toxic, carcinogenic and reproductive effects (2–4), exposure to acrylamide is usually minimized by automated industrial control. Thus, there have been few reports of documented acrylamide-induced cutaneous pathology. Nonetheless, in reports of acrylamide-induced neurotoxicity, "peeling skin" has been identified as an early symptom (5–7), occurring before the onset of neuropathy, which our patient did not have.

Acrylamide has been associated with alopecia areata, but not dermatitis, in 7 paper factory workers, who were exposed to an acrylamide-containing mist and who displayed an acrylamide-like substance in their blood or urine on subsequent toxicological evaluation (8). A substituted, secondary acrylamide has been documented as a contact allergen in a 26-year-old man, who mixed crystalline granules of piperazine diacrylamide at work and who developed periorbital erythema and pruritic red plaques about the wrists bilaterally (9). In another report, substituted secondary acrylamides were identified as allergens among 7 printers (10). To our knowledge, this is the 1st report of allergic contact dermatitis from unsubstituted acrylamide.

Because of acrylamide's non-dermatologic toxicities (2–7), we were unable to test controls to rule out an irritant reaction as the cause of our patient's positive test. However, the crescendo nature of her test reaction over 4 days and its spreading, papulovesicular morphology suggest an allergic rather than an irritant response. Furthermore, the prompt clearing of the patient's dermatitis, the lack of cutaneous symptoms while waitressing, and the non-recurrent nature of her dermatitis since discontinuing work as a chemical mixer, are all consistent with an allergy to acrylamide. Of note, the patient did not react to the substituted, secondary acrylamides to which she was tested (N,N′-methylene bis-acrylamide), nor did she react to any of the acrylates tested on the standard tray (e.g., methyl methacrylate or ethyl acrylate). This is consistent with a prior report regarding the lack of cross-reactivity between secondary acrylamides and the acrylates (11), and further expands this lack of cross-reactivity to the parent acrylamide molecule.

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Concordance and discordance between TRUE Test and Finn Chamber

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Key words: patch testing technique; TRUE Test; Finn Chamber; chromate.

TRUE (thin-layer rapid use epicutaneous) Test supplies uniform and reproducible dispersion of allergens (1). It does not show important regional differences on the body surface (2), and its adverse effects are rare, though they include persistent reactions (3).

Patients and Methods

168 patients were patch tested simultaneously on both sides of the back with the TRUE Test standard series and the Chemotechnique standard series applied by Finn Chamber. Readings were carried out, following the recommendations of the GEIDC, at 2 and 4 days after application of the tests, allowing 20 min between removing the patch tests and the D2 reading.

Results

While, globally, concordance was good (68%), certain allergens were more discordant than others. Potassium dichromate in 6% of cases was negative in the TRUE Test, but positive with Finn Chamber, and in 1% positive

in the TRUE Test but negative with Finn Chamber. Fragrance mix in 5% of cases was negative in the TRUE Test but positive with Finn Chamber. Nickel in 4% of cases was negative in the TRUE Test but positive with Finn Chamber, and in 2% positive in the TRUE Test but negative with Finn Chamber. Cobalt in 4% of cases was also negative in the TRUE Test but positive with Finn Chamber. In the case of wool wax alcohols, mercapto mix, MCI/MI, thimerosal and thiuram mix, the number of discordances was also similar to or higher than the number of positive concordances.

Overall, the sensitivity of TRUE Test compared to Finn Chamber was 69% and specificity 99%. However, for chromate, sensitivity decreased to 52% though specificity stayed at 99%. Fragrance mix showed an even lower sensitivity of 40%, compared to a specificity of 100%. When analysing the remaining allergens separately, the level of sensitivity was often very low, compared to Finn Chamber, while specificity remained almost without exception between 98% and 100%.

Discussion

The main criticism of the Finn Chamber method has concerned metallic salts (4), and been blamed on their uneven distribution (5, 6), which the TRUE Test has been claimed to redress. The TRUE Test Study Group found only 2% discordance between the 2 methods (7). Golhausen et al. (8) later found a higher reproducibility of positive cases for TRUE Test compared to Finn Chamber, though the difference was not statistically significant. A Swedish study identified discordance between positive reactions to thimerosal in the 2 tests (9). In a European multicentre study, a concordance of 65% between the 2 methods was found for both Panel 1 (10) and Panel 2 (11), which agrees with other results from Golhausen et al. (12). A higher number of irritant reactions were found with Panel 1, in which metals are included, compared to Panel 2. However, reproducibility was only 50%. In Singapore, overall concordance was similar, at about 63%, though neomycin and PPD were more often positive with Finn Chamber than with TRUE Test (13).

In our study, false-negative reactions with TRUE Test were the main concern, as we have previously underlined for chromate (14), petrolatum having been demonstrated as the best vehicle for this allergen by Lidén et al. (15). Our findings extend to fragrance and other metals. For many allergens, the relative sensitivity of the TRUE Test as compared to Finn Chamber does not exceed 70% and in some cases falls below 50%. We agree, however, with a recent study (16) that TRUE Test has high specificity and freedom from adverse effects.

Conclusions

With Finn Chamber, the majority of error is false-positive, with TRUE Test false-negative. False-positive reactions are easier to dismiss on the grounds of clinical relevance, than are false-negative reactions to retrieve as diagnostic of allergic contact dermatitis. We therefore prefer Finn Chamber as a screening test method, especially for chromate and nickel, while granting TRUE Test the technical advantage of specificity.

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