

Sensitization to propantheline bromide, trichlorocarbanilide and propylene glycol in an antiperspirant

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Out of 14 patients with axillary dermatitis due to an antiperspirant, and with positive patch test reactions to the product, the sensitizer could be demonstrated in 12. Of these, 11 were positive to propantheline bromide, 3 to trichlorocarbanilide and one to propylene glycol. The antiperspirant contains 90 % propylene glycol, which is an irritant under occlusion. When applied in the axillae, where occlusive conditions usually prevail, an irritant effect of propylene glycol may have promoted sensitization to the ingredients of the antiperspirant.

Key words: antiperspirant allergy – propantheline bromide – propylene glycol – trichlorocarbanilide.

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Most of the patients with allergic axillary dermatitis seen at our contact dermatitis clinic during the last three years developed the condition after the use of Ercotina Derm® (Ercoril Lotion®). The constituents of this antiperspirant and deodorant are propantheline bromide 5 % and trichlorocarbanilide (TCC) 0.25 % in a vehicle of propylene glycol 90 % and water 4.75 %. Out of 14 patients who reacted positively to the antiperspirant, the sensitizer could be demonstrated by testing with the components in 12 (11 women and 1 man; mean age 40 years). The test results and test concentrations are given in table 1. Three of the patients had a history of earlier intolerance to other deodorants. In most cases the dermatitis had appeared after 2-4 weeks' use of Ercotina Derm®. All the patients were negative to the I.C.D.R.G. standard

series, except patient No. 8, who was positive to nickel and cobalt.

It is clear from the table that 11 patients were positive to propantheline bromide and that 3 of them also reacted to TCC. One patient (No. 11) reacted positively only to propylene glycol (1 %). When tested with weaker concentrations of propylene glycol, the reaction was positive also to 0.1 % and to 0.01 %.

Ercotina Derm® (Ercoril Lotion®) has been on the Scandinavian market for several years but so far only two cases of intolerance ascribed to sensitization to propantheline bromide have been reported (Fregert & Möller 1967, Wereide 1968). Recently, however, seven additional cases of intolerance to Ercotina Derm®, were seen within a short period of time in Finland: five patients were positive to propantheline bromide (10 %),

Table 1. Patch test reactions to ingredients of Ercotina Derm® (Ercoril Lotion®)

Patient No.	Propantheline bromide 5 % aq.	Trichlorocarbanilide (TCC) 2 % eth.	Propylene glycol	
			10 % aq.	1 % aq.
1	+	+	+	—
2	+	—	—	NT
3	+	+	—	NT
4	+	—	—	NT
5	+	—	—	NT
6	+	—	—	NT
7	+	—	+	—
8	+	—	+	NT
9	+	+	+	—
10	+	—	+	—
11	—	—	+	+
12	+	—	—	NT

two to TCC (5 %) and two to propylene glycol (2 %) (Hannuksela 1975). Another case has recently also been observed by Osmundsen (1975). The patient had allergic test responses to propantheline bromide as well as to TCC. No testing was performed with propylene glycol.

We found the test concentrations of propantheline bromide, 5 % in water, and TCC, 2 % in ethanol, to be non-irritant in about 40 controls.

As for test concentrations of propylene glycol, most authors seem to use 10 % in water. However, Fischer (1973) as well as Hannuksela et al. (1975), have stressed the difficulty in interpreting the test reactions to propylene glycol in 10 % concentration, which may produce an irritant response in some patients. Six of our patients reacted to 10 % but four out of five tested were negative to 1 %. The patient (No. 11) who responded to 1 % was positive even at a concentration of 0.01 %. She was negative to propantheline bromide and TCC, but was evidently unusually sensitive to propylene glycol. She was thus the only pa-

tient with a clear-cut allergic response to this component of the antiperspirant.

Two of the 14 patients had no reactions to any of the components in the test concentrations given in the table. One of these two patients volunteered for complementary testing with propylene glycol in higher concentration. She had an irritant response to propylene glycol 90 % in water.

Our observations are in agreement with the experience of others that propylene glycol is a weak sensitizer but a potential irritant when applied under occlusion (Hannuksela et al. 1975). In the axillae, where occlusive conditions usually prevail, the application of 90 % propylene glycol as present in Ercotina Derm® might well have provoked irritant reactions also in the patients reacting negatively to 10 % propylene glycol. It is possible that such irritant reactions have promoted sensitization to the active ingredients of Ercotina Derm®, propantheline bromide and TCC.

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