EVALUATION OF PUVASOL AND PUVASOL WITH TOPICAL BETAMETHASONE DIPROPIONATE PLUS SALICYLIC ACID LOTION IN THE TREATMENT OF SCALP PSORIASIS

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ABSTRACT

The efficacy and safety of betamethasone dipropionate 0.05% with salicylic acid 2% scalp lotion was evaluated in 60 patients with moderate to severe scalp psoriasis. Out of 120 patients with scalp psoriasis 60 patients received PUVASOL alone and 60 patients received PUVASOL alongwith lotion 0.05% betamethasone dipropionate with 2% salicylic acid scalp application for 3 weeks. The erythema, induration, scales and pruritus steadily improved in patients throughout the 3 weeks treatment course with betamethasone dipropionate with salicylic acid scalp application. At the end of therapy 84.3% of those patients receiving PUVASOL and betamethasone dipropionate-salicylic acid combination had 75% improvement of their scalp psoriasis versus 34.9% of those patients using PUVASOL alone. Complete clearing of the scalp was seen in 35% patients receiving therapy with topical betamethasone-salicylic acid and 11.6% with PUVASOL alone. Local side effects were primarily burning and stinging in 5 (8.3%) cases treated with topical betamethasone salicylic acid scalp application and 1 (1.6%) receiving PUVASOL alone. Combined therapy with PUVASOL and topical betamethasone dipropionate 0.05% with salicylic acid 2% application appears to be safe and an effective treatment for scalp psoriasis.

MJAFI 1999; 55 : 111-114

KEYWORDS: Betamethasone dipropionate; PUVASOL; Photochemotherapy; Scalp psoriasis.

Introduction

Dermatologists have attempted to combine therapies with the idea of maintaining the beneficial effects of the individual agents, while reducing their potential side effects by using a lower dose of each drug. Photochemotherapy with psoralen using natural sunlight (PUVASOL) is regarded as an effective and acceptable form of therapy for psoriasis. PUVASOL can be combined with topical steroid, with tar or dithranol. The corticosteroid-PUVASOL combination has the advantage of saving the number of light exposures, reducing the treatment time and reducing the cumulative psoralen dose required for clearing [1].

Involvement of the scalp is extremely common in psoriasis. In some patients the scalp maybe the only site affected. Disease on exposed and relatively hairless skin is most likely to respond to Photochemotherapy. Scalp psoriasis is difficult to treat by PUVASOL alone due to hair shielding the scalp from natural sunlight or radiation [2]. Although scalp psoriasis is responsive to steroid therapy, cream and ointment vehicles are impractical to use except on scalp margins. Corticosteroids in gel or lotion formulations

are convenient to use on the scalp. The use of solution of 0.05% betamethasone dipropionate lotion has been tested in scalp psoriasis by various workers [2-4].

We present the study of combined use of PUVASOL and lotion containing betamethasone dipropionate 0.05% with salicylic acid 2% lotion application in the treatment of scalp psoriasis.

Material and Methods

Adult patients suffering from scalp psoriasis with involvement of more than 20% of body surface area were included in this study. Most subjects were outpatients and all were 21 years of age or older and of either sex.

A detail history and clinical examination with laboratory investigations such as complete hemogram, urine RE, ALT, AST and blood sugar were carried out before and after complete clearance of psoriatic lesions.

Subjects were randomly divided into two groups. In group-I no topical medication except coconut oil were allowed on the scalp. In group-II patients were given betamethasone dipropionate 0.05% combined with 2% salicylic acid lotion to apply over hair scalp psoriasis twice daily for three weeks. A maximum of 50 ml of the study drug would be applied per week. Patients whose scalp cleared after 1 or 2 weeks discontinued therapy at that time.

Since all our patients had psoriatic lesions over other parts of body, they were given photochemotherapy (PUVASOL) with 8 methoxy psoralen (8 MOP) 0.6 mg/kg body weight at 0800 hour daily. They were exposed to sunlight after 2 hours starting from 15

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minutes daily in the first week, and increasing by 5 minutes to 30 minutes. Eyes were protected by dark sunglasses while exposure to sunlight.

Each patient was evaluated at weekly interval for a period of three weeks when the final assessment was rated as cleared (Grade IV-100% cleared or residual discolouration only), excellent (Grade III-75% to 99% improvement), good (Grade-II 50% to 74% improvement), fair (Grade I-25% to 49% improvement), poor (Grade O-less than 25% improvement) or worse (Grade-I). At each visit patients were asked about any clinical adverse complaints or events.

Results

A total of 138 patients with moderate to severe scalp psoriasis entered into the study. 120 completed three weeks of therapy out of which 98 were males and 22 were females between 21 and 50 years of age (Table 1). Duration of disease varied from 6 months to 14 years (Table 2). Overall the treatment groups were well matched with respect to age, sex duration of psoriasis, number of body regions affected and involvement of scalp. Out of 120 patients with scalp psoriasis 60 patients received PUVASOL along-with lotion 0.05% betamethasone dipropionate with 2% salicylic acid scalp application (group II).

TABLE 1
Age incidence in scalp psoriasis

Age incidence (years)	No. of cases (%)	
	Group I	Group II
21-25	7 (11.6)	5 (8.3)
26-30	16 (26.6)	16 (26.6)
31-35	17 (28.3)	18 (30)
36-40	14 (23.3)	15 (25)
41-50	3 (5.0)	4 (6.6)
46-50	3 (5.0)	2 (3.3)
Total	60 (100)	60 (100)

TABLE 2
Duration of psoriasis cases receiving therapy

Duration (years)	No. of cases (%)	
	Group I	Group II
Less than 1	9 (15)	12 (20)
1-3	14 (23.3)	16 (26.6)
4-6	13 (21.6)	10 (16.6)
7-9	17 (28.3)	15 (25)
10 yrs and above	7 (11.6)	7 (11.6)
Total	60 (100)	60 (100)

The erythema, induration, scale and pruritus steadily improved in patients throughout the three weeks treatment course with betamethasone dipropionate with salicylic acid scalp application (Table 4).

At the end of therapy 84.3% of those patients using PUVASOL and betamethasone salicylic acid combination had 75% improvement or greater (Excellent or cleared) of their scalp psoriasis versus 34.9% of those patients using PUVASOL alone. Of these, the condition of 35% of those using PUVASOL and betamethasone salicylic acid had completely cleared versus 11.6% of those using

TABLE 3
Response to therapy

Grade	Criteria	% improvement (Compared to original status)
- I	Worse	0
0	No change : Poor	Less than 25
I	Slightly less scaling and/or erythema : Fair	25-49
II	Partial flattening of plaques, less scaling and erythema : Good	50-74
III	Complete flattening of all plaques but borders of plaques still palpable : Excellent	75-99
IV	Complete flattening of plaques including borders : Cleared	100

TABLE 4
Grade of responses in both groups in scalp psoriasis receiving PUVA-SOL alone and PUVASOL + betamethasone dipropionate lotion : Number of patients improving after 3rd week

Grades of responses	Group I No	%	Group 2 No	%
IV	7	11.6	21	35
III	14	22.3	29	49.3
II	33	55	5	8.3
I	3	5	4	6.6
0	1	1.6	1	1.6
- I	2	3.3	0	0
Total	60	100	60	100

PUVASOL alone.

None of the patients showed any adverse reaction warranting the withdrawal from the trial. 35(58%) patients of group I complained of mild itching over the lesions of the scalp during photochemotherapy versus 7 cases (11.6%) of those in group II.

Five (8.3%) patients in Gp I and one in Gp II had complained of burning or stinging in the treated areas, over the scalp. The burning or stinging sensation had resolved by the end of the treatment and may have been related to the application of the drug to a damaged epidermal barrier.

Discussion

Ultraviolet light (UVL) is often used in the treatment of psoriasis [1]. Sunlight is the optimal source of UVL. It is least expensive and most effective under most circumstances. The disadvantages of sunlight radiation are its variable absorption by clouds and the difficulty in controlling and monitoring its intensity [1].

UVB (220-320nm) and UVA (320-400 nm) are responsible for most of the beneficial effect of sunlight and conventional artificial UVL therapy [5]. It may be used in conjunction with psoralen administration for

photochemotherapy, PUVA (psoralen + artificial UVA) or PUVASOL (psoralen + solar UVL) for treatment of psoriasis [5].

Absorption of electromagnetic energy in the UVA waveband in the presence of psoralens forms photoadducts with DNA resulting in transient inhibition of epidermal DNA synthesis and depletion of intradermal lymphocytes [5], and this way probably reduce the increased epidermal turnover, characteristic of psoriasis. Repeated PUVA exposure causes disappearance of lesions in almost all patients after 20-25 treatments over 4-8 weeks [6]. Scalp, bodyfolds and other areas not exposed to UVA respond poorly to the photochemotherapy [7].

Combined therapies appear to be the most effective of all in clearing recalcitrant widespread and severe psoriasis [1]. One of the most frequent of the combination is PUVA topical steroid [8]. In contrast with PUVA, topical steroids appear to show a more rapid rate of clearing and a smaller total UVA dose when used in combination [9].

Corticosteroids, in addition to its anti-inflammatory activity inhibits interleukin IL-6, IL-8 and various cytokines production in psoriatic epidermis [10]. Betamethasone dipropionate is one of the most potent of the topical steroid and has proved efficacious in the treatment of body psoriasis [11]. In one study 0.05% betamethasone dipropionate cream had a "markedly improved to clear" response after 2 weeks of twice daily therapy in psoriasis [11]. Scalp psoriasis appears to be similarly responsive to betamethasone dipropionate application. Lassus [12] had observed that by the end of 2 weeks of twice daily treatment, the betamethasone-17, 21-dipropionate solution had shown significantly greater improvement in scaling, induration and erythema compared with the clobetasol propionate treated group in scalp psoriasis.

Olsen et al [13] reported that 26% patients with scalp psoriasis showed complete clearing after 2 weeks of treatment with twice daily 0.05% clobetasol propionate scalp application. Twice daily therapy with betamethasone dipropionate salicylic acid scalp application combined with PUVASOL were effective in scalp psoriasis and as in this study, seemed to be superior over a 3 weeks treatment course with PUVASOL alone. Salicylic acid is a keratolytic agent and helps in removal of psoriatic scales from the scalp. In this study PUVASOL therapy was well tolerated in both groups of patients without any significant side effects.

Superpotent topical steroids have an enhanced potential to produce suppression of hypothalamus-pituitary-adrenal axis when applied to larger body surface area for a prolonged period [14]. This must be considered. In a prior study of patients with scalp psoriasis treated with 0.05% betamethasone dipropionate scalp application twice daily for 3 weeks, no subnormal plasma cortisol values were noted in the patients with normal base line values [14].

As scalp psoriasis is a chronic problem obviously will require treatment beyond three weeks, an intermittent treatment course could be seen to be reasonable, with rest of at least 1 week between three weeks treatment course [15]. This appears to minimize the potential for cutaneous side effects, such as clinical atrophy, seen with long term use of topical steroids, as well as reduce the potential for persistent hypothalamus-pituitary-adrenal axis suppression [15].

When the patients with scalp psoriasis would undergo remission by topical steroids therapy, they would continue to use accepted non steroid medications such as tar shampoos and/or topical keratolytic agents to minimise the long term continuous use of superpotent topical steroid [1]. It is concluded that betamethasone dipropionate salicylic acid scalp lotion should be a useful addition to the therapeutic armamentarium for scalp psoriasis.

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