

PREVALENCE OF PATCH TEST POSITIVITY WITH SOME BASES

J S Pasricha

To evaluate the suitability of some chemicals to act as bases for antigens for patch tests, patch tests were performed with these agents in patients having contact dermatitis. Propylene glycol used as such produced positive reactions in 25(50%) patients of which 12 were 2+ or more, polyethylene glycol 200 produced positive reactions in 9(18%) cases of which 4 cases were 2+ or more, a mixture of liquid paraffin and hard paraffin gave rise to positive reactions in 10(10%) cases 3 of these being 2+, a mixture of liquid paraffin and bees wax was positive in 14(14%) cases, 3 of these being 2+, yellow petrolatum was positive in 4(8%) cases, one of which was 2+, white petrolatum was positive in 3(6%) cases all of these being \pm reactions only, and glycerol gave rise to a 1+ reaction in only one (2%) case. In tropical countries, water should be preferred as base for as many antigens as possible, while for others, a control test with the base alone must be included.

Key words: Patch test, Base.

For patch tests, it is necessary to have some suitable base to dissolve or suspend various antigens. An ideal base should be able to solubilise or suspend the antigen uniformly, it should release the antigen for penetration into the skin during patch test, it should not react with the antigen, and it should not produce any false or truly positive patch test reactions of its own.

For water-soluble antigens, water is the most ideal base, except that prolonged storage can lead to evaporation and hence a change in the concentration of the solution. For antigens which are not soluble in water, petrolatum has been the choice all over the world, and gradually even the water-soluble antigens are being used in petrolatum. This base however, suffers from two main drawbacks, (1) petrolatum is not always pure and, therefore, some specimens of petrolatum give rise to a high incidence of false positive reactions,¹ and (2) in summer months, petrolatum produces frequent miliaria-like reactions because of

occlusion.² Thus, the search for newer bases would tend to continue. We are reporting our results on the incidence of patch test reactions with some of the agents which can be used as bases.

Materials and Methods

Various bases patch tested included yellow petrolatum (Ponds), white petrolatum (Ponds), propylene glycol (E Merck), polyethylene glycol 200 (Glaxo), liquid paraffin (Subhash Trading Co), glycerine (Glaxo), a mixture of bees wax and liquid paraffin and a mixture of paraffin wax and liquid paraffin (prepared in our laboratory). These agents were tested as available commercially, on patients having contact dermatitis due to plants, wearing apparel, metals, cosmetics etc. The patch tests were done according to standard procedures.³

Results

The results of patch tests with various bases are shown in Table I. All the bases gave rise to positive patch test reactions in a variable number of cases. The largest number of positive reactions were obtained with propylene glycol,

From the Department of Dermatology and Venereology, All India Institute of Medical Sciences, New Delhi-110029, India.

Address correspondence to: Dr. J.S. Pasricha.

Table I Severity of patch test reaction with various agents.

Agent	Number of patients having the patch test reaction				Total number		Percentage
	±	+	++	+++	Positive	Tested	
Yellow petrolatum	1	2	1	—	4	50	8
White petrolatum	3	—	—	—	3	50	6
Polyethylene glycol 200	4	1	2	2	9	50	18
Propylene glycol	8	5	11	1	25	50	50
Glycerine	—	1	—	—	1	50	2
Liquid paraffin	3	—	1	—	4	50	8
Bees wax and liquid paraffin	6	5	3	—	14	100	14
Hard paraffin and liquid paraffin	5	2	3	—	10	100	10

while glycerine was the least reactive. If ± and + reactions are excluded, white petrolatum and glycerine can be considered as very safe, while yellow petrolatum and liquid paraffin are also fairly alright.

Comments

In our study, propylene glycol used as such gave rise to positive reactions in 25 (50%) of the cases and in 12 (24%) of these, the reactions were significantly severe. This compares well with the 23.7% positivity with the agent recorded by Bajaj and Chatterjee.² Polyethylene glycol 200 gave rise to positive reactions in 9 (18%) cases, of which 4 (8%) were significant. This is also not very different from the 2.6% positivity recorded by Bajaj and Chatterjee² with polyethylene glycol 400. Yellow petrolatum in our study produced only 1 significant reaction compared to 34.3% recorded by Bajaj and Chatterjee,² and 58% recorded by Kaur et al,¹ while white petrolatum used by us produced only insignificant reactions in 3 (6%) cases. The effect of heat and humidity in producing false positive reactions with petrolatum in tropical countries like India and the unpredictable purity of the material make this agent unsuitable as a base for us.

Our findings suggest that liquid paraffin

and glycerine can be suitable bases because significant reactions were seen in 1 (2%) case each only, while Bajaj and Chatterjee² found no reactions with plastobase and recommended polyethylene glycol 400 as the most suitable base.

The suitability of the base however, depends not only on its lack of allergenic potential, but also on the solubility of the antigenic chemical in the base. Thus although the search for the most ideal base for patch tests must continue, in tropical countries like India, it is important to continue to use water as a base for all the chemical antigens which are water-soluble, while for others, the base can vary depending upon the availability, but in each case, each of the bases used for different antigens, must also be used as such as a control to ensure that the positive reaction observed is due to the antigen itself and not the base.

References

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