

Use of topical lithium succinate for seborrhoeic dermatitis

In a small screening study topical lithium succinate ointment was observed to produce a striking improvement in several patients with seborrhoeic dermatitis of the face. We therefore performed a double blind controlled study of this effect.

As pityrosporum yeasts can cause seborrhoeic dermatitis¹ and lithium inhibits the growth of some fungi² we also tested the inhibitory effect of lithium succinate on the growth of yeasts.

Patients and methods

We studied 11 men and eight women (aged 15-64) who had all had classical seborrhoeic dermatitis affecting the face for at least three months. Patients were randomly allocated to active or placebo treatment for four weeks, followed by the alternative treatment for a further four weeks. They were instructed to apply the

treatment. Although the seborrhoeic dermatitis relapsed at various intervals after active treatment was stopped, it responded to reintroduction of treatment. Lithium succinate did not inhibit the *in vitro* growth of pityrosporum or the other organisms studied.

Discussion

The cause of seborrhoeic dermatitis is uncertain, but yeast infection may be aetiologically important.¹ Topical lithium succinate seems to improve facial seborrhoeic dermatitis strikingly but does not inhibit the growth of pityrosporum yeasts. Presumably it acts as an anti-inflammatory agent by some other mechanism.

Systemic lithium treatment is known to produce a wide range of cutaneous side effects, including acneiform eruptions and exacerbation of psoriasis.⁴ Our observation that topical lithium improves seborrhoeic dermatitis whereas systemic lithium exacerbates psoriasis is interesting in that seborrhoeic dermatitis histologically resembles psoriasis, but pustulation, even at a microscopic level, is not a feature of seborrhoeic dermatitis, whereas epidermal invasion by leucocytes is a regular feature of psoriasis.⁵

Mean (SD) effect of topical lithium and placebo in seborrhoeic dermatitis. (Figures are grades on analogue scale 0-10)

	Redness	Scale	Area	Itch	Overall
<i>Patient's assessment</i>					
Baseline score	3.7 (2.0)	3.4 (2.2)	4.4 (2.4)	3.4 (2.4)	4.5 (1.9)
Lithium score	1.3 (1.5)	1.1 (0.8)	1.8 (1.9)	1.5 (1.5)	1.7 (1.7)
Placebo score	3.5 (2.3)	2.5 (1.9)	3.5 (2.4)	2.8 (2.2)	3.7 (2.2)
Lithium v baseline:					
<i>t</i> Value	5.0	4.0	4.8	2.9	6.1
<i>p</i> Value	<0.001	<0.001	<0.001	<0.02	<0.001
Placebo v baseline:					
<i>t</i> Value	0.4	1.5	2.1	0.9	1.7
<i>p</i> Value	NS	NS	NS	NS	NS
Lithium v placebo:					
<i>t</i> Value	4.2	3.7	3.7	2.2	3.9
<i>p</i> Value	<0.001	<0.001	<0.001	<0.05	<0.001
<i>Doctor's assessment</i>					
Baseline score	4.4 (2.1)	4.3 (2.4)	4.8 (1.9)		4.5 (1.7)
Lithium score	1.0 (1.4)	1.0 (1.3)	1.0 (1.1)		1.1 (1.3)
Placebo score	3.4 (1.8)	2.9 (1.9)	3.3 (2.0)		3.2 (1.8)
Lithium v baseline:					
<i>t</i> Value	6.8	4.6	6.3		5.7
<i>p</i> Value	<0.001	<0.001	<0.001		<0.001
Placebo v baseline:					
<i>t</i> Value	1.5	2.2	2.3		2.2
<i>p</i> Value	NS	<0.05	<0.05		<0.05
Lithium v placebo:					
<i>t</i> Value	5.6	4.5	4.6		5.4
<i>p</i> Value	<0.001	<0.001	<0.001		<0.001

ointment sparingly to the affected area of skin twice daily. No other topical preparation was used during the study. Fourteen of the patients had used a mild topical steroid preparation before the study: seven of these used the placebo first and seven used the active preparation first. The lithium ointment contained lithium succinate 8%, zinc sulphate 0.05%, and *dl-α* tocopherol in a lanolin base. The placebo contained lanolin base only.

The severity of seborrhoeic dermatitis was graded by the patient and the same doctor at zero, four, and eight weeks. A separate assessment was made of erythema, scale, the area affected, and the overall impression of the severity using separate linear analogue scales. The patients also assessed itching. The values obtained after four weeks' treatment were compared with the baseline values (week 0), and the results of active and placebo treatment were also compared with each other using paired *t* tests.

The possible inhibitory effect of lithium succinate on the growth of pityrosporum yeasts and other fungi was studied using standard methods.³ The minimal inhibitory concentration was measured against pityrosporum yeasts grown on diagnostic sensitivity test medium (Oxoid), with glyceryl monostearate (2.5 g/l) and Tween 80 (2 ml/l). Lithium succinate was diluted in water, giving concentrations in the plates of 1-150 mg/l. Five isolates of *Pityrosporum orbiculare* and two of *P. ovale* were tested. The minimal inhibitory concentration of lithium against *Candida albicans*, *Trichophyton rubrum*, and *T. mentagrophytes* was also studied.

Results

Two of the 19 patients withdrew from the study: one found the active treatment effective and did not wish to change to placebo, the other found that both treatments irritated her skin. Of the remaining 17 patients, 14 showed improvement with lithium ointment, two had no response to either treatment, and one responded to placebo. All assessments by doctor and patients showed a significant improvement in the mean score after four weeks when lithium was compared with the baseline; lithium was also significantly more effective than placebo (table).

The response to topical lithium generally occurred within the first two weeks of

Dr David Horrobin of Scotia Pharmaceuticals, PO Box 818, Kentville, Nova Scotia B4N 4H8, Canada, suggested this study and provided the active and placebo ointments.

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- 2 Kurita N, Funabashi M. Growth inhibitory effect on fungi of alkali cations and monovalent inorganic anions and antagonism among different alkali cations. *Agricultural and Biological Chemistry* 1984;48:887-94.
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- 4 Heng MCY. Cutaneous manifestations of lithium toxicity. *Br J Dermatol* 1982;106:107-9.
- 5 Lazarus GS, Gilgor RS. Psoriasis, polymorphonuclear leucocytes, and lithium carbonate: an important clue. *Arch Dermatol* 1979;115:1183-4.

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Correction

Olsalazine in active ulcerative colitis

An error occurred in this paper by Dr W S Selby *et al.* The description of the enema trial stated that the active enema contained 2 g olsalazine; this should have read 1 g.