Research Article

Dermoscopic Findings in Psoriasis before and after Treatment

Amal T. Abdel-Rahman, Mohammad A. El Khayyat and Dalia M. Essawy
Department of Dermatology Andrology and STDs, Faculty of Medicine, MiniaUniversity, Egypt

Abstract
Background: Psoriasis is a chronic and inflammatory skin disease, it has been assumed that dermoscopy might also be useful for monitoring the response of psoriasis to systemic drugs by providing early signs of response to treatment and by revealing residual disease or recurrence before it becomes clinically evident, **Aim and objectives**: the aim of the study was to evaluate and to compare the dermoscopic findings in patients with psoriasis lesions before and after treatments with corticosteroids and with narrow band ultra violet bands (UVB), **Subjects and methods:**this was a case control study that was conducted on 30 patients with psoriasis divided into equal groups Group I: included 15 patients having narrow band(UVB) sessions twice weekly. Group II: included 15 patients having topical Elcon (Mometasonefurate) ointment twice daily, **Results**: the results revealed that Mean ± SD. of PASI score before treatment in group 1 is 23.43 ± 8.09 and in group II is17.70 ± 7.40, and there was no statistical significant difference between two groups as regard PASI score before & after treatmentandthere was highly statistical significant between before and after treatment as regard PASI score in both group I and group II, **Conclusion**: both narrow band ultra violet bands (UVB) and corticosteroids affect PASI score significantly Also we can clarify that the improvement in PASI score was more predominant in Narrow-band ultraviolet-B.
Keywords:PASI, Corticosteroids, Narrow Band Ultra Violet Bands, Psoriasis, Inflammatory**.**

Introduction
Psoriasis is a chronic inflammatory skin disease that requires ongoing, lifelong care. Despite a widely held misconception that it is somehow less serious than other, non-dermatological illnesses, plaque psoriasis imposes a burden of disease that extends far beyond the physical dermatological symp-toms (Rapp et al., 1999).

Reported prevalence estimates for psoriasis vary substantially, probably reflecting method-logical differences as well as genuine genetic, demographic, and environmental differences between populations. Prevalence differs greatly across racial groups: West Africans are among those with a dramatically lower prevalence of psoriasis than Europeans, consistent with an approximately twofold difference between African and Caucasian Americans (1.3% versus 2.5%) (Gelfand JM et al., 2005).

Over the past 20 years there have been many developments in the understanding of the genetic, molecular and cellular mechanisms that underlie these inflammatory processes and many new and effective treatments have been developed (Menter and Griffiths, 2007).

Individuals with psoriasis are also at increased risk of inflammatory diseases occurring at sites remote from the skin. The most common and best known of these is a seronegative, erosive arthritis. Autoimmune disorders of the gut, manifesting as inflammatory bowel disease (Crohn's disease or ulcerative colitis), are also associated with psoriasis (Mrowietz et al., 2006).

Corticosteroids are the most widely used agents for the topical treatment of psoriasis and have been the mainstay of therapy for over half a century. They are well tolerated and often efficacious, and they come in a variety of forms, including ointments, creams, gels, lotions, sprays, and solutions. Despite the demonstrated efficacy of cortice-steroids, their use is limited by their potential to produce side effects (Hengge UR et al., 2006).

Topical calcipotriol exerts its therapeutic effect by modulating keratinocyte growth and differentiation and by inhibiting T lympho-cyte activity. (Gerritsen MJ et al., 1993) The topical retinoid tazarotene is one of the more recently approved topical therapies for psoriasis.

Like oral retinoids, tazarotene is thought to exert its therapeutic effect by modulating

keratinocyte proliferation and differentiation (Duvic M et al., 1997).

In general, combination therapy is more efficacious and can result in reduced incidence of adverse effects when compared with mono-therapy alone. Several studies have examined the concomitant or sequential use of topical corticosteroids with vitamin D3 analogues for the treatment of patients and demonstrated this combination was safe, effective, and reduced the irritation associated with either agent alone. (Lahfa M et al., 2003).

Aim of the work

This study aims to evaluate and to compare the dermoscopic findings in patients with psoriasis lesions before and after treatments with corticosteroids and with narrow band ultra violet bands (UVB).

Subjects and methods

This study was a Case - control study. The cases were be recruited from Dermatology outpatient clinic, El-Minia University Hospital. The study was carried out from December 2015 to the end of December 2017**.** Thirty psoriatic patients were divided into 2 groups according to the received treatment: **Group I**: included 15 patients having narrow band (UVB) sessions twice weekly. **Group II**: included 15 patients having topical Elcon (Mometasonefurate) ointment twice daily.

Inclusion criteria:

Patients having new psoriasis affecting the trunk and/or the extremities were included in the study of any age and both sexes and all patients having psoriasis were new cases who never received treatment in the previous three months of time of the study.

Exclusion criteria:

Patients under treatments, Patients with history of receiving treatments in the previous three months to the time of inclusion to our study, Pregnant or lactating women are excluded and Patients who received topical or systemic treat-ment less than 3 months at the time of clinical examination were excluded from the study.

Sampling technique: systematic random sampling technique was used.

Methods:

Every patient was subjected to the following;

1) **Informed consent:** A written informed consent was taken from each patient and control subject before participation in this study.

2) History taking:

A. Personal history: Including name, age, weight, residence (far residence is known to decrease patient's compliance), occupation (sun exposed or not), and any special habits of medical importance.

B. Present history: Including the onset, course and duration of the disease.

C. Precipitating factors: Including: Infection, psychic stress or trauma. Drugs, such as; steroids, B-blockers, Lithium, Antimalarials, NSAIDs, others, Photosensitizers, such as; tolbutamide, sulfonamides, tetracycline, griseofulvin, phenol-thiazides or others. D. Previous treatment: Previous phototherapy, previous oral medications, such as systemic steroids, retinoids, methotrexate or others and Previous topical medications, such as; topical steroids, topical calcineurin inhibitors, tar, salicylic acid, or others.

E. Past history: (to determine any absolute or relative contraindication to phototherapy): Cata-ract surgery and history of melanoma or other skin cancer. Cardiac, renal or hepatic problems. Photosensitive disorders.

F. Associated diseases: Such as: DM, arthritis, eczema, alopecia areata, thyroid disease or others.

G. Family history: Psoriasis, arthritis, DM or others.

3) Examination and investigations: Skin examination: to determine the distribution and clinical variant of the disease, skin type and percentage of body involvement using the rule of nines. Ophthalmologic exami-nation by slit lamp. Investigations done before initiation of phototherapy: CBC, Blood sugar, Liver profile and Kidney profile. PASI score (Marks et al., 1989) was done for all patients with psoriasis to assess the severity of psoriasis. Patients were clinically examined twice a week during the session period, and their findings were recorded until the end of sessions (48^{th} session). Every patient was clinically evaluated after 48 sessions according to PASI in case of psoriasis**.**

Dermoscopic examination of the lesion(s) was performed using hand held dermoscope (HEINE DELTA® 20 Plus dermatoscope, HEINE Optotechnik GmbH & CO.KG Kientalstrasse 7, 82211 Herrsching, Germany). The dermoscope has contact plate for polarization with scale, original magnification X10 and LED illumination (Fig. 2). Image capturing was performed using digital camera (Sony DSC-W830, 20.1 megapixel)

attached by adaptor to the dermoscope.

Fig (1): HEINE DELTA® 20 Plus dermoscope.

Phototherapy equipment and regimen:
NB-UVB was delivered by a UV cabin (Waldmann GmbH, Germany) equipped with an integrated UV photometer, having 16 TL-01/100 W Fluorescent lamps producing NB-UVB with a peak emission at 311 nm. Initial dosage and subsequent increment were dependent on the minimal erythema dose. It was given three times weekly on non-consecutive days.

Evaluation and assessment of results:
Analysis of the data from clinical and dermo-scopic and comparison between these findings was done.

Statistical analysis
Analysis of data was done using Statistical Program for Social Science version 20 (SPSSInc., Chicago, IL, USA). Quantitative variables were described in the form of mean and standard deviation .. Qualitative variables were described as number and percent. In order to compare parametric quantitative variables between two groups, Student t-test was performed. Qualitative variables were compared using chi-square (X2) test or Fisher's exact test when frequencies were below five. Pearson correlation coefficients were used to assess the association between two normally distributed variables. When a variable was not normally distributed, A P value < 0.05 is considered significant

Operational design: All selected participants received comprehensive information regarding objective and the expected benefit of the study. All ethical considerations were taken throughout the whole work.

Administrative design: -An informed verbal consent from parents of the participants was taken and confidentiality of information was assured. - An official written administrative permission letter was obtained from dean of faculty of medicine, Minia University hospital manager, Head of dermatology and vernology department in the same university. The title and objectives of the study were explained to them to ensure their cooperation. Permission from the faculty of medicine ethical committee was also obtained.

Results

The current study was conducted over 30 patient with psoriasis 15 patients having narrow band (UVB) sessions twice weekly, and 15 patients having topical Elcon (Mometasonefurate) ointment twice daily, there was no statistical significant difference between two groups as regard sex, the mean±SD of age in group 1 is 41.07 ± 19.30 years and in group II is 39.67±15.43 years old, and there was no statistical difference between the groups as regard age, and the table shows that 40% of Occupation in Group I is Farmer, 40% is House wife, 13.3 is Student and only 6.7% was Amin shorta, while in the Group II, 26.7% of Occupation is (Farmer and House wife) followed by 13.3% from (Teacher and Worker), 6.7% from (Amin shorta, General manager and Nurse. **(Table1)**

This table shows that 80.0% of Diagnosis in Group I is Psoriasis vulgaris, 20% is Plaque psoriasis, 6.7% Erythrodermic psoriasis, and 6.7% Guttate psoriasis but 0% for (Flexural, Palmo-plantar psoriasis and Discoid psoriasis).
Also 86.7% Diagnosis in Group II is Psoriasis vulgaris, 26.7% is Plaque psoriasis, 13.3% is Palmoplantar psoriasis and 6.7% for (Discoid psoriasis and Flexural) but 0% for (Guttate psoriasis and Erythrodermic psoriasis), psoriatic arthritis in 6.7% of group I and 0% in group II and there was no statistical difference between two groups regarding diagnosis. (Table 2)

Mean±SD. of onset in group1 is 3.73±2.76

years and in group II is 3.37±4.78 years, and Mean±SD of duration is 3.73±2.76years in group 1 and 3.37±4.78 years in group II there was no statistical significant difference between two groups as regard Onset and Duration. (Table 3)

This table shows that the mean± SD of Duration of treatment (months) in group (I, II) is 6.0 ± 0.0 months. (Table 4)
This table shows that 100.0% of Treatment sessions in Group I is twice weekly and 100.0% of Treatment sessions in Group II is twice daily. 20.0% of Response to treatment in Group I and 0.0% of Response to treatment in Group II. (Table 5)

85.7% of Size in Group I is Plaque size, 7.1% is (Size of drops of water and Papule & plaque size). 86.7% of Size in Group II is Plaque size, 13.3% is Papule & plaque size and 0.0% is Size of drops of water. And there was no statistical difference between two groups regarding neither size nor configuration of lesion. (Fig 6)

This table shows that Mean ± SD. of PASI score before treatment in group 1 is 23.43 ± 8.09 and in group II is17.70 ± 7.40, and there was statistical significant difference between two groups as regard PASI score after treatment. (Table 6)

This table shows that there was highly statistical significant between before and after PASI score in both group I and group II. (Table 7)

Table (1): Comparison between the two studied groups according to demographic data

	Group I (n=15)		Group II (n=15)		Test of sig.	p
	No.	%	No.	%		
Sex						
Male	6	40.0	6	40.0	χ^2=0.0	1.000
Female	9	60.0	9	60.0		
Age (years)						
Min. – Max.	10.0 – 81.0		3.0 – 58.0		U= 109.0	0.902
Mean ± SD.	41.07 ± 19.30		39.67 ± 15.43			
Median (IQR)	45.0(25.0– 49.50)		43.0(36.0 – 49.0)			
Occupation						
Amin shorta	1	6.7	1	6.7	χ^2= 7.807	^{MC}p= 0.276
Farmer	6	40.0	4	26.7		
General manger	0	0.0	1	6.7		
House wife	6	40.0	4	26.7		
Nurse	0	0.0	1	6.7		
Teacher	0	0.0	2	13.3		
Worker	0	0.0	2	13.3		
Student	2	13.3	0	0.0		

χ^2: Chi square test MC: Monte Carlo U: Mann Whitney test
p: p value for comparing between **the two studied groups**
Group I: patients having narrow band (UVB) sessions twice weekly
Group II: patients having topical Elcon (Mometasonefurate) ointment twice daily

Table (2): Comparison between the two studied groups according to diagnosis

Diagnosis	Group I (n=15)		Group II (n=15)		χ^2	^{FE}p
	No.	%	No.	%		
Psoriasis vulgaris	12	80.0	13	86.7	0.240	1.000
Guttate psoriasis	1	6.7	0	0.0	0.967	1.000
Erythrodermic psoriasis	1	6.7	0	0.0	2.143	0.483
Plaque psoriasis	3	20.0	4	26.7	0.186	1.000
Flexural	0	0.0	1	6.7	1.034	1.000
Palmoplantar psoriasis	0	0.0	2	13.3	2.143	0.483
Discoid psoriasis	0	0.0	1	6.7	1.034	1.000
Psoriatic arthritis	1	6.7	0	0.0	1.034	1.000

Table (3): Comparison between the two studied groups according to onset and duration

	Group I (n=15)	Group II (n=15)	U	p
Onset (year)				
Min. – Max.	1.0 – 10.0	0.50 – 20.0	82.50	0.217
Mean ± SD.	3.73 ± 2.76	3.37 ± 4.78		
Median (IQR)	3.0(2.0 – 4.50)	2.0(1.25 – 3.50)		
Duration (year)				
Min. – Max.	1.0 – 10.0	0.50 – 20.0	82.50	0.217
Mean ± SD.	3.73 ± 2.76	3.37 ± 4.78		
Median (IQR)	3.0(2.0 – 4.50)	2.0(1.25 – 3.50)		

Table (4): Comparison between the two studied groups according to duration of treatment

Duration of treatment (months)	Group I (n=15)	Group II (n=15)
Min. – Max.	6.0 – 6.0	6.0 – 6.0
Mean ± SD.	6.0 ± 0.0	6.0 ± 0.0
Median (IQR)	6.0	6.0

Table (5): Comparison between the two studied groups according to treatment data

Treatment data	Group I (n=15)		Group II (n=15)	
	No.	%	No.	%
Treatment sessions				
Twice daily	0	0.0	15	100.0
Twice weakly	15	100.0	0	0.0
Response to treatment	3	20.0	0	0.0

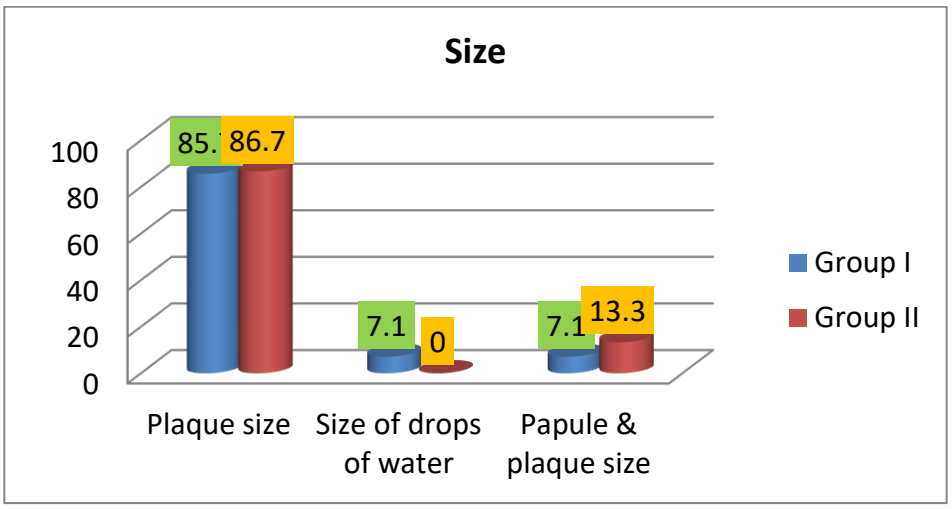

Fig (1): bar charts showing Comparison between the two studied groups as regard Size

Table (6): Comparison between the two studied groups according to PASI score

PASI score	Group I (n=15)	Group II (n=15)	U	P
Before treatment	**(n=15)**	**(n=15)**		
Min. – Max.	14.60 – 39.50	6.80 – 35.20	68.0	0.067
Mean ± SD.	23.43 ± 8.09	17.70 ± 7.40		
Median (IQR)	20.0(17.75– 30.80)	16.50 (12.70– 21.55)		
After treatment	**(n=13)**	**(n=14)**		
Min. – Max.	0.0 – 19.0	0.0 – 21.30	69.0	0.008*
Mean ± SD.	4.05 ± 3.44	5.96 ± 5.96		
Median (IQR)	3.0(2.30– 12.10)	4.55 (2.50 – 7.50)		

Table (7): Comparison between before and after in each group

PASI score	Before (n=15)	After (n=15)	Z	P
Group I	**(n=15)**	**(n=13)**		
Min. – Max.	14.60 – 39.50	0.0 – 19.0	3.181*	0.001*
Mean ± SD.	23.43 ± 8.09	4.05 ± 3.44		
Median (IQR)	20.0(17.75– 30.80)	3.0(2.30– 12.10)		
Group II	**(n=15)**	**(n=14)**		
Min. – Max.	6.80 – 35.20	0.0 – 21.30	3.297*	0.001*
Mean ± SD.	17.70 ± 7.40	5.96 ± 5.96		
Median (IQR)	16.50(12.70– 21.55)	4.55(2.50 – 7.50)		

Discussion

Psoriasis is an autoimmune inflammatory skin disease. In the past several decades, photo-therapy has been widely used to treat stable psoriatic lesions, including trunk, scalp, arms and legs, and partial nail psoriasis. A variety of light/lasers with different mechanisms of action have been developed for psoriasis including ultraviolet B, psoralen ultraviolet A, pulsed dye laser (PDL), photodynamic therapy, intense pulsed light, light-emitting diodes, and so on (Zhang and Wu, 2018).

To the best of our knowledge, this is the first study in Egypt and Middle East toexplore the

role of the dermoscopy in patients with psoriasis lesions before and after treatments with corticosteroids and with narrow band ultra violet bands (UVB).

The results of the current study showed that there was no statistical difference between both groups regarding age, sex, occupation while, the results of family history for psoriasis showed that both groups had the same percentage for positive family history (13.3%) as in group 1 there were two patients (1 affected mother, 1 affected father) and group 2 also were two patients (1affected father) and also it was of no significance between both groups. The results of Solmaz et al., 2020 study on 1393 patients with psoriasis showed that 444 of patients (31.9%) had family history for psoriasis with 174 patients had an affected parent, 92 of these patients (53%) had an affected father; 82 patients (47%) had an affected mother and there was no difference in disease characteristics among the patients whose father or mother were affected.

In the present study we found no statistical significant difference between both groups regarding the age of onset and duration of Psoriasis, also about 80% of both groups were diagnosed as psoriasis vulgaris while more than 20% were diagnosed with plaque psoriasis, only 1 patient (6.7%) in group 1was diagnosed with Psoriatic arthritis but also with no significant difference between both groups. While, in comparing the size of lesion and configuration between both groups we found no statistical significant difference regarding plaque size. In contrast, Solmaz et al., (2020) reported that Plaque psoriasis was more common, while there was an increased frequency of pustular psoriasis.

Our result revealed that there was statistical significant difference between two groups regarding PASI score before & after treatment with more improvement in Narrow-band ultraviolet-B, also there was highly statistical significant between before and after PASI score in both group I and group II. This was in agreement with results of Farshchian et al., 2016 reported a 75% or more reduction in their PASI score from baseline after Narrow-band ultra-violet-B treatment. Another study by Elghandour et al., 2013 on psoriasis patients at Ain Shams University hospitals found that there was significant difference in PASI score before and after Narrow-band ultraviolet-B treatment. Also, Takahash et al., 2013 illustrated that the PASI scores of each group were significantly decreased at 4 weeks and progressively improved at 12 weeks compared with the pre-treatment with Narrow-band ultraviolet-B.

In contrast to our results Takekoshi et al., 2006 reported that although there was a faster reduction in the PASI score in the group treated with nUVB plus topical calcipotriol than in the group treated with nUVB alone, but these reports found no differences in the PASI score at the end of treatment.

The limitation of the current study was the small sample size which did not help as to clarify the difference between corticosteroids and with narrow band ultra violet bands (UVB) post intervention.

In conclusion both narrow band ultra violet bands (UVB) and corticosteroids affect PASI score significantly also we can clarify that the improvement in PASI score was more predominant in Narrow-band ultraviolet-B.

Conclusions

Both narrow band ultra violet bands (UVB) and corticosteroids affect PASI score significantly also we can clarify that the improvement in PASI score was more predominant in Narrow-band ultraviolet-B.

Conflict of interests: The authors declared that there are no competinginterests.

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