

Comparison of Topical and Systemic Photochemotherapy for Alopecia Totalis and Universalis

ALOPESİ TOTALİS VE ÜNİVERSALİSTE LOKAL VE SİSTEMİK FOTOKEMOTERAPİNİN KARŞILAŞTIRILMASI

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SUMMARY

Nineteen patients with alopecia totalis (AT) or alopecia universalis (AU) were treated with oral methoxsalen plus long wave ultraviolet (UV) light and 10 patients with AT or AU were treated with topical methoxsalen solution plus local UVA for ten weeks. Patients treated with systemic PUVA did not achieve a significantly higher therapeutic score than those treated with topical methoxsalen and local UVA.

Key Words: Alopecia totalis, PUVA

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The lack of knowledge concerning the cause of alopecia areata (AA) has hampered the development of reliably efficacious therapy. Alopecia totalis (AT) and alopecia universalis (AU) are therapy-resistant forms of AA. There are many treatment modalities for AA including corticosteroids, contact allergens, irritants, psychotherapy, minoxidil, cyclosporin, etc (1-11). Since 1980's, various articles have made comments on the therapeutic efficacy of photochemotherapy for AA. It was suggested that photochemotherapy has an immunomodulatory action (9-11).

In the present study, an attempt was made to compare the effects of systemic and local photochemotherapy in AT and AU.

MATERIAL AND METHODS

Twenty-nine patients (14 male, 15 female; between the ages of 14 to 34 years) who have visited the Department of Dermatology, Erciyes University Hospital of

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ÖZET

Alopesi Totalis (AT), veya alopesi universalis (AU)'ü 19 hastaya oral metoksalen ve uzun dalga boyunda ultraviyole A (UVA) ile ve ayrıca 10 hastadan oluşan diğer bir AT ve AU'lu gruba topikal metoksalen ve lokal UVA ile 10 hafta süreyle tedavi uygulandı. Sistemik PUVA tedavisi ile lokal PUVA tedavisi sonuçları arasındaki fark istatistiksel olarak anlamlı bulunmadı.

Anahtar Kelimeler: Alopesi totalis, PUVA

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Kayseri, Turkey, from September 1986 to October 1988, who had AT or AU were treated either with systemic or local PUVA therapy randomly. All of the patients were examined ophthalmologically and blood tests (included complete blood cell count, liver enzyme determinations, triiodothyronine (T₃), thyroxine (T₄), anti-thyroid antibodies (TAB), microsomal antibodies (MAB) were performed before the treatment. Patients were excluded from the study if they were pregnant, wished to be pregnant or were younger than 12 years of age and all other treatments were discontinued. Since most of the patients have not accepted the procedure, scalp biopsy specimens were not obtained.

Group I: Nineteen patients (9 male, 10 female; between the ages of 14 to 34 years) treated with Waldmann 8001 UV cabin. Oral 8 methoxypsoralen (8.MOP) was given 0.6 mg/kg two hours before whole body UVA irradiation. The initial dose was 0.1 joule/cm². The dose was increased 0.5 joule/cm² every other session. Four therapy sessions were performed every week for ten weeks. At the end of the therapy total UVA dose was 267.5 joule/cm². Blood tests were repeated monthly.

Group II: Ten patients (5 male, 5 female; between the ages of 14 to 30 years) treated with topical appli-

cation of 0.15% 8-MOP solution and then local UVA irradiation with Waldmann 200 phototherapy unit. The irradiation dose was identical with the first group (0.1 joule/cm²) with a total of 40 sessions. The clinical assessment was made by the physician every month and photographs were taken.

Hair regrowth was compared with the following clinical assessments; No change (-), vellus type hairs or minimal (+), scarce terminal hairs or moderate (++, terminal hair which is under 50%) (Fig 1) cosmetically acceptable regrowth or good (+++, terminal hair 80%, enough to be without wig), normal type of hair or very good (++++, terminal hair 100% plus regrowth of eyebrows, eyelashes and other body hairs) (Fig 2). The (+++) and (++++) patients were accepted as responders, and the others were as nonresponders. The statistical analysis of the results were made according to chi-square test. Time to response or 24 months follow-up evaluation after treatment were assessed by the physician (Table 1,2).

RESULTS

In group I, (Systemic MOP+UVA) five of the 19 patients (26.3%) showed+, one patient (5.26%) showed++, 4 patients (21.0%) showed+++, 9 patients (47.3%) showed++++. Vellus hair and no change collectively classified as nonresponders (Table 1 and 3).

In group II, (Topical MOP+UVA) one of the 10 patient (10%) showed*, 2 patients (20%) showed++, one patient (10%) showed+++, 5 patients (50%) showed++++, 1 patients (10%) showed no change (Table 2 and 3).

Twentyfour months follow-up of 19 responders showed 5 (26.9%) recurrence in to 5-24 months (Table 4) laboratory tests were all in normal limits except two cases with positive thyroid antibodies, two of them showed elevated titers of antimicrosomal antibodies, one of them was responder, and the other was nonresponder. These cases had no thyroid disease and thy-

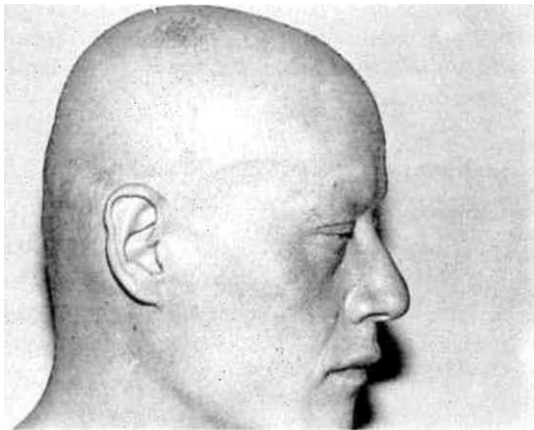


Figure 1. Group II, Case 1. (a) before treatment, (b) moderate

after treatment.



Figure 2. Group I, Case 11. (a) before treatment, (b) after treatment, normal type of hair or very good

Table 1. Results of PUVA treatment with oral MOP and total skin surface irradiation

Age yr/sex	Duration before treatment	Energy delivered joules/sq cm ²	Results	Recurrence	Titers of thyroid antibodies
		Alopecia	Universalis		
26/M	5	267.5	-f+++	5	
18/M			f+++	24	
26/M	12		+++	12	-
28/F	4				-
30/F	15				1/655.560
UM	7				
um	4		+		
19/F	4				
24/P	4		++++	-	
22/M	3		++++		
14/F	3				
18/F	5				1/655.560
20/F	10				
26/F	22		+		...
		Alopecia	Totalis		
22/M	9		f+++	-	
14/F	4		44++	-	
19/M	-		f+4		
n/M	6		+++	12	

Table 2. Results of PUVA treatment with topical MOP and local UVA irradiation of the scalp of AT and AU

Age yr/sex	Duration before treatment yr	Energy delivered joules/sq cm ²	Results	Recurrence mo	Titers of thyroid antibodies TAb MAb
		Alopecia	Universalis		
30/M	15	267.5	++	6	-
20/P	10				-
21/M	15				-
29/M			++++		-
		Alopecia	Totalis		
15/M	9		++	-	-
14/F	6	MO	+++f	-	-
15/M	2			-	-
18/F	3		++++	-	-
26/F	10		f+++	-	-
20/F			+++	-	-

raid screening tests of these patients were found normal.

Although the comparison of two groups suspected that systemic MOP and UVA was more effective than topical use, statistical analysis showed that the difference between two groups was not significant (Table 3). The rate of recurrences was also similar in both groups (Table 4). As a result we suggested that both topical and systemic photochemotherapy may be an effective treatment modality for therapy-resistant cases with AT and AU.

Table 3. Statistical analysis of clinical results

Groups	Responders	Nonresponders	Total
Systemic PUVA	13	6	19
Local PUVA	6	4	20
Total	19	10	29

P=0.807>0.05

Table 4. Statistical analysis of recurrences

Groups	Recurrence		Total
	+	-	
Systemic PUVA	3	10	13
Local PUVA	2	4	6
Total	5	14	19

P=0.848>0.05

DISCUSSION

Today, our knowledge about alopecia is not sufficient to grasp all of the causes of this disease. On this occasion, the diagnosis and the treatment of alopecia does not yield satisfactory results and mostly disappoints either the patient or the physician. While looking over the literatures reporting about the treatment of alopecia, one can see that the consequences of variable treatment modalities of the resembling types of alopecia differs from each other or even yields contrary results. Corticosteroids, irritant agents, contact allergens, PUVA, cyclosporin and minoxidil can be used to treat AA (1-11).

Corticosteroids can be applied in systemic form or intralesionally or topically (1,2). The severe adverse effects of corticosteroids due to the long term usage, and the recurrences after the cessation of therapy, restricts the usage of corticosteroids.

An irritant agent, Anthralin, can be applied in concentrations varying between 0.2% and 0.8% (3). In a report, it is stated that positive results were achieved in 62.6% of patients who were treated with anthralin.

Encouraging results are notified with topical use of dinitrochlorobenzene (DNCB) after developing contact sensitization. However, its usage is stopped when its mutagenic effect is revealed (4). Another allergen squaric acid dibu tylester (SADBE) is an alternative for DNCB, and when it is compared with DNCB, SADBE is more stable and has no mutagenic effect (5,6). Since there is not enough controlled study to evaluate the impact of the treatment with minoxidil and cyclosporin, employing of these agents are in essay (7,8).

The initial report about the efficacy of PUVA treatment in AA was presented by Weismann et al, in 1978 (9). Later, Lassus et al obtained similar results and complete response in 64.7% of patients and incomplete response in 11.8% of patients with PUVA therapy (11). In that study, it is suggested that no response are achieved with the therapy consisting only UVA irradiation plus topical methoxalen but effective results are gained with the total body irradiation plus oral methoxalen.

According to our findings terminal hair regrowth rate was found 68.4% in systemic photochemotherapy and 60% local photochemotherapy. PUVA treatment is one of the treatment modalities of AT and AU. Successful results have been presented by other authors (9). In the present study our aim is to compare the systemic effect of PUVA with local efficacy. The clinical effectiveness showed no difference between the systemic and local photochemotherapy. The problem is the recurrence after the cessation of PUVA therapy. The combination of PUVA with other treatment modalities intermittently may prevent the recurrences. The treatment of our patients with systemic PUVA and systemic corticosteroid intermittently decreased recurrences, and resulted with a better immunomodulatory effect. Evidence of thyroid autoantibodies may be due to the autoimmune basis of the disease (12). Perifollicular lymphocytic infiltration confirms the immunological hypothesis.

We have repeated the tests of thyroid antibodies after PUVA therapy in the patients with positive TAB and MAb. Unfortunately, this pathological findings showed no alteration after the therapy despite one case showing cosmetically acceptable regrowth.

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