Quality of Life among Psoriasis Patients; Correlation with Severity and Response to Psoralen Ultraviolet-A phototherapy

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Abstract

Background: **Psoriasis is a chronic inflammatory skin disorder that affects 2-4% of the world's population, causing psychological, physical, and social impairment. Although the management of psoriasis patients has become increasingly effective, it can only result in a temporary remission of physical symptoms. A challenge to dermatologic care is to achieve a long-lasting remittance of the disease and a substantial improvement in quality of life.** *Aim:* **This study aims to assess the quality of life of psoriatic patients and their response to PUVA therapy.** *Patients and Methods:* **The study included 36 patients presented with varying degrees of psoriasis. All patients were subjected to full history taking, total skin examination, assessment of psoriasis severity by PASI, and measurement of quality of life (QoL) by QoL inventory (QoLI) both before and 1.5- 2 months after treatment with PUVA.** *Results:* **After treatment with PUVA the mean PASI score decreased significantly (P=0.001) from 28.94±11.02 to 22.51±11.66, In addition, the QoLI scores were significantly (P=0.001) elevated from 30.38±19.83 before treatment to 48.58±23.58 after treatment.** *Conclusion:* **There was a good effect of PUVA therapy on patients with psoriasis as regards the severity of the disease and quality of life; moreover, the social and psychological aspects should be considered and managed in the management of psoriasis.**

Keywords: Psoriasis, QoL, PUVA

Introduction

Psoriasis is an immune-mediated genetic, chronic inflammatory skin disorder with red, thickened, scaly papules and plaques. The treatment of psoriasis aims to induce and maintain remission[1]. Quality of life (QoL) is multi-dimensional and estimated by health and multiple non-medical aspects, including socioeconomic status, personality, marital situation, ambition, happiness, and religious background[2]. Health-related QoL (HRQoL) is the peoples' subjective estimation of the influences of the present health situation on their ability to obtain and/or maintain the suitable functioning that enables them to follow their important life goals that are reflected in their general well-being[3]. The impacts of dermatological disorders on patients' lives are crucial but frequently

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underestimated. Psoriasis is always associated with marked psychosocial morbidity and a reduction in HRQoL[4]. Psoriasis has a marked bad impact on a patient's HRQoL. Psoriasis patients always have difficulties, including problems in coping responses, shame, body image disorders, and social embarrassment regarding their looks[5]. Some psoriatic patients committed suicide. The emotional and physical impacts of psoriasis proved to have a marked unfavorable effect on patients' work environment[6]. This study has been designed to assess QoL in psoriasis patients and correlate it with the severity of the disease, and the influence of PUVA therapy on QoL in psoriasis patients.

Patients and Methods

The 36 psoriasis patients were recruited from the Dermatology Outpatient Clinic, Suez Canal University Hospital, in the period from April 2015 to May 2016. Any patient who received topical or systemic treatment within the last month preceding the study was excluded. Any patients who are known to be or have a family history of skin cancers, immunological skin disorders, hepatic diseases, uremia, severe myocardial diseases, cataract, aphakia, and photosensitive dermatoses, and lactating or pregnant women, patients with other medical or neurological disorders as mental retardation and panic disorders were excluded from the study. Informed consent was taken from every participant after explaining the aim of the study to the patients and the results of the study were confidential and no personal data would be published. Full history was taken from each patient including age, sex, education, marital status, employment, duration of the disease, and general medical status. The disease severity was

calculated using psoriasis area and severity index (PASI), as a severity scale. It ranges from 0 up to 72 before and after PUVA therapy[7]. The Arabic version of the quality of life inventory[8]. The 16 areas addressed in the QOLI assessment are Health; Self-Esteem; Values and Goals; Money; Work; Learning; Creativity; Play; Helping; Friends; Love; Relatives; Children; Neighborhood; Home; and Community. For each domain, the importance is measured by a 3-point scale (from 0 to 2), while the domain of satisfaction is measured by a 6-point scale (from -3 to +3). The current quality of life for everyone is calculated by the algebraic sum of the results and multiplied by satisfaction/dissatisfaction for each domain. *Interpretation:* The overall QoL, was classified according to the final score of the patients; scores extending from 0 to 37 are considered very low, 37 to 43 is low; 43 to 58 is average and more than 58 is high[9]. It was provided for all participants in the study and applied twice, before and after PUVA therapy.

PUVA therapy regimen
Every patient, after oral intake of psoralen (0.6 mg/kg 8-methoxypsoralen), received an incremental dose of ultraviolet light A (UVA), three times a week, and 1.0 J/cm2 as starting dose, using 7001-PUVA Spectrum-27F85/100 *(Herbert Waldmann GmbH & Co., Villingen-Schwenningen city, Baden Wu¨rttemberg, Germany).* Treatment was terminated either after the complete remission of the disease or up to 72 sessions[10].

Statistical Analysis

All data collected were analyzed statistically using the statistical package for social science "SPSS" for Windows (SPSS Inc. USA). Percent distributions and frequencies were calculated for

qualitative data, Chi-square was used for comparing different groups, mean ± standard deviation (SD) was used for quantitative data, the student's (t) test was used for comparing between two means, for comparison between mean at different points (after and before treatment), the paired samples (t) test has been used. P value ≤0.05 was considered statistically significant[11].

Results

The present study included 36 patients, 24 (66.7%) males and 12 (33.3%) females. Age ranged from 20 to 50 years; 5 patients (13.9%) were single and 31 (86.1%) were married; the number of children ranged from 0 to 8 with a mean of 2.94±2.36; 16.7% of studied patients had no work; the duration of psoriasis ranged from 1 to 480 months and the mean was 98.69±115.88 months. Before treatment, PASI score ranged from 9.6 to 50 with a mean of 28.98±11.02, while QoLI scores ranged from 2 to 93 with a mean of 30.38±19.83. Before treatment, 80.6% of psoriasis patients had a reduced QoLI score and 19.4% had an average QoLI score, with a statistically significant increase in patients with average and high scales after PUVA therapy (i.e., psoriasis patients had low quality of life before PUVA that improved after treatment) (P=0.001) (Table 1, Fig. 1).

Table 1: Distribution of studied cases according to their quality of life before and after treatment					
Scale	Before treatment (36)		After treatment (36)		P value
	No	%	No	%	
Low	29	80.6%	13	36.1	
Average	7	19.4%	18	50.0	0.001 (S)
High	0	0	5	13.9	

Figure 1: Representative psoriatic skin lesions before PUVA treatment (a) and clinical improvement after PUVA treatment (b).

Regarding patient's gender, there has been a statistically significant difference (pre and post-PUVA therapy) between males and females QoL scale (i.e., QoL in psoriasis is decreased more in females than males before PUVA and improved after treatment) (P= 0.037) (Table 2). Before treatment, there was a weak (r<-0.03), inverse (negative), statistically insignificant correlation between disease

severity and quality of life (this means that, when disease severity increased, the QoL decreased) (Fig. 2). After treatment, there was a moderate, inverse, statistically significant correlation between the severity of psoriasis and QoLI (Fig. 3). The mean PASI score decreased significantly from 28.94±11.02 to 22.51± 11.66. In addition, the QoLI scores elevated significantly from 30.38±19.83 before treatment to 48.58±23.58 after treatment (p=0.001) (Table 3).

Table 2: Relation between QoL and patient's gender.									
		Gender							P value
		Male (n=24)				Female (n=12)			
		Before TTT		After TTT		Before TTT		After TTT	
		No	%	No	%	No	%	No	%	
QoL scale	Low	17	70.8	8	33.3	12	100	5	41.7	0.037(S)
	Average	7	29.2	14	58.4	0	0	4	33.3	
	High	0	0	2	8.3	0	0	3	25	

Table 3: The effect of therapy on disease severity and QoLI.							
Variables		Mean	SD	Min.	Max.	Paired (t)	P value
PASI score	Before TTT	28.98	11.02	9.60	50.0	5.52	0.001(S)
	After TTT	22.51	11.66	4.40	50.00		
QoLI	Before TTT	30.38	19.83	2.0	93.0	5.33	0.001(S)
	After TTT	48.58	23.84	3.00	93.00		

Discussion

Psoriasis is usually correlated to considerable psychosocial morbidity and a reduction in Health-Related Quality of Life (HRQoL). In the extensive 2001 National Psoriasis Foundation (NPF) survey 79% of the patients declared that the disease has a heavy burden on their lives, similar to NPF survey[12]. Similarly in the European Federation of Psoriasis Patients Organizations survey, 60% of patients considered psoriasis to be either a problem or a significant problem. Patients usually have frustration, embarrassment, and/or helplessness concerning their problem[13]. Although there were many cross-sectional studies on the impairment of HRQoL because of psoriasis, few studies were conducted on QoL comparing the impact of psoriasis pre-and post-intervention.

Therefore, the present study has been designed to estimate QoL and response to PUVA therapy in psoriasis patients. There is a considerable burden of psoriasis affecting psychosocial domains. Pruritus is usually associated with agonizing symptoms and frustration. Because psoriasis usually has an early start in life (60% before the age of 30 and 14% before the age of 10), any accompanying psychosocial effects and/or changes in physical appearance are constant hardships[14]. Health-Related QoLI is a relatively emerging research area focusing on psoriasis and there is an increasing awareness among dermatologists that physical manifestations including scaling, redness, and induration represent a little portion of the problem and the potential spectacular impact of therapy on HRQoL. There are few numbers of validated and

feasible tools useful to measure HRQoL and function[9]. Regarding the severity of psoriasis before treatment, PASI score ranged from 9.60 to 50 with a mean of 28.98±11.02. In addition, QoLI scores ranged from 2 to 93 (mean 0.38±19.83).
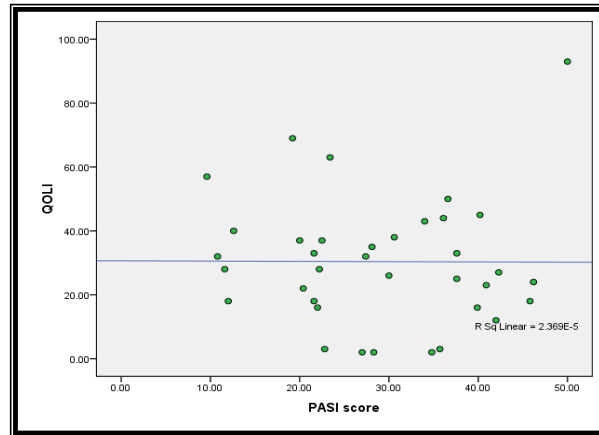

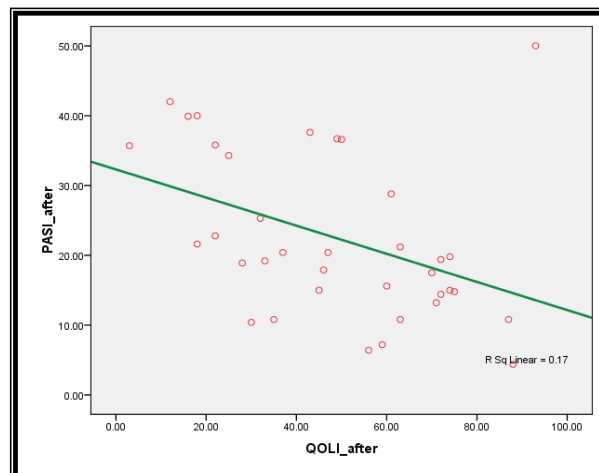*Figure 2: Correlation between QOLI and PASI score before treatment*

Figure 3: The correlation between PASI and QoLI scores of studied populations after PUVA therapy.

These results are quite different from those reported by Lee and his colleagues[1] who documented that, the mean PASI±SD was 9.1±7.0. This may be explained by different inclusion criteria. In addition, they found a relationship between the severity of psoriasis and its effect on QoL domains (which include physical, social, and environmental domains), while there was no relation between the psychological domain and the severity of psoriasis. Concerning the relation between QoL before treatment, average QoL was observed in older patients, who had a shorter duration of the disease, but the differences are statistically insignificant. Moreover, the correlation between disease severity and QoL was non-significant. These results agree with previous studies, that documented poor correlations between disease severity and correlation between

disease severity and QoL[15]. Fortune and his colleagues[16], reported that higher stress levels patients had lower mental health (measured by the short form of 36 (SF-36)) and more disability (measured by the Psoriasis Disability Index (PDI)) than patients with less stress. However, the sensitivity of the Psoriasis Life Stress Inventory (PLSI) to make a change in HRQoL after treatment has not been investigated. The instrument had only a modest correlation with global patient self-ratings, but no correlation with the PASI[9]. In the present study, 80.6% of cases with psoriasis had a low quality of life score and 19.4% had an average quality of life score, with a statistically significant increase in patients with low scales in comparison to patients with average scales suggesting that psoriasis patients have decreased quality of life). After treatment, there was a moderate, inverse, statistically significant correlation bet-ween disease severity and QoL. These results agree with Lee and his colleagues[1] who documented that PASI response and Self-reported severity score (SRSS) improvement correlated with Skinedx-29 scores and dermatology-specific QoL. Skindex-29 scores correlated with SRSS improvement, with correlations ranging from –0.268 to –0.320 (p<0.01). It must be noted that they used different quest-ionnaires to evaluate QoL, but it yielded similar results for QoLI used in the present work. This led to a rise in alcohol consumption and other behavioral changes. Most of the patients (54%) in the 2001 NPF survey had depression, significant life disruptions, and social withdrawal because of psoriasis, Husted and his coworkers[4] revealed that the patient's own ratings of symptoms and severity were the best predictors of psoriasis-related QoL. When comparing the severity of the disease pre- and post-

PUVA therapy, there was a statistically significant decrease in PASI score accompanied by a statistically significant increase in QoLI score post-treatment in comparison to that pretreatment. The psychological impairment impact of psoriasis was reported by multiple authors. Minor emotional issues usually progress to more intense feelings of anxiety, anger, and/or depression leading to increased alcohol consumption and other behavioral changes. Furthermore, psoriasis patients usually have reduced self-esteem as 81% declared feelings of shame and embarrassment, whereas 75% of them had feelings of being physically unattractive and/or sexually undesirable. Patients are aware of the social events they attend and the clothes they wear[17]. Many patients reported negatively affected social contacts and intimate relationships, with significantly impaired sexual functioning[4]. These results are supported by Lee and his colleagues[1] who found in their study that improved psoriasis led to an improvement in the following; HRQoL, Beck depression inventory (BDI), Beck anxiety inventory (BAI), and PLSI. These findings denote that clinical improvement of psoriasis is associated with decreased depression, anxiety, and stress. In conclusion, this study revealed the beneficial effects of PUVA therapy on psoriasis patients' QoLI. Therefore, physicians planning manag-ement for psoriasis patients should take into consideration the severity of skin lesions, as well as the social aspects and psychological of the disease. Possible targets for management include depress-sion, anxiety, stress, and enhancement of patients' awareness of controlling the disease and its consequences.

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