

& Perlish noted a very moderate increase in the labelling index. Such a discrepancy could be due to the fact that the entire sampling in our case consisted of an angioma-like telangiectasis and that the labelling index determination was restricted to the ectatic microvessels.

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5% Aluminium Chloride Hexahydrate and Sebum Excretion Rate

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Abstract. The present study was designed to assess whether 5% aluminium chloride hexahydrate in absolute alcohol exerted any effect on sebaceous gland excretory activity. Eleven acne patients controlled with long-term antibiotics applied active and placebo solutions in a double-blind trial. The sebum excretion rate was measured on two control visits and thereafter at fortnightly intervals for a further 6 weeks. Patients preferred the 'active' solution, many claiming increased dryness of their skin. However, neither the 'active' nor 'placebo' solution had a significant demonstrable effect on sebum excretion rate. The beneficial effect of topical aluminium chloride hexahydrate is therefore assumed to be due to factors other than an alteration in sebum excretion.

Key words: Aluminium chloride hexahydrate; Sebum excretion rate

Acne is a multifactorial disorder involving increased sebaceous gland activity, pilosebaceous duct obstruction and abnormal microbial flora. Drugs which improve acne are likely to alter some or all of these factors. A 6.25% solution of aluminium chloride hexahydrate in absolute alcohol has been shown to improve acne (4). These authors demonstrated a reduction in sweat production and a decrease in the skin microflora and postulated that the clinical response obtained was attributable to these factors.

Table 1. *Result of sebum excretion rate in 11 patients ($\mu\text{g cm}^{-2}\text{min}^{-1}$)*

	Con- trols	Day 14	Day 28	Day 42
Active solution	1.18	1.26	1.19	1.25
Mean	0.12	0.15	0.15	0.12
\pm SE of mean	<i>n</i> =21	<i>n</i> =10	<i>n</i> =11	<i>n</i> =11
Placebo solution	1.19	1.23	1.15	1.14
Mean	0.11	0.16	0.13	0.10
\pm SE of mean	<i>n</i> =21	<i>n</i> =10	<i>n</i> =11	<i>n</i> =11

The present study was performed on acne sufferers to determine the effect of topically applied 5% aluminium chloride hexahydrate in absolute alcohol on sebum excretion rate (SER).

PATIENTS AND METHODS

Eleven patients were studied (6 female and 5 male, aged from 14 to 22 years). All had acne of varying severity and were on long-term treatment with systemic antibiotics. They had all been using topical Benzoyl peroxide preparations until one week prior to their first control visit for SER measurement. No other topical treatment other than the trial substance was used during the period of study.

Each patient was supplied with two 10-ml roll-top bottles, each clearly marked for use on the right or left side of the forehead. One bottle contained aluminium chloride hexahydrate as a 5% solution in absolute alcohol and the other contained absolute alcohol alone. Neither patients nor investigators were aware of the contents of either bottle. The solutions were applied twice daily half an hour after washing. Patients were instructed to invert the bottle once (to wet the undersurface of the roller applicator). Then, looking in a mirror, they were to place the left index finger on the centre of the forehead and to apply the solution to the right side with a gentle back and forth motion until the roller ball was dry. The process was repeated on the left side with the other bottle.

Sebum Excretion Rate (SER)

SER was measured on the forehead by the gravimetric method of Strauss & Pochi (6) as modified by Cunliffe & Shuster (3). Patients attended for two preliminary measurements of SER before starting the trial; thereafter they attended at fortnightly intervals for 6 weeks. On the days of SER measurement the patients were asked to leave their foreheads unwashed after the morning application. All measurements took place between 3 and 7 p.m.

RESULTS

Sebum Excretion Rate

The measurements of SER are shown in Table 1. These fail to show any statistical distinction be-

tween the active and placebo solutions after 2, 4, or 6 weeks of topical application. Similarly, when the patients were used as their own controls there was no significant change in SER during the trial.

PATIENTS' COMMENTS

Despite the constancy of SER values over the 6 weeks of the trial, 10 out of 11 patients commented that their skin felt less greasy on the side receiving the active preparation. Three of these patients also volunteered that there was less sweat produced from this side during active exercise. Three patients experienced a stinging sensation on their faces after application. This side effect was the same with both active and placebo solutions and was mild and transient.

DISCUSSION

Acne was not clinically assessed as part of this trial because all the patients were on long-term treatment with antibiotics. However, most patients reported clinical improvement of acne and 'dryness' of the skin of the side treated with the active preparation. This study started off double-blind, but a small amount of crystallization in the active preparation made it identifiable towards the end of the trial. Although this was noticed by the investigators it was not commented on by the patients.

The importance of increased sweating in the aggravation of acne has long been established and is well summarized by Cunliffe & Cotterill (2). However, the pathological mechanism remains unclear. Williams, Cunliffe & Gould (7) suggested that local skin hydration may play an important part in the exacerbation of acne by demonstrating a reduction in the diameter of pilosebaceous orifices in subjects who had had their skin surface occluded with polythene. Cartledge, Burton & Shuster (1) found a reduction in forehead sweating after the topical application of an anticholinergic agent (poldine methylsulphate) and also found a slight, but significant, decrease in SER. This procedure might have been expected to reduce local skin hydration and allow sebum to escape more freely, from which these authors concluded that sebaceous gland control was influenced by cholinergic nerves.

In the present study, despite the comments of patients to the contrary, topical 5% aluminium chloride hexahydrate in absolute alcohol failed to

affect sebum excretion rate when compared with placebo. However, a similar preparation of 6.25% aluminium chloride hexahydrate in absolute alcohol has previously been shown to reduce sweat production by forehead skin (4).

Sweat alters both the physical state of sebum and the absorbent properties of the collecting vehicle (2). Thus changes in surface sweat may mask changes in sebum excretion rate. Despite this, it is unlikely that the clinical improvement in acne noted by Hurley & Shelley was related to any change in sebum excretion rate, as small reductions in SERdo not appear to be associated with clinical improvement of acne (5).

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The Chloroacetate Esterase Reaction for Mast Cells in Dermatopathology: A Comparison with Metachromatic Staining Methods

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Abstract. This paper compares standard metachromatic methods with Leder's chloroacetate esterase reaction on mast cells in paraffin wax-embedded tissue of urticaria pigmentosa and a variety of inflammatory and benign neoplastic cutaneous conditions. Our conclusions are that Leder's method allows easier identification of mast cells and can be a useful adjunct to conventional metachromatic methods. The technique could be conveniently adopted in routine dermatopathology for mast cell identification.

Key words: Mast cells; Metachromatic stains; Naphthol ASD chloroacetate; Histochemistry

Identification of cutaneous mast cells is capricious because of the readiness of degranulation under traumatic influences such as skin biopsy. Metachromatic staining of the granules with basic aniline dyes such as toluidine blue and methylene blue has been the most popular method for the recognition of mast cells in paraffin wax-embedded sections.

Leder (3) devised a method that is not dependent on metachromasia. Reactivity of a specific esterase in mast cell granules with naphthol ASD chloroacetate was used to identify mast cells in paraffin wax-embedded sections.

We compared Leder's method with standard metachromatic staining methods for identification of mast cells in urticaria pigmentosa, melanocytic naevi, benign connective tissue tumours and a variety of inflammatory skin conditions.

MATERIALS

Biopsy material obtained from cases of urticaria pigmentosa, melanocytic naevi, neurofibroma, dermatofibroma, pyogenic granuloma, keloidal folliculitis, psoriasis, Zoon's balanitis, pemphigoid and actinic keratosis was fixed in 10% formol saline and embedded in paraffin wax. The clinical diagnosis of each patient was confirmed by examination of haematoxylin/eosin-stained