Triggers of Contact Dermatitis Are Ubiquitous

BY HEIDI SPLETE
Senior Writer

BAL HARBOUR, FLA. — Tracking the cause of allergic contact dermatitis in children requires investigation of all possible avenues of exposure, from toys and clothes to personal hygiene products and foods.

"Patients can receive a dose of allergen in many different ways," Dr. Sharon E. Jacob said at the annual Masters of Pediatrics conference sponsored by the University of Miami.

Allergic contact dermatitis hypersensitivity reactions proceed through three phases: sensitization, challenge, and resolution, said Dr. Jacob, director of the contact dermatitis clinic at the university.

Sensitization occurs when the patient is first exposed to the allergen, but it takes about 21 days.

"Most people don't have a reaction on immediate exposure to an allergen," Dr. Jacob said. After the patient is sensitized and rechallenged, or reexposed, it takes about 48-96 hours for the skin to react.

COURTESY DR. SHARON E. JACOB

Allergic contact dermatitis can be caused by anything from toys to food.

"This is important, because patients often won't remember what they did 2-3 days before a rash appeared," she noted.

The first step in evaluating a child for allergic contact dermatitis is to take an in-depth history. "Look for temporal relationships; ask when the child gets better or worse," Dr. Jacob said. Consider the child's age, gender, and demographics. Examine the distribution pattern of the rash, which may provide a clue to its origin. For example, a pattern of perioral dermatitis may suggest an allergy to fragrances or balsam of Peru, whereas earlobe dermatitis in a young girl with pierced ears suggests a metal allergy. Also ask about the child's activities, including day care and travel, and even what jewelry he or she wears.

Next, select the most likely allergens for patch testing given the patient's history. Be sure to use allergen concentrations that are safe in children. There are currently no commercially available allergy testing kits designed for the pediatric population, Dr. Jacob noted.

The most common sources of contact dermatitis in children include nickel, fragrances/flavorings, thimerosal, chromium, formaldehyde, cobalt, lanolin, paraphenylenediamine, neomycin, bacitracin, and cocamidopropyl betaine.

Nickel remains the most prevalent contact allergen among children. Nickel exposure can come from many sources, including paper clips, jewelry, front snaps on jeans, and foods. Certain foods—including chocolate, asparagus, soy, and oatmeal—contain high amounts of nickel.

"Allergic contact dermatitis is a dose-dependent phenomenon, and trigger foods may contribute a significant dose," Dr. Jacob explained.

For example, a 12-year-old girl might wear jeans and earrings, eat both chocolate and oatmeal, and touch paper clips in a single day. These seemingly unrelated items all contain nickel and have the potential to exacerbate contact dermatitis in a sensitized patient. "It's a bit like being Sherlock Holmes and putting the puzzle pieces together—once you know the allergens—to figure out the exposures," Dr. Jacob said.

Fragrances and flavorings are common causes of contact dermatitis, and they appear in many products that patients routinely use. "We need to remind patients that 'unscented' is in fact a blocking fragrance. Many parents believe that unscented is the same as 'fragrance free,' " Dr. Jacob noted. Two common fragrance allergens, cinnamic alcohol and cinnamic aldehyde, are components of balsam of Peru. These substances can be ingredients in soaps and shampoos, as well as in many foods, including tomato-based products such as ketchup, and artificially flavored soft drinks. Thimerosal is a preservative found in some vaccines and some med-

ications, such as Neo-Synephrine pediatric formula and L'Oreal Miracle Wear mascara, Dr. Jacob noted.

Chromium is another metal salt that appears in products ranging from cement to leather to match heads. People who keep matchbooks in their pockets can have an allergic reaction to chromate in the shape of a patch on the leg where the matchbook was placed, Dr. Jacob noted. Again, food can increase the dose of the allergen. Orthodontic braces or dental fillings may contain chromium, as do apples (especially the peels); a combination of these items can exacerbate contact dermatitis in an allergic patient.

Bacitracin is another common allergen in the United States. It is one of the components of Neosporin, and this over-the-counter antibiotic ointment has been associated with anaphylaxis in allergic patients, Dr. Jacob warned.

Paraphenylenediamine is an oxidation chemical ingredient that often is used as a hair dye. More recently, it has been used in henna tattoo dyes to make them last longer, despite a Food and Drug Administration warning against the use of this chemical on the skin, Dr. Jacob said.

Formaldehyde and formaldehyde-releasing preservatives are common allergens for children. They are present in many child care products, including Johnson & Johnson baby shampoo, Baby Magic wash, and Water Babies sunscreen, as well as other cosmetics, baby wipes, and personal hygiene products. Aspartame, or NutraSweet, degrades into methanol, which in turn is metabolized in the liver and releases formaldehyde, Dr. Jacob noted. Children with a formaldehyde allergy may find that their condition resolves when they eliminate diet sodas containing NutraSweet and other NutraSweet-containing products from their diets, she said.

Cocamidopropyl betaine is a detergent that appears in many soaps, shampoos, and toothpastes, including Cetaphil and Dove products, and Colgate toothpaste. Patients with this allergy may present with dermatitis behind the ear, where shampoo tends to collect; this allergen should be suspected in children with persistent hand dermatitis.

When treating children with allergic contact dermatitis, allowing time for questions and patient education after the patch test is paramount, Dr. Jacob emphasized. Also, recognize the discomfort and frustration children may feel about the patch test process, and about the elimination or reduction of favorite foods, jewelry, or other products. Provide information about safe alternatives. "I can't stress this enough," she said.

Databases such as the Contact Allergen Replacement Database, available through the American Contact Dermatitis Society (www.contactderm.org), let the user type in the patient's allergens. The database cross references the allergens and their cross reactors and provides a list of products that patients can use safely. ■

Meropenem Aids Severe Diabetic Skin Infections

WASHINGTON — Diabetic patients with severe skin infections had greater improvement when treated with meropenem than with imipenem-cilastatin, Dr. John M. Embil reported in a poster presented at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

Skin and skin-structure infections are a perpetual problem for many diabetic patients, and may require surgical intervention if left untreated, wrote Dr. Embil of the University of Manitoba, Winnipeg, Canada.

The international, randomized, double-blind study included 1,037 hospitalized patients with complicated skin infections, 398 of whom were diabetic.

The clinical cure rate was 86% among the 204 diabetic patients who received a 500-mg intravenous dose of meropenem every 8 hours, compared with 72% among the 194 diabetic patients who received the same dosing regimen of imipenem-cilastatin. The cure rate among the nondiabetic patients treated with meropenem (87%) was similar to the rate in those treated with imipenem-cilastatin (89%).

Overall, meropenem was associated with slightly higher cure rates for all groups of pathogens—aerobic gram-negative, aerobic gram-positive, anaerobic, and polymicrobial—compared with imipenem-cilastatin, but the differences were not statistically significant. More than 40% of the pathogens were gram-negative aerobic or anaerobic organisms, and 29% of the *Staphylococcus aureus* isolates showed methicillin resistance. A similar spectrum of pathogens appeared in both diabetic and nondiabetic patients.

The study was sponsored in part by AstraZeneca, and the meeting was sponsored by the American Society for Microbiology.

—Heidi Splete