

Results

216 patients (23.9%) were tested in winter, 177 (19.6%) in summer and 509 (56.4%) in transitional seasons. In 117 patients, the season in which patch tests were performed was not indicated. Negative patch test reactivity was observed in 96 (55%) patients in winter, 108 (70%) in summer and 233 (53%) in transitional seasons. Positive reactivity (++) and (+++) was observed in 79 (45%) patients in winter, 204 (47%) in transitional seasons and 47 (30%) in summer. Doubtful, irritant and + reactions were excluded from analysis. In transitional seasons and in winter, the differences between positive and negative patch test reactions are statistically insignificant. In summer, on the other hand, negative patch test results are much more frequent. This observation is statistically significant ($p=0.002$).

Age and sex had no influence on the seasonal variation in patch test reactions, and different allergens showed the same pattern of results.

Discussion

Most patch testing in Israel is performed in transitional seasons and in winter. The results of this study encourage us to maintain this. Patients patch tested in summer and giving negative reactions should be re-evaluated in winter or in transitional seasons. If sunbathing in July-August is causing suppression of patch test reactions in summer, recent campaigning against excessive sun exposure may be expected to diminish this seasonal effect in the future.

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Difficulties in the interpretation of patch test reactions to ophthalmic β -blockers

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Key words: allergic contact dermatitis; glaucoma; β -blocking agents; carteolol; medicaments; patch testing technique; false-negative reactions. © Munksgaard, 1998.

Ophthalmic β -blockers are widely used in the topical treatment of glaucoma. It is documented that they can induce allergic contact dermatitis.

Case Report

A 68-year-old woman, with no history of atopy, had had severe eczema, associated with conjunctivitis, on her upper and lower eyelids for 6 months. She had been treated for several years with the ophthalmic β -blocker Carteol[®] (carteolol). Patch testing with the European standard series, an ocular series and her eyedrops revealed a ?+ reaction to Carteol[®] at 2 and 3 days, which persisted till 7 days. Patch testing to benzalkonium chloride (preservative of Carteol[®]), as well as to the ex-

Table 1. Patch test results

Patch tests	D2	D3
standard series	—	—
benzalkonium chloride 0.1% aq.	—	—
Carteol [®] 2% as is	?+	?+
excipients of Carteol [®] 2%		
sodium chloride 1% aq.	—	—
sodium monobasic phosphate 1% aq.	—	—
sodium dibasic phosphate 1% aq.	—	—
carteolol 2% aq	—	—
carteolol 5% aq.	—	—
befunolol 2% aq.	—	—
befunolol 5% aq.	—	—
betaxolol 2% aq.	—	—
betaxolol 5% aq.	—	—

cipients of Carteol[®] and to other β -blockers, was negative (Table 1). A use test was negative. Having stopped treatment with Carteol[®], however, the patient recovered completely within 1 week.

Discussion

False-negative patch tests to ophthalmic β -blockers have previously been described (1). Enlargement of test areas to 4 cm² to avoid such false-negative results has been proposed (2). In our case, 1-cm diameter (Leucotest[®]) was insufficient, even though the patch test concentration was 2 $\times$ (5%) the concentration in the eyedrops. Positive reactions have, however, been reported to patch test concentrations ranging from 0.5% to 1% (1, 4).

There were no positive reactions to other β -blockers, such as befunolol and betaxolol, which might be responsible for crossreaction (3).

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The patch test concentration for methylchloroisothiazolinone/methylisothiazolinone

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Key words: Methylchloroisothiazolinone/methylisothiazolinone; patch testing technique; contact allergy; preservatives; false-positive reactions; doubtful reactions; allergic reactions; 100 ppm. © Munksgaard, 1998.

The ideal patch test concentration should avoid both false-positive and false-negative results. With a potent contact sensitizer such as methylchloroisothiazolinone/methylisothiazolinone (MCI/MI), there is also a particular need to avoid patch test (active) sensitization. 100 ppm (0.01% w/v) aq. is the current concentration of MCI/MI in the European standard series. There are more positive patch tests to 300 ppm than to 100 ppm, but the higher concentration can sensitize (1). There were more positive reactions when the equivalent of 150 ppm MCI/MI in the TRUE TestTM was compared to the standard preparation (2). Testing at 200 ppm has been reported, but differentiation between an irritant and an allergic response was apparently not possible in one series (3), and no irritant responses were seen in another (4). To investigate this problem further, a comparative study between 100 ppm and 200 ppm MCI/MI was performed.

Methods and Results

590 (217 male and 373 female) consecutive patients undergoing investigation for allergic contact dermatitis at

Gentofte Hospital, in the period January to December, were simultaneously patch tested with 15 μ l of 100 ppm a.i. (w/v) aq. MCI/MI and 15 μ l of 200 ppm (w/v) a.i. aq. MCI/MI in Finn Chambers on Scanpor tape. All tests were read at 2, 3, and 4–7 days, following ICDRG guidelines.

The results are summarized in Table 1. Patch testing at 200 ppm MCI/MI, compared to 100 ppm MCI/MI, showed more irritant and doubtful results, but no difference in the number of positive results. No patch test sensitization was detected.

Discussion

7 of 8 patients with a positive patch test at 200 ppm and a negative patch test at 100 ppm had negative lymphocyte provocation tests, suggesting that there is a high frequency of irritant, compared to allergic, reactions at this concentration (5). The results of this study also suggest that 200 ppm MCI/MI can be irritant. Although these weak reactions were probably an irritant response they could, however, represent a weak allergic response. At this stage, 100 ppm MCI/MI still seems to be the most appropriate patch test concentration.

References

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Table 1. Results of patch testing with 100 ppm and 200 ppm MCI/MI in 590 patients

	Positive (+/+ +/+ +++)	Frequency rate (%)	Doubtful (?+)	Irritant (IR)
100 ppm	15/590	2.5	11/590	2/590
200 ppm	16/589	2.7	22/589	3/589