

than the heterocyclic aromatic group, which diversifies β -blockers from one another (Fig. 1). In contrast to levobunolol, there was no patch test reaction to any other β -blocker in our test series. Upon continuation of glaucoma treatment with the β -blocker pindolol, there has been no relapse of periorbital dermatitis in our patient.

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Patch testing with additional series of allergens

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Key words: allergic contact dermatitis; patch testing technique; standard series; additional series; non-standard substances. © Munksgaard, 1999.

Patch testing with a standard series of allergens allows the identification of substances responsible for dermatitis in a large number of cases, but not in all (1–4). It can sometimes be necessary to test with additional non-standard substances (5–6).

Materials and Methods

To build up additional series, we gathered together data from the major texts of allergological dermatology (7–16), original publications, patch test catalogues and Internet sites (17). This resulted in a series of 71 allergens, subdividable into blocks.

A total of 262 patients (141 at OU of Allergological Dermatology, 121 at INAIL Dermatological Consultancy) suspected of having allergic contact dermatitis took part in the study (138 male, 124 female; mean age, 41 years). All underwent patch tests with an augmented GIRDCA standard series. The allergens used for patch testing were supplied by Chemotechnique Diagnostics (Malmö, Sweden), Trolab Hermal (Reinbek, Germany) and FIRMA SpA (Firenze, Italy). Patch testing was performed with Van der Bend square

chambers (Van der Bend, Brielle, The Netherlands) or Finn Chambers on Scanpor tape (Epitest Ltd Oy, Tuusula, Finland) on the subject's back and left in place for 2 days. Readings took place at 30 to 60 min after the patch tests were removed, and again 1 or 2 days later, and occasionally up to 7 days, according to ICDRG recommendations (18).

All patients were patch tested with 1 or more additional series (or with part of such a series). Between them, 53 different series were used (most frequently: clothing, construction industry, hairdressers, dental prostheses, shoes, metallurgical industry, housewives, textile industry), with a total of 310 series or blocks of

Table 1. Correlation between numbers of patients positive to the standard series and additional series

		Additional series	
		negative	positive
Standard series	negative	76 (29%)	21 (8%)
	positive	85 (32.4%)	80 (30.5%)

series used, while 502 different non-standard allergens were used, making a total of 8775 patch tests.

Results

101 of the 262 patients tested (Table 1) showed 1 or more positive reactions, making a total of 218 positive reactions to the allergens of the additional series. Of 8775 patch tests carried out with the non-standard allergens, the total of false-positive reactions was 24 (0.3%).

Comment

The use of additional series allowed the identification of substances responsible for allergic contact dermatitis in about 8% of cases in which the standard series was negative, and the sensitizations found were clinically relevant in 20/21 such cases. Moreover (Table 1), in 30.5% of cases, concomitant positive reactions were shown to the standard and additional series, with improved diagnostic accuracy.

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Allergic contact dermatitis from tropicamide ophthalmic solution

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Key words: allergic contact dermatitis; tropicamide; ophthalmic solution; medicaments. © Munksgaard, 1999.

A 63-year-old laboratory technician presented with severe erythematous scaly dermatitis of the face, eyelids and periorbital areas. Her symptoms had appeared hours after using a mydriatic ophthalmic preparation for diagnostic purposes.

Patch tests with the standard series were positive to neomycin sulfate 20% pet. (+++), bacitracin 20% pet. (+++), budesonide 0.1% pet. (+++), and tropicamide ophthalmic (Mydracil; Alcon, Ft. Worth, Texas). Further testing with the patient's ophthalmics, their constituents and other environmental agents revealed a positive reaction to tropicamide 1% pet. (+++). Patch testing with tropicamide 1% pet. in 20 healthy volunteers was negative.

Ophthalmic solution containing 1% tropicamide and 0.01% benzalkonium chloride was introduced in 1979 to obtain mydriasis and cycloplegia for diagnostic purposes. Tropicamide is an anti-cholinergic, and when ap-

plied locally to the eye, blocks the responses of the sphincter muscle to cholinergic stimulation, dilating the pupil (mydriasis). The stronger preparation also paralyzes accommodation and can cause a rise in intraocular pressure (1).

Contact dermatitis from ophthalmic preparations is common, preservatives being the most frequent causes (2). This case is the 2nd report to implicate tropicamide, the active ingredient of this ophthalmic solution, as a sensitizer (3). Reviews of allergic contact dermatitis from ophthalmics are in refs. (4–6).

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