Contact Dermatitis 1976: **2**: 269–270

Incidence of neomycin and framycetin sensitivity

J. A. Carruthers and E. Cronin

St. John's Hospital for Diseases of the Skin, London, England

A total of 450 consecutive patients were patch-tested to both neomycin and framycetin (20 % in petrolatum). Thirteen patients were sensitive to both preparations, 10 to neomycin alone and four to framycetin alone. The significance of these results is discussed, with particular reference to the constituents of the preparations and the allergenic groups involved.

Key words: Framycetin – neamine – neomycin B – neomycin C.

Received for publication July 6, 1976

The relative quantities of the constituents of neomycin vary. That supplied by Trolab (Denmark) to the International Contact Dermatitis Research Group (as assayed by Roussel Laboratories Ltd) is detailed below (Table 1). Also shown are the proposed standard for the European Pharmacopoeia and the composition of Framycetin.

If the contact sensitizing group is present on the neomycin B molecule, an extremely high incidence of cross-sensitivity between neomycin and framycetin would be expected. To test this assumption, 450 consecutive patients referred to the Contact Dermatitis Clinic at this hospital were patch-tested with neomycin 20 % and framycetin 20 % (both in petrolatum). The patch tests were left on for 2 days and then removed. They were read after an interval of 15 min and read again at 4 days. The results are shown in Table 2.

Our results do not suggest that neomycin B is the only sensitizer in both neomycin

Table 1.

	Neomycin B	Neomycin C	Neamine
Neomycin (Trolab)	78.5%	16.0%	5.5%
Neomycin (Proposed for European Pharmacopoeia)	>88 %	<10.0%	<2.0%
Framycetin (Roussel Laboratories Ltd)	>99 %	< 1 %	<0.2%

Table 2.

Sensitive to neomycin or framycetin	27	(6.0 %)
Sensitive to neomycin and framycetin	13	(2.9 %)
Sensitive to neomycin alone	10	(2.2 %)
Sensitive to framycetin alone	4	(0.89 %)
Total sensitive to neomycin	23	(5.1 %)
Total sensitive to framycetin	17	(3.4 %)

and framycetin. They confirm the findings of Kirton & Munro-Ashman (1965). Of their 70 patients sensitive to neomycin or framycetin, only 45 were sensitive to both, while 60 were sensitive to neomycin and 55 to framycetin.

Patch tests with these compounds are often slow to develop and there has been much discussion in the literature as to the optimum method for testing for contact allergy to neomycin. Therefore it is possible that the negative reactions in patients positive to the other compound represent false negative results. It seems more likely, however, that there is either a different allergen or a different degree of allergenicity involved in these cases. Pirilä & Pirilä (1966) have shown that neomycin contains two different chemical groupings possessing sensitizing capacity. It may be that patients sensitive to neomycin alone are actually sensitive to neomycin A or C, those sensitive to both neomycin and framycetin are sensitive to neomycin B, and those sensitive to framycetin alone to some other unidentified impurity.

As four of our 450 patients (0.89 %) were sensitive to framycetin alone, it is suggested that this compound contains an allergen to which there is a significant number of sensitive individuals in our community. Its inclusion in the standard series should therefore be considered.

Acknowledgments

We are most grateful to Mrs. Margaret Marks for her help with this study and to Mr. J. F. Chissell of Roussel Laboratories Ltd, for assaying the Trolab neomycin.

References

Kirton, V. & Munro-Ashman, D. (1965) Contact dermatitis from neomycin and framycetin. *Lancet 1*, 138–139.

Pirilä, V. & Pirilä, L. (1966) Sensitization to the neomycin group of antibiotics. *Acta Dermato-venereologica 46*, 489–496.

Address:

J. A. Carruthers
St. John's Hospital
Lisle Street
Leicester Square
London WC 2H
England

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.