COMPARATIVE STUDY OF CLOBETASONE BUTYRATE CREAM (EUMOVATE) AND HYDROCORTISONE CREAM IN CHILDREN WITH ECZEMA

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Summary

A double blind trial comparing Clobetasone butyrate cream with hydrocortisone cream was undertaken in 21 children with bilateral eczema. The design of the study was controlled, double blind and randomised. Both the treatment significantly reduced the scores from initial values and after 1st, 2nd & 3rd weeks of treatment. At all periods, the reductions in pre-treatment total scores have been greater for Clobetasone as compared to hydrocortisone, the difference becoming significant at the end of 3 weeks of treatment. 63% patients showed preference to Clobetasone as against 37% who preferred hydrocortisone.

No side effects were observed.

KEY WORDS : Clobetasone butyrate cream Hydrocortisone Cream.

Introduction

Topical corticosteroids vary in their protency depending upon their intrinsic activity, concentration of the active drug and the base in which they are formulated. Generally speaking, therapeutic activity of a drug is directly proportional to its adverse effects whether used locally or systemically.

Clobetasone butyrate, a new topical steroid has been extensively investigated. Pharmacological studies have clearly demonstrated a marked separation between its anti-inflammatory effects (as shown by the vasoconstriction test) and its propensity to cause suppression of hypothalamic-pituitary-adrenal axis and epidermal thinning in animals[1-3]. Clinical investigations over the past five years have confirmed the above observations and shown clobetasone butyrate has higher anti-inflammatory activity in comparison to hydrocortisone and fluradrenolone with much less potential to cause adrenal suppression. The combination of higher efficacy with a wide margin of safety makes clobetasone butyrate a suitable agent for evaluation in inflammatory conditions of the skin which are the sites of maximum percutaneous absorption with possibility of adrenal suppression. Some of these inflammatory dermatoses are eczemas in children, steroid responsive chronic dermatoses in flexures, etc. In such situations there is demand often for prolonged use of topical steroids.

The present work was planned to make a comparative study of the effect of hydrocortisone and clobetasone in

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bilateral steroid responsive dermatoses of children.

Material and Method

The study was carried out in 21 children having bilateral eczema. Children having tuberculosis, viral and fungal diseases of the skin and those requiring concomitant medications such as antihistamines, systemic steroids and other drugs which would have interfered with the evaluation of effects of topical steroids were excluded from the study. Children with infected lesions were included in the study only after treatment with appropriate antibiotics. The details of the drug trial was explained to the guardian accompanying the patient whose written consent was obtained.

Following inclusion in the study, each patient was assigned a serial number, which was marked on the case recording sheet as well as on the out patient card. The card also bore the name of the patient, diagnosis and instructions regarding ointments for right and left sided lesions, the frequency and quantity to be applied and follow-up days on which the patient had to be brought to the out patient department.

Each patient then underwent clinical examination and findings of the subjective parameters viz. pruritus and pain and objective parameters viz. erythema, oedema, papules, vesicles, exudation, crusting, scaling, lichenification/hyperkeratosis, excoriation and others if any, were graded absent, mild, moderate and severe and assigned the scores 0, 1, 2 & 3 respectively. These were entered against appropriate columns in the case recording sheets. The guardian accompanying the patient was then given two identical looking tubes bearing the patient's serial number, week of treatment for which they were to be used and letters R marked in red ink and L marked in green ink for right and left sides respectively. The guardian accompanying the patient was instructed to apply the medicines on the lesions twice daily without occlusion.

Each of the patients was followed up at weekly intervals for two weeks and if necessary for three weeks. The findings of each of the parameters were recorded in the case recording sheets in the same way as that recorded before treatment.

The design of the study was controlled, double-blind and randomised. All the patients received both the preparations simultaneously in such a way that some patients received clobetasone on right side and hydrocortison on the left side, whereas others received hydrocortisone on the right side and clobetason on the left side.

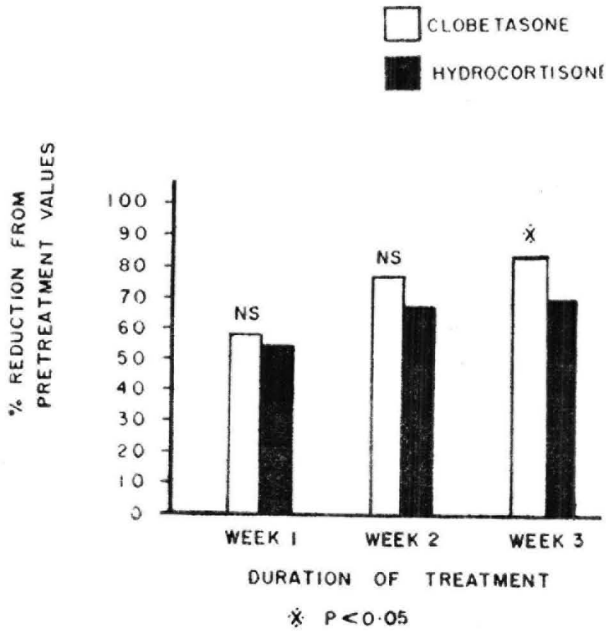
The results of the weekly follow-ups in terms of total score for all parameters and each of the parameters individually were compared and analysed statistically using a non-parameteric Wilcoxon signed rank test. The patient's and investigators' preferences at each of the weekly intervals were analysed using binomial equation.

Results

The study was completed in 21 children with bilateral eczema. The average age of the patients was 2.96 years $\pm$ 0.665 S.E. The male to female ratio was 18 : 7 and the average duration of lesions was 6.7 months. The average body surface area involved was 12.5% $\pm$ 1.43 S.E.

Table 1 shows the pretreatment total scores and change in total scores at the end of 1st, 2nd and 3rd week of treatment with clobetasone butyrate and hydrocortisone. Both the treatments significantly reduced the scores from initial values at all the periods

FIGURE (1)



of observation viz., at the end of 1st, 2nd and 3rd week of treatment. At all periods the reductions in pretreatment total scores have been greater for clobetasone as compared to hydrocortisone, the differences becoming significant at the end of three weeks of treatment. Figure 1 depicts the percentage reduction in initial scores at the end of each week's treatment with both clobetasone and hydrocortisone creams. At the end of three weeks 63% of patients showed preference for clobetasone as against only 37% who preferred hydrocortisone (Fig. 2).

Discussion

The results of the study comparing clobetasone and hydrocortisone creams in children with dermatitis clearly demonstrate the superiority of clobetasone over hydrocortisone. This observation is in accordance with experimental studies and clinical studies carried out in other countries[4].

Dermatoses in children needs special management with preparations having intermediate potency to ensure quicker and effective relief without associated local and systemic adverse effects. In none of patients was there any evidence of local changes suggestive of skin atrophy even when clobetasone was applied at vulnerable sites such as

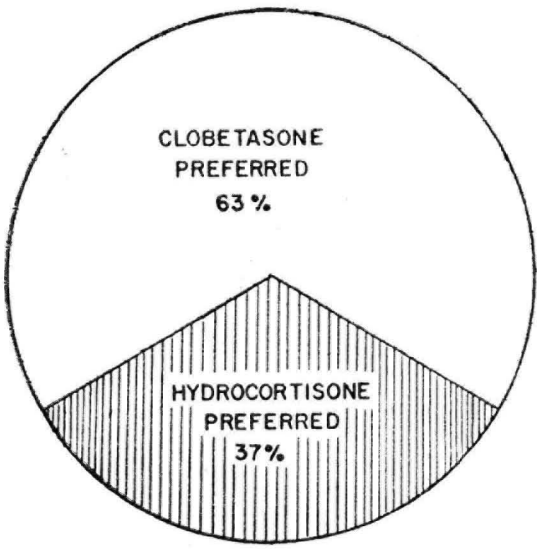
TABLE 1

Average pretreatment total score and changes at the end of 1st, 2nd and 3rd weeks of treatment (± S.E.)

Treatment	Week 0	Change from week 0		
		Week 1	Week 2	Week 3
Clobetasone butyrate	10.98	−6.30**	−8.59**	−9.50**
	± 0.694	± 0.841	± 0.701	± 0.714
Hydrocortisone	10.60	− 5.80**	−7.43**	−7.81**
	± 0.648	± 0.772	± 0.848	± 0.922
Difference	0.38NS	0.50NS	1.16NS	1.69*

NS = Significance not proven ** = < 0.01 * = P < 0.05

FIGURE (2)
PERCENT PATIENTS SHOWING PREFERENCE FOR CLOBETASONE OR HYDROCORTISONE



face and flexures for a period of three weeks which was the maximum period of the study. These observations indicate its usage safe without hazards of scarring. Further, dissociation of topical from systemic effects of clobetasone as measured by its effect on plasma cortisol values add to the armamentorium for dermatologists in managing dermatoses more effectively and safely in children who have higher ratio of body surface to body weight as compared to adults[5].

Left to right comparisons in patients with bilaterally symmetrical involvement provides the most matched and controlled design to evalute two preparations and even minor differences are representative of true effectiveness. The significant differences using resolution of the dermatoses as judged by reductions in total score seem to correlate well with patient preference. Superiority of clobetasone over hydrocortisone is clearly evidenced in this study using both, by its capacity to bring about better and quicker relief of the dermatoses and the more than 2 : 1 ratio of patient preference.

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