

Results of routine office patch testing

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The results of patch testing over the past 18 months in a general dermatology clinic are presented and compared with the data recently reported by the North American Contact Dermatitis Group. Good correlation exists between the results of the two studies for all the reported allergens except nickel sulfate and potassium dichromate. The increased incidence of sensitivity to these allergens reported in our series probably reflects the tendency for all metal related contact dermatitis to be referred to our clinic, even though recognized as such by the referring physician.

The 16.8 % reactivity to a dye mix used in our screening kit, and not reported by others, proved most interesting. In the light of continuing reports of dye related allergic contact dermatitis, our experience prompts us to suggest that a dye mix of some sort should be evaluated in future large-scale studies of patch test screening kits.

Key words: dye mix – patch test screening kits – results of routine office patch testing compared with results reported by NACDG.

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Recently data concerning the incidence of contact sensitivity to selected allergens has been reported by specialized teaching institutions or private practitioners known to have a special interest in allergic contact dermatitis (Epstein et al. 1968, Baer et al. 1973, North American Contact Dermatitis Group 1973). How relevant are these statistics to the dermatologist who is not in a teaching institution or who is not known for having a special interest in contact dermatitis? Our curiosity concerning this question prompted us to review the results of patch testing in our department, which is a general dermatology clinic. No reputation for special interest in allergic contact dermatitis exists. No efforts were made to encourage referrals of cases suspected of being an allergic contact dermatitis. Hence, our experience should be comparable with that of most practising dermatologists.

Subjects tested were those patients pre-

senting for treatment of a dermatitis whose medical history, occupational history, and/or physical examination led the examiner to suspect an allergic contact dermatitis.

Materials and Methods

The 18-month period of November 1973 to May 1975 was reviewed. During this period, 131 patients were patch-tested. The screening kit for the first six months consisted of the materials listed in Table 1 which were dispersed in white petrolatum. Epoxy resin 1 % was added to this kit during the last few months of its use. For the remainder of the study period, the screening kit used was exactly as recommended by the North American Contact Dermatitis Group (NACDG) (News and Notes 1973). The aluminium patch test (Al-test) was used. Tests were evaluated at the end of 48 hours and occasionally at the end of 72 hours.

Table 1. Composition of screening kit used during first six months of the study

Nickel sulfate 2.5 %
Potassium dichromate 0.5 %
Formalin 2 % (aq. sol.)
Ammoniated mercury 1 %
Neomycin sulfate 20 %
Thimerosal 0.1 %
Wool wax alcohols 30 %
Ethylenediamine 1 %
Turpentine 10 % (in olive oil)
Balsam of Peru 25 %
Rosin 20 %
Paraphenylenediamine 1 %
Paratertiarybutylphenol 2 %
Lanolin USP
Dichlorophene 1 %
Caine mix (tetracaine 1 %, benzocaine 5 %, dibucaine 1 %)
Paraben mix (3 % each of methyl, ethyl, propyl, butyl paraben)
Rubber mix (mercaptobenzothiazole 1 %, tetraethylthiuram 1 %, tetramethylthiuram 1 %, zinc diethyldithiocarbamate 1 %)
Dye mix (solvent yellow 3, solvent red 26, solvent green 3, solvent violet 13, 0.5 % each)

Results were graded as recommended by the International Contact Dermatitis Research Group (Wilkinson et al. 1970) Questionable results were not recorded.

Results

The results obtained in the current study are presented in Table 2 along with the results published by the NACDG. The most common sensitizers in our study include potassium dichromate, nickel sulfate, dye mix, epoxy resin, ethylenediamine, neomycin sulfate, paraphenylenediamine and thimerosal.

Comment

We feel that a good correlation exists between our results and those of the NACDG for neomycin sulfate, ethylenediamine, thimerosal, ammoniated mercury, wool wax alcohol, paraben mix, formalin, and para-

Table 2. Comparison of patch test results obtained in current study and those reported by NACDG

Substances	Current Study		North American Contact Dermatitis Group
	No. Pos./ Total	% Reacting	% Reactivity
Nickel sulfate 2.5 %	23/131	17.5	11
Potassium dichromate 0.5 %	26/131	19.8	8
Neomycin sulfate 20 %	11/131	8.3	6
Ethylenediamine 1 %	13/131	9.9	7
Benzocaine 5 %	NT*	NT	5
Dibucaine hydrochloride 1 %	NT	NT	3
Cyclomethycaine sulfate 1 %	NT	NT	2
Caine mix	4/131	3.0	NR*
Thimerosal 0.1 %	10/131	7.6	8
Ammoniated mercury 1 %	5/131	3.8	5
Wool wax alcohol 30 %	6/131	4.5	3
Paraben mix	2/131	1.5	3
Formalin 2 % aqueous	6/131	4.5	4
Paraphenylenediamine 1 %	11/131	8.3	8
Mercaptobenzothiazole 2 %	NT	NT	5
Thiram 2 % (1 %)	NT	NT	4
Rubber mix	7/101	6.9	NR
Turpentine oil 1 % aqueous	0/30	0	6
Turpentine 10 % in olive oil	6/101	5.9	NR
Epoxy resin 1 %	2/42	4.7	NR
Dye mix	17/101	16.8	NR
P-tertiarybutylphenol 2 %	5/131	3.8	NR
Balsam of Peru 25 %	4/131	3.0	NR

* NT = not tested; NR = not reported

phenylenediamine. We also feel that the results with our caine mix and rubber mix compare favorably with their individual components as tested by the NACDG.

The 17.5 % incidence of nickel sulfate sensitivity and the 19.8 % incidence of potassium dichromate sensitivity in the present study differ significantly from the 11 % and 8 % respective incidences of sensitivity as reported by the NACDG. This probably reflects the ease with which certain manifestations of nickel and chrome related allergic contact dermatitis are recognized. The more obvious problems would probably not be referred to those participating in the NACDG study. Obvious cases of ear lobe dermatitis are excluded from patch testing in our clinic just as they were by several of the NACDG investigators.

Our results with turpentine 10 % in olive oil are nearly identical to the results obtained by the NACDG using turpentine oil 1 % aqueous. Our experience with this latter allergen is too limited to warrant any comment.

The NACDG did not report on epoxy resin, but our findings with this allergen are similar to those reported by others (Baer et al. 1973).

The 16.8 % reactivity to the dye mix is most interesting. In over half of those reacting, the reaction was felt to be relevant. The use of such an allergen in a screening tray has not been previously reported, but reports of a dye-related allergic contact dermatitis continue to appear (Cronin 1968, Jordan & Dahl 1972, Larsen 1975, Calnan 1975), raising the question as to whether various dye mixtures should be included in future investigations by the NACDG.

Conclusions

Results obtained from studies such as those conducted by the NACDG do indeed pro-

vide information relevant to the practice of the average dermatologist. Patch test screening kits developed and modified according to the results of such investigations provide the practitioner with an efficient, up-to-date means for evaluating patients suspected of having an allergic contact dermatitis.

Our results with the use of a dye mix in our original screening kit prompt us to suggest that a dye mix (not necessarily identical to ours) should be evaluated in future large-scale studies.

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