduction of an elemental formula

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To the Editor:

We read with interest Dr Leung's excellent review on atopic dermatitis.¹ We would like to point out a dietary strategy, not included in this review, that might be helpful in the management of severe, refractory infantile atopic dermatitis.

A 4-month-old girl who had been exclusively breast-fed from birth was referred to the allergy clinic for severe eczema of 2 months' duration. She had failed the regular use of topical moisturizers, hydrocortisone, and oral hydroxyzine. On examination, the infant was irritable and her skin revealed a diffuse eczematous dermatitis and erythroderma, with relatively few "normal" areas. She improved in the short term with a brief course of oral steroids and antibiotics but relapsed shortly thereafter.

RAST studies done (with the Pharmacia ImmunoCAP assay) at the initial consultation revealed class 4 and class 5 responses to several commonly allergenic foods (including milk, peanut, and wheat). The result for soy was low positive. RAST assay results for common aeroallergens and several other foods (including beef, chicken, pork, cod, and potato) were negative. The mother was advised to either continue breast-feeding while

avoiding the allergenic foods or try an extensively hydrolyzed formula. She elected to exclusively use Alimentum and then Nutramigen, each for 1 month, but there was no improvement. A switch was then made to the elemental formula Neocate. Within 2 weeks the infant's skin cleared dramatically. The girl remains virtually free of atopic dermatitis at 1 year of age on Neocate.

The contribution of immediate food hypersensitivity to the pathogenesis of atopic dermatitis has been appreciated for several years.^{1 2} This relationship has been verified by blinded, placebo-controlled challenges that show milk, egg, soy, wheat, fish, and peanut to be the most commonly implicated foods.³ Interestingly, most infant formulas are either cow's milk- or soy-based and thereby pose a risk for sensitized infants.

Exclusive breast-feeding is superior to traditional formulas in decreasing the incidence of atopic dermatitis in infants with family histories of atopy.⁴ It is also known that maternal avoidance of cow's milk, egg, and peanut during the third trimester and lactation can further reduce this incidence.⁵ This case illustrates, however, that infants already suffering from atopic dermatitis who are being breast-fed might be undergoing food allergen exposure that sustains their condition. Whether sensitization in such infants resulted from in utero exposure to food antigens or from exposure through breast milk remains unclear.

The initial dietary strategy undertaken in our patient—namely, switching to an extensively hydrolyzed formula—is usually sufficient to improve infants with atopic dermatitis.⁶ These formulas, however, contain minute amounts of intact peptides and can still cause gastrointestinal and cutaneous reactions in highly sensitive infants.⁷ Our case illustrates that such patients can markedly improve as the result of a change to an elemental formula preparation. Clinicians treating severe infantile atopic dermatitis should be aware of this potentially helpful dietary modification.

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Donald P. Woodmansee, MD^a

Sandra C. Christiansen, MD^b

^aScripps Clinic and Naval Medical Center

2650 Stockton Rd, Bldg 624

San Diego, CA 92106

^bThe Scripps Research Institute

La Jolla, CA

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