

articles with direct and prolonged skin contact and less than 0.2 $\mu\text{g}/\text{cm}^2$ per week for piercings.⁴ Child sensitization rates in Europe dropped from 24.8% to 9.2% after the implementation of the Nickel Directive, whereas US children continue to be sensitized at epidemic rates (28.1%) comparable to those seen in Europe before the implementation of the Nickel Directive.^{2,4} Neither the Environmental Protection Agency, Toxic Substances Control Act, nor the Consumer Product Safety Commission has policies in place addressing nickel sensitization. Furthermore, nickel, a frequent sensitizer, is not considered a strong sensitizer and therefore is not regulated.^{2,5}

With the high rates of nickel sensitization, a US-based nickel release directive targeting items intended to come into direct and prolonged skin contact is needed. Parents, children, medical professionals, policy makers, and others need to be aware of contributing sources of sensitizing free nickel to reduce exposure and Ni-ACD.

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Contact Allergens in Food Handlers of Kashmir Valley in North India

To the Editor:

Skin diseases in food handlers are caused by several factors such as exposure to irritants, prolonged glove wearing, irritating food juices, exposure to allergens, antimicrobial chemicals, food preservatives, flavoring agents, frequent use of soaps/detergents, and extreme changes of temperature. Kashmir valley located in North India is known for its traditional foods worldwide. The traditional cooks of Kashmir (wazas) are considered the master chefs of Kashmiri cuisine called “wazwan.” Kashmiri bakeries, which sell pastries, cakes, as well as Kashmiri breads such as *shermal*, *bakerkhani*, *kulchas*, and special round breads called *tchot* and *tchochvoru*, are also famous worldwide.

We conducted a cross-sectional study to find out the cases of allergic contact dermatitis (ACD) in food handlers of Kashmir valley and to identify contact allergens using patch testing after obtaining institutional ethical clearance. Five hundred food handlers composed of chefs working in different government/private hotels and restaurants, local cooks of Kashmir (wazas), local bakers, and bakers working in various bakery shops were evaluated after informed consent was sought. Only the ethnic Kashmiri population involved directly in food handling and willing to participate in the study was included. A detailed general physical and cutaneous examination was carried out, and 30 cases (6%) of ACD were suspected. The hands were primarily affected with itching, being the chief complaint. Clinically, they presented with fissures, excoriations, dryness, and exudation. After informed consent was obtained, 29 patients were patch tested using Indian Standard Series (ISS) approved by the Contact and Occupational Dermatitis Forum of India, as well as Bakery Series (BS) imported from Chemotechnique Diagnostics, Skåne, Sweden. The results were read on days 2 and 4 according to the guidelines developed by the International Contact Dermatitis Research Group. The data at the end of the study were entered in Microsoft Excel, and analysis was performed using SPSS version 20.0 (IBM Corporation, NY).

Positive patch test results were obtained in 8 food handlers (Table 1). The most common allergen identified with the ISS was nickel sulfate (3 cases), followed by *p*-phenylenediamine and cobalt chloride in 2 cases each. This could be attributed

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TABLE 1. Positive Patch Test Reactions With ISS and BS

Allergens	No. Positive Reactions
Nickel sulfate hexahydrate	3
<i>p</i> -Phenylenediamine	2
Cobalt chloride hexahydrate	2
Cinnamyl alcohol	1
Cinnamal	1

to the use of nickel-containing utensils, as well as the leaching out of nickel from these utensils while doing wet work.¹ *p*-Phenylenediamine is an important delayed-type sensitizer in bakers due to exposure to *p*-phenylenediamine–cross-reacting substances.² Only 1 food handler tested positive with BS who gave a positive patch test reaction to cinnamyl alcohol and cinnamal (Fig. 1). These are constituents of various flavoring agents and can act as contact allergens.^{3,4} In our study, the number of positive results with BS was very low, and this can be attributed to the use of various indigenous materials by these

food handlers. In addition, there are a limited number of antigens available commercially because of which many cases of ACD are missed.⁵ To detect the contact allergens in our study population, a patch test using indigenous products by “as is” method could have been helpful; however, this method was not used, which was a limitation in our study. We recommend the formulation of a separate bakery series covering an extended spectrum of allergens so that cases of ACD can be managed more efficiently.

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Figure 1. Patch test performed in a baker with BS with positive patch test reaction to cinnamyl alcohol (7) and cinnamal (8).

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