and placebo, the active preparation was found to produce a statistically significant improvement after only 11 patients.

In the comparison between budesonide 0.025% and fluocinolone acetonide 0.025%, the former preparation was significantly superior to the latter after 1 and 2 weeks.

In the comparison between budesonide 0.010% and fluocinolone acetonide 0.025%, no statistically significant differences in effect between the two ointments were demonstrated after 1 and 2 weeks.

**DISCUSSION**

The first part of the study demonstrated that 0.025% budesonide ointment had a marked clinical effect on psoriasis after 1-3 weeks of treatment, giving a statistically significant better effect than placebo in a series of only 11 patients, evaluated with sequential analysis.

The second part of the investigation showed that 0.025% budesonide ointment was more potent than the reference substance, fluocinolone acetonide 0.025% in its commercial composition (Synalar®). This is well known to be a very effective topical steroid preparation (1). When the concentration of budesonide was lowered to 0.010%, its effect was still at the same level as the 0.025% fluocinolone acetonide ointment.

The results suggest that budesonide is the first very potent non-halogenated steroid for topical use. The halogen substitution in the steroid nucleus is thus not mandatory for high topical activity if an optimal substitution is introduced in the 16a, 17a- position.

The introduction of halogen reduces the rate of oxidative biotransformation (7). In vitro experiments on rat liver have shown that budesonide is biotransformed more rapidly than the halogenated 16a, 17a-acetel triamcinolone acetonide (8). This could explain the fact that budesonide in animal models has caused relatively less systemic corticoid activity than has halogenated 16a, 17a-acetel steroids (9).

**REFERENCES**


**Metronidazole and Demodex folliculorum**

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**Abstract.** In vitro survival of Demodex folliculorum was tested in the presence of various concentrations of metronidazole (Flagyl). Demodex was found to survive in

| Table I. In vitro survival of Demodex folliculorum in presence of various concentrations of metronidazole |
|--------------------------------------|------------|------------|
| Metronidazole (µg/ml) | Control | Treated |
| 2 | 1 | 105 | 95 |
| 2 | 2.5 | 195 | 195 |
| 2 | 10 | 60 | 95 |
| 2 | 1000 | 0 | 225 |

**REFERENCES**

concentrations of as much as 1 mg/ml. Thus, it seems unlikely that the effect of metronidazole on rosacea is attributable to its direct activity on the mite.

**Keywords:** Metronidazole; Rosacea; Demodex folliculorum

Metronidazole (Flagyl) (M) has proved to be effective in the treatment of papulo-pustular rosacea (1, 2) though the mechanism of its action remains unknown. It has recently been suggested (2) that M may be effective against *Demodex folliculorum*, the parasite which is present in large numbers in hair follicles and scales of rosacea patients.

We have therefore tested in vitro the capacity of *Demodex* to survive in the presence of various concentrations of M.

**METHOD**

*Demodex* were collected from hair follicles and scales of rosacea patients, placed in a drop of saline with or without M and kept at room temperature. The degree of motility was monitored every 5 min and regarded as a sign of viability of the acarus.

M concentrations were used according to the plasma level reached during ordinary use of the drug. Two excess concentrations were also used.

**RESULTS**

The results are shown in Table 1.

**DISCUSSION**

*Demodex* was found to survive in the presence of as much as 1 mg/ml of M, a concentration which cannot be reached in vivo, even in blood.

Although it cannot be excluded that M acts through some of its metabolites, its direct action on *Demodex folliculorum* would seem unlikely.

**REFERENCES**