Atopic Dermatitis Treatments Go Outside the Box

Vitamin D supplementation. Supplements of vitamin D helped improve winter-time onset or exacerbation of atopic dermatitis in children aged 2-13 years who were randomized to oral ergocalciferol (1000 IU in a double-blind, pilot study (Br J Dermatol. 2008;159:245-7).

The Investigator’s Global Assessment—based on six categories, ranging from (1) to very severe (6)—improved by one category in four (80%) of five children on vitamin D versus one (17%) of six children on placebo. Similar improvements were seen in Eczema Area and Severity Index scores.

Lead author Dr. Robert Sidbury of Children’s Hospital Boston and his associates suggested that a favorable impact of vitamin D on atopic dermatitis is biologically plausible.

The active form of vitamin D, 1,25-dihydroxyvitamin D3, induces expression of antimicrobial peptides that help prevent skin infection and possess immunosuppressive properties in the skin. Recent research also has drawn attention to the connection between vitamin D-mediated activation of toll-like receptors, production of the antimicrobial peptide cathelicidin, and human susceptibility to bacterial infection.

“Thus, vitamin D deficiency could contribute to the hallmark signs of AD: altered barrier function, immune dysregulation, and inadequate bacterial defense,” wrote the authors, who reported no conflicts of interest.

The study was supported by a grant from the Massachusetts General Hospital Center for D receptor Activation Research in Boston.

Rosiglitazone maleate. Used as an add-on therapy at doses of 2-4 mg twice daily, rosiglitazone (Avandia) was associated with increased control of severe atopic dermatitis in 6 patients nonresponsive to first- and second-line therapies, according to a retrospective review (Arch Dermatol. 2008;144:84-8).

The six patients, aged 16-75 years, showed decreased extent of the disease, of inflammation, and of number of flares. In addition, rosiglitazone, which is indicated for the treatment of type II diabetes, allowed for gradual reduction or elimination of systemic steroids in the three patients who used them.

Major clinical improvement appeared between weeks 4 and 12, which suggests that some patients may require at least 3 months for a clinical response, according to lead author Ramona Behbhad, principal investigator Dr. Kevin Cooper, and senior author Dr. Neil Korman, all of whom are with Case University Hospital.

No serious adverse events were seen in the study patients. The investigators suggested rosiglitazone may serve as a “good alternative to current systemic immunosuppressants used for severe AD,” but urged caution in interpreting the promising results because of study design limitations and two previous randomized trials of rosiglitazone in psoriasis that failed to demonstrate any notable efficacy, compared with placebo.

The study was supported in part by the National Institute of Arthritis and Case Medical Center.

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Probiotics’ Role to Prevent/Treat Atopy Remains Controversial

By Patricia Wending

Chicago Bureau

Chicago — The value of probiotics in atopic disease remains controversial, but clues are beginning to emerge in the literature about probiotics’ role in treatment and prevention.

Dr. Sharon S. Raimer highlighted the conflicting trial of evidence surrounding probiotic supplementation for the prevention and treatment of atopic dermatitis (AD) at a meeting sponsored by the American Academy of Pediatrics.

“It looks like at the present time that probiotics are really not very good for treatment, but they might help in prevention; but you have to give the probiotic prenatally for it to really work,” said Dr. Raimer, chair of dermatology, University of Texas at Galveston.

These considerations are largely based on a recent meta-analysis of six prevention and four treatment double-blind randomized controlled trials of probiotics and pediatric AD (J Allergy Clin Immunol. 2008;121:116-21).

The analysis identified a significant risk reduction—by as much as 61%—associated with the use of prenatal and/or postnatal probiotics for primary pediatric AD prevention among 1,581 participants, but only a marginal effect of treatment among 299 participants.

Such meta-analyses are complicated by the variety of bacterial strains and strengths used, Dr. Raimer said.

Probiotic trials also typically have small sample sizes and heterogeneity of protocols, and might not be specific for use of potential confounders such as concomitant antibiotics, topical corticosteroids, and antigen exposure in immunodysfunction.

An early trial of the role of probiotics in allergic prevention randomized mothers with a family history of atopic dermatitis, allergic rhinitis, or asthma to two capsules containing placebo or 1 x 10^9 colony-forming units of Lactobacillus rhamnosus GG daily for 2-4 weeks before date of delivery.

After delivery, breastfeeding mothers were given the capsules, while infants who were not breastfed were given the capsule contents mixed with water, for 6 months.

Atopic eczema was diagnosed in 46 of 132 (35%) children at 2 years of age, with the frequency of eczema in the probiotic group half that of the placebo group (23% vs. 46%) (Lancet. 2003;361:1869-71), suggesting that the preventive effect of Lactobacillus extends beyond infancy. Skincare intervention was found to be the same in both groups.

Early probiotic supplementation alone appears not to be beneficial in reducing the risk of AD and might actually increase the risk of allergic sensitization in high-risk children, said Dr. Raimer, a professor of dermatology and pediatrics.

She cited an Australian study that found no difference in AD rates at 6 and 12 months between 177 infants who received Lactobacillus acidophilus or placebo for the first 6 months of life, and an significantly higher rate of sensitization to common allergens in the probiotic group at 12 months (Allergy Clin Immunol. 2007;119:184-91).

Finally, a prospective randomized trial of supplementation during pregnancy and early infancy adds even more intrigue to the probiotic controversy.

Supplementation with 5 x 10^9 colony-forming units of Lactobacillus GG twice daily for 4-6 weeks before delivery and 6 months postnatally neither reduced the incidence of atopic eczema nor altered disease severity in AD affected children, but was associated with an increased rate of recurrent ear infections and also a decrease in infants stooling in the study children (Pediatrics 2008;121:e850-6).

The German researchers concluded that the evidence is insufficient to recommend probiotics or pre-and probiotic supplementation for the management of AD, which can be challenging in infancy.

Dr. Raimer noted, however, that supplementation may be helpful in the prevention of recurrent upper respiratory tract infections in children with atopic dermatitis (Pediatrics. 2008;121:e850-6).

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