

EPICUTANEOUS TESTING

Recent years have provided us with *in vitro* methods for studies of type IV allergy such as the lymphocyte transformation test and the leukocyte migration test, but although these tests have been applied with some success in allergic contact dermatitis (5, 14), they have far from reached a state of perfection in which they may be used as standard tests for this condition. The same appears to be the case for the lymphocyte cytotoxicity test used by Delescluse & Turk (2). The epicutaneous test, imperfect as it is, therefore still remains indispensable as a practical *in vivo* test for allergic contact dermatitis.

This issue of Allergy contains a review by Matti Hannuksela (6) on epicutaneous testing. The review is an up-to-date presentation of the status of epicutaneous testing. The article not only deals with the well-known use of the test in common delayed type contact allergy, but also with its use in photo contact allergy and type I contact allergy.

The initial studies of Magnusson and his colleagues (11) and of Kligman (8) led to a better understanding of the variables involved—site of application, degree of occlusion, dose-response ratios, etc. and allowed the Scandinavian Committee and later the International Contact Dermatitis Research Group (ICDRG) to establish standard systems of testing that are now in general use. The review article draws attention to an alternative type of testing, the chamber test. This procedure introduced in Finland by Pirilä (13) is a variant of the patch test and has recently been approved by the ICDRG as a suitable standardized method for epicutaneous testing.

In spite of this work there are still gaps in our understanding of some of the observations in patch testing, observations it is necessary to know for the right interpretation of test results. Among the more important are that when a contact dermatitis, allergic or non-allergic, is acute, spreading or widespread, testing should be postponed until the eruption is under control. Otherwise false positive reactions may be obtained because the entire skin may be irritable, in a state of so-called "angry back" as Hannuksela points out. A number of technical reasons for false negative reactions are also mentioned. Not stated in the article are, however, effects of treatment on patch test results.

Topical applications of corticosteroids suppress patch test reactions more than systemic treatment (4, 12). Patch testing may be performed even when hormones are given in doses sufficient to completely suppress the clinical eruption, while topical corticosteroids are much more likely to suppress a test response. Antihistamines do not significantly change patch test results.

Experience is needed when testing with unstandardized substances. As mentioned the proper concentration and vehicle may be found in a number of textbooks (1, 3), but the introduction of a great number of new chemicals in industry often makes it necessary empirically to find the right concentration of a new potential allergen and the best vehicle for testing.

It should also be emphasized that a positive patch test reaction, although it

may be a sign of hypersensitivity, does not necessarily mean that the dermatitis under investigation has been caused by the substance that produced the positive patch test. This must be left to the clinician to find out. A positive reaction may have relevance to the present dermatitis but could also reflect a previous episode or be without clinical relevance at all.

Predictive patch testings for establishing the sensitizing potential of new products are far from being used as much as they should be by industry. Even a fairly small sensitization rate may be a serious hazard if millions of people will be using the product. The maximization test of Kligman (9) is the most reliable procedure available at present. This test may also be carried out in the guinea pig (10). Predictive patch testing may be followed by adequate usage tests. It would be appreciable if it was not the other way round.

The empirical character of patch testing also applies to photocutaneous testing and in this case as stated further variables are included which add to the problems of standardization.

Allergic contact urticaria, although not an everyday event in the clinic, has as mentioned in the article been proven to be not as uncommon as previously thought and also allergic contact urticaria may be confirmed by epicutaneous testing. This also applies to the protein contact dermatitis described by Hjorth & Roed-Petersen (7). Both clinical pictures are more common in atopics than non-atopics. Testing in these clinical conditions may be a special area for the use of the chamber technique.

Not mentioned in the review article is the risk of sensitization by patch testing. The well-known late reaction that appears one week or later after application of a patch test is caused by interaction of residues of the allergen with the newly sensitized tissue. The knowledge gained by testing, however, usually outweighs the risk of sensitization. Still this risk has led to the general agreement that patch testing and especially repeated patch testing should not be performed unnecessarily. Moreover it should lead to further efforts to improve the present *in vitro* techniques and inspire a search for new techniques where such hazards do not exist and where testing may be performed without consideration for the clinical stage of the disease.

Hugh Zachariae

REFERENCES

1. Bandmann, H.-J.: Die Epicutantestung. J. F. Bergmann, München, 1967.
2. Delescluse, J. & Turk, S.: Lymphocyte cytotoxicity: A possible *in vitro* test for contact dermatitis. *Lancet* *ii*, 75, 1970.
3. Fischer, A.: Contact dermatitis. Lea & Febiger, Philadelphia, 1978.
4. Fischer, A., Pascher, F. & Kanof, N.: Allergic contact dermatitis due to ingredients of vehicles. *Arch. Derm.* *104*, 288-290, 1971.
5. Forman, L. & Alexander, S.: Nickel antibodies. *Brit. J. Dermatol.* *87*, 320-326, 1972.
6. Hannuksela, M.: Epicutaneous testing. *Allergy* *34*, 1-5, 1979.
7. Hjorth, N. & Roed-Petersen, J.: Occupational protein contact dermatitis in food handlers. *Contact Dermatitis* *2*, 28-42, 1976.
8. Kligman, A.: The identification of certain allergens by human assay II: Factors influencing the induction and measurements of allergic contact dermatitis. *J. Invest. Dermatol.* *47*, 375-392, 1966.

9. Kligman, A.: The identification of contact allergens by human assay III: The maximization test: A procedure for screening and rating contact sensitizers. *J. Invest. Dermatol.* 47, 393-409, 1966.
10. Magnusson, B.: The relevance of results obtained with the guinea pig maximization test. In Maibach, H. (ed.): *Animal models in dermatology*. Churchill Livingstone, Edinburgh, 1975.
11. Magnusson, B., Blohm, S., Fregert, S., Hjorth, N., Høvdig, G., Pirilä, V. & Skog, E.: Proposed basic series of test substances for Scandinavian clinics and general remarks on testing techniques. *Acta Dermatovenerolog. (Stock.)* 46, 153-158, 1966.
12. O'Quinn, S. & Isbell, K.: Influence of oral prednisone on eczematous patch test reactions. *Arch. Derm.* 99, 380-389, 1969.
13. Pirilä, V.: Chamber test versus patch test for epicutaneous testing *Contact Dermatitis* 1, 48-52, 1975.
14. Thulin, H. & Zachariae, H.: The leukocyte migration test in chromium hypersensitivity. *J. Invest. Dermatol.* 58, 55-58, 1972.

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.