TOPICAL FLUOCINOLONE IN RHEUMATOID ARTHRITIS

BY

L. HALL AND THE LATE N. R. BANERJEE

Rheumatism Research Centre, Manchester Royal Infirmary, and the Devonshire Royal Hospital, Buxton

Allander and Hellgren (1964) made the interesting claim that topical fluocinolone could produce improvement in the hands in inflammatory polyarthritis. Their conclusion was based on a trial in twenty patients, using test solution on one hand and control solution on the other. We felt that their result warranted a stricter trial using the same treatment but different means of assessment.

Material.—We selected 25 in-patients with symmetrical disease of the hands but no severe joint destruction, none of whom was receiving systemic corticosteroid therapy; 24 of them had classical or definite rheumatoid arthritis and one had systemic sclerosis with flexor tenosynovitis.

Method.—Each patient was treated by smearing 0.025 per cent. fluocinolone acetonide in propylene glycol on one hand and the propylene glycol alone on the other, using polythene gloves as an occlusive dressing; 12-hrly applications were continued for 6 days in eighteen of the patients and a day or two less in the remainder.

To make sure that neither observer nor subject knew which hand was being treated until after the trial, the manufacturers prepared a pair of numbered bottles for each patient by labelling one for the left hand and one for the right. According to a random plan they then put fluocinolone solution into one and solvent alone into the other.

The response was assessed subjectively, and by strength of grip and ring size measurements. The strength of grip in each hand was measured in the usual way by squeezing a small rubber bag attached to a sphygmomanometer and taking the average of three observations. Ring sizes were measured over the finger proximal interphalangeal joints using a set of standard jeweller's rings with half sizes. (The diameter increment between sizes is 0.4 mm.) The measurements were carried out at the same time of day on the day before treatment, the day treatment started, and the day treatment finished, and the day after that.

*Presented at a meeting of the Heberden Society in November, 1966.

Results

Fig. 1 shows the progress of the mean grip in the test hands and in the control hands. There is clearly no significant difference between them although there is steady improvement in both; this phenomenon, being both usual and expected, provides a useful confirmation of the adequacy of the data.

Fig. 1.—Mean grip.

Fig. 2 (opposite) shows the average shrinkage of ring sizes in the test hands and in the control hands, taking the first set of observations as zero. Significant spontaneous improvement is again well shown, averaging two ring sizes, but this time there is a sub-

Fig. 2.—Mean ring size.

stantial advantage in the test hand amounting to one ring size. Calculation shows that a difference of this degree could arise by chance in one in fifteen trials.

TABLE
QUALITATIVE RESULTS

Means of Assessment	Number of Patients		
	Fluocinolone Hand Better	Equal	Control Hand Better
Subjective Opinion	6	10	9
Ring Test	15	3	7
Strength of Grip	9	1	15

The Table shows a qualitative assessment of the results. The fluocinolone-treated hands again did better on the ring test but were worse subjectively and on grip testing, an obviously neutral result.

Our negative results led us to review the study of Allander and Hellgren. According to the manufacturers their test solution was coloured pink and their control solution blue, so that the patient's colour preference coupled with the effect of the pink solution on any corticosteroid responsive skin lesion could early on have convinced observers and subjects that the active solution was the pink one. Their trial was therefore in no sense double-blind. Another criticism is that they only used hand-volume measurement for objective assessment.

Their finding of significant shrinkage fits in with our results on the ring test, but is not by itself convincing evidence of functional advantage.

The treatment was not a popular one with our patients since their hands became hot and macerated and uncomfortable in the gloves; we feel, therefore, that it did not give sufficient benefit to be worth while.

Summary

A double-blind controlled trial of topical fluocinolone acetonide applied to the hands of 25 patients with rheumatoid arthritis showed no significant benefit. This result conflicts with that of a similar previous trial. The significance of the discrepancy is discussed.

We are grateful to Professor Kellgren for his advice and encouragement.

REFERENCE

- Allander, E., and Hellgren, L. (1964). *Acta. rheum. scand.*, **10**, 305 (Topical treatment of rheumatoid arthritis with fluocinolone acetonide under occlusive dressing).

DISCUSSION

DR. A. ST. J. DIXON (*Bath*): Triamcinolone is a steroid, i.e. waxy. Do you think this enables the rings to slide on a little easier?

DR. HALL: We had not considered this! I do not know.

DR. H. F. WEST (*Sheffield*): I have a serious question! What was the solvent?

DR. HALL: Propylene glycol.

La fluocinolone topique dans l'arthrite rhumatismale

RÉSUMÉ

Un essai contrôlé par la méthode de *double-blind* de la fluocinolone acétonide appliquée aux mains de 25 malades atteints d'arthrite rhumatismale ne démontra aucun effet favorable d'importance. Ce résultat contredit celui d'un essai similaire précédant. On discute l'importance de ce désaccord.

La fluocinolona local en la artritis reumatoide

SUMARIO

Una investigación controlada por el método de *double-blind* de la fluocinolona acetónida aplicada a las manos de 25 enfermos con artritis reumatoide no reveló beneficio apreciable. Este resultado esta en contradicción con él de una investigación similar precedente. Se discute la importancia de este desacuerdo.