Associations between Skin Diseases and Quality of Life: A Comparison of Psoriasis, Vitiligo, and Alopecia Areata

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Abstract- The goal of this study was to compare depression and quality of life in three auto immune diseases: psoriasis, vitiligo, and alopecia areata. From January 2009 until January 2010, 300 patients (100 with alopecia areata, 100 with psoriasis and 100 with vitiligo) who were randomly selected (by simple random selection) from outpatient clinic of Razi Hospital (Center of Skin Diseases of Tehran University of Medical Sciences) were asked to answer to Beck Depression Inventory (BDI), SF-36 and Dermatology Life Quality Index (DLQI) questionnaires. DLQI scores were significantly higher in psoriasis cases than others (12.8 ± 6.1, P<0.0001) and SF-36 score were significantly lower (59.8 ± 19.5, P=0.007), both indicating poor quality of life. Significant correlation was found between DLQI and BDI in all disease groups (r=0.44, P<0.001). BDI scores were the highest in psoriasis group but this difference was not significant (P=0.2). Based on these results, dermatologists should consider psychological aspects of autoimmune skin diseases.

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Introduction

Vitiligo is a chronic depigmented skin disease which affects 0.5-2% of the general population of all races (1). The disease causes visible patches on the skin which may in turn lead to low self-esteem. It is reported that 30% of vitiligo patients suffer from psychological problems as a consequence of the disease (2). Problems in sexual function, experience of stigmatization, distress, anxiety, embarrassment and difficulties in finding jobs may result in depression and quality of life impairments (3).

Psoriasis is a chronic, hyperproliferative disease of the skin with typical symptom that includes thickened, red and crusty plaques affecting; it affects approximately 2% of general population (4). Patients with extensive affected skin may suffer from social withdrawal, impaired personal relationships and embarrassment (5).

In a previous study, 50% of Polish psoriasis patients believed that the disease affected physical, social, psychological and emotional aspects of their lives (6). Depression was reported in 32% of psoriasis patients in the study of Schmitt and Ford (7), who also reported significant association between depression and quality of life impairment in these cases.

Alopecia areata (AA) is a skin disease with characteristic symptoms that include sudden hair loss in restricted areas or on the whole body; it has a prevalence of 0.2 % in the general population (8). Colon *et al.* reported depression in 31% of cases with AA (9). However, Güleç *et al.* found no differences in mood disorders and quality of life between patients with AA and healthy controls (10).

In this study, we compare quality of life and depression in psoriasis, vitiligo and AA patients.

Materials and Methods

From January 2009 until January 2010, 300 patients (100 with AA, 100 with psoriasis, and 100 with vitiligo) who were randomly selected (by simple random selection, using computer generated randomization) from an outpatient clinic of Razi Hospital (Center of Skin Diseases of Tehran University of Medical Sciences) were asked to answer questions concerning quality of life using valid and reliable instruments such

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as Beck Depression Inventory (BDI), SF-36 and Dermatology Life Quality Index (DLQI) questionnaires.

The DLQI, which was introduced by Finlay and Khan (11), is a self-explanatory survey that can be simply answered by patients in one or two minutes. It consists of ten questions in which scores vary from 0-30. High scores indicate further impairments in quality of life. The Persian version was used for measuring the associations of the above mentioned diseases on quality of life (12).

The SF-36 questionnaire consists of 36 questions in eight distinct quality of life areas, and is an instrument to measure quality of life in normal population as well as in individuals with various disease impairments. All questions are scored on a scale of 0 to 100, with 100 representing the highest level of functioning possible. Aggregate scores are compiled as a percentage of the total points possible. Higher scores indicate less impairment in quality of life.

A valid and reliable Persian version of this questionnaire was applied in our survey (13).

The Beck Depression Inventory (BDI) which was also answered by individuals in this study consists of 21 questions. Subjects are supposed to answer with regard to their feelings in the last week. Each answer score ranges from 0-3 to determine how depressed a person is. Individuals with scores between 0 and 9 are considered not depressed, scores between 10 and 18 are indicative of mild to moderate depression, scores between 19 and 29 indicate individuals with moderate to severe depression, and scores between 30 and 63 are considered to severely depressed cases (14). Before enrolment to the study, all cases asked to give informed consent.

SPSS version 13.0 was used for data analysis. ANOVA and Pearson correlation tests were used. Multivariable linear regression analyses with DLQI and SF-36 scores as dependent variable and BDI, age, sex, duration of disease and marital status as independent variables conducted to assess their relevance for quality of life.

Results

Three hundred patients (one hundred from each group) participated in this cross-sectional study. The demographic characteristics of the three groups of patients are reported in Table 1. Mean age of patients were significantly different across patients groups (P=0.05) and mean duration of diseases was also significantly different between three groups (P<0.001).

Table 2 reports mean BDI, DLQI, and SF-36 scores for each of the three groups of patients. Psoriasis cases had higher mean DLQI scores than alopecia or vitiligo cases (P<0.0001) and lower SF-36 scores than AA or vitiligo cases (P=0.007). BDI score was higher among psoriasis cases although the difference was not statistically different

Table 1. Demographic characteristics of the patients.

Disease type	Age * (mean ± SD)	Duration of the disease** (mean ± SD)	Sex (F/M) %	Marital status (single/ married, divorced) %	Occupation (employed, unemployed, student) %
Psoriasis	36.2 ± 13.5	9.5 ± 9.6 years	(40,60)	(27,73)	(49,39,12)
Alopecia areata	23.02 ± 33.4	1.06 ± 2.6 years	(31/69)	(45,53,2)	(62,20,18)
Vitiligo	28.9 ± 11.5	5.5 ± 5.7years	(50,50)	(51,49,0)	(40,38,22)

* P=0.05 ** P <0.001)

Table 2. Scores of questionnaires in different types of the disease.

Questionnaire	Psoriasis	AA	Vitiligo	*P*-value
BDI	17.1 ± 12.3	14.4 ± 9.7	15.9 ± 11.8	0.2
DLQI	12.8 ± 6.1	6.4 ± 5.5	8.4 ± 6.9	<0.0001
SF-36	59.8 ± 19.5	68.01 ± 15.1	63.8 ± 19.4	0.007

DLQI: Dermatology Life Quality Index BDI: Beck Depression Inventory AA: Alopecia areata

Table 3. Scores of DLQI in female and male cases.

	Psoriasis	AA	Vitiligo	*P*-value
Female	13.6 ± 6.2	6.2 ± 4.3	9.8 ± 7.3	<0.001
Male	12.3 ± 6.03	6.4 ± 6	7 ± 6.2	<0.001

AA: Alopecia areata

Table 4. Linear regression model for variables predicting SF-36.

	Psoriasis			AA			Vitiligo		
	B	**SE**	***P*-value**	**B**	**SE**	***P*-value**	**B**	**SE**	***P*-value**
BDI score	-1.08	0.12	<0.001	-0.9	0.1	<0.001	-1.1	0.1	<0.001
Sex	0.94	3.1	0.7	-4.5	2.8	0.1	2.2	2.9	0.4
Age	-0.16	0.14	0.2	0.03	0.1	0.8	0.03	0.1	0.8
Duration of disease	0.02	0.01	0.1	0.01	0.04	0.7	-0.3	0.2	0.1
Marital status	-0.9	4.2	0.8	-0.5	2.9	0.8	-6.7	3.8	0.08

SE: standard error BDI: Beck Depression Inventory AA: Alopecia areata

Table 5. Linear regression model for variables predicting DLQI (Dermatology Life Quality Index).

	Psoriasis			Alopecia areata			Vitiligo		
	B	**SE**	***P*-value**	**B**	**SE**	***P*-value**	**B**	**SE**	***P*-value**
BDI score	0.18	0.04	<0.001	0.2	0.05	<0.001	0.3	0.04	<0.001
Sex	-0.93	1.2	0.4	1.3	1.1	0.2	-1.9	1	0.07
Age	0.005	0.05	0.92	0.005	0.07	0.94	-0.1	0.06	0.8
Duration of disease	-0.003	0.005	0.5	-0.008	0.01	0.65	0.4	0.09	<0.001
Marital status	-0.58	1.6	0.7	-1.1	1.1	0.3	1.5	1.4	0.2

SE: Standard error BDI: Beck Depression Inventory AA: Alopecia areata

There was significant correlation was found between DLQI and BDI in all groups: vitiligo (r=0.5, $P<0.001$), psoriasis (r=0.3, $P=0.001$), AA (r=0.34, $P<0.001$). Positive correlation in whole participants was detected, too (r=0.44, $P<0.001$).

Table 3 reports DLQI scores by sex. For both sex groups, psoriasis cases had higher disease related quality of life impairment ($P<0.001$) than did alopecia or vitiligo patients.

Only for vitiligo patients did mean scores of male and female patients significantly differ ($P=0.04$). Linear regression model for variables predicting quality of life showed that depression was the most predictor factor of quality of life impairment (Tables 4 and 5).

Discussion

To the best of our knowledge this is the first study which has evaluated and compared quality of life and depression in patients with vitiligo, psoriasis or AA simultaneously. We found patients with psoriasis had more impaired disease related quality of life than vitiligo and AA patients.

The mean DLQI score observed in this study in patients with psoriasis was 12.8 and was higher than the previous mean DLQI for psoriasis patients in other studies [6.25, 8.9, 6.25, 7.02] (15,11,16,17) suggesting that our patients suffered from the disease more than those in the other clinical settings. In a previous study performed by Ongenae *et al.* 119 patients with vitiligo were compared with 162 psoriasis patients (15). They found a mean DLQI score of 4.95 for vitiligo that was lower than the score obtained for psoriasis (6.25). In their study, women in vitiligo group had significantly higher score of DLQI than men (6.45 vs. 3.13) while sex was not associated with DLQI in psoriasis cases (15). Our results confirmed their findings in that in the current women with vitiligo had significantly higher mean DLQI scores. However, Kent and Al'Abadie and Parsad *et al.* found no significant differences between the two genders in vitiligo cases (18,19). Psoriasis causes more disabilities than many other chronic medical diseases. It affects the skin, scalp, nails, and joints. Itching, irritation, burning and stinging, sensitivity, and pain are common physical symptoms of psoriasis (20). Psoriatic arthritis is present in 25-34% of psoriasis cases and limits physical functioning (21). Patients with psoriasis are thus like to suffer more than those with other skin diseases. Our results show that psoriasis was associated with lower quality of life in patients than were AA and vitiligo. The BDI scores in this study indicate that although patients in all three disease groups were not severely depressed, BDI scores did manifest mild to moderate depression in all three group patients.

Fortune et al reported that 68% of psoriasis patients believed that the disease had negative consequences on their lives and 53.4% stated that their perception of themselves changed because of the disease (22).

We found depression as the predicting factor of general quality of life and disease related quality of life in all three disease type. This finding is incompatible with Lee *et al*. findings who found depression as predicting factor of quality of life evaluated with Sindex-29 questionnaire (23). But despite their findings, our results did not show predicting roles of age and disease duration on quality of life. Chronic pattern of the disease, incomplete copying behavior and treatment dissatisfaction considered as leading factors of depression in psoriasis cases (7).

The survey in our study was cross-sectional rendering it difficult to causally attribute the quality of life differences across groups to the skin disease itself, rather than to factors associated with it. Co-morbidities, or socio-demographic factors, associated with these skin diseases may also influence quality of life of the affected patients. The patients in the study do however constitute a representative sample of the outpatient clinic of Razi Hospital (Center of Skin Diseases of Tehran University of Medical Sciences). The scores and differences are thus also representative of this population and should alert dermatologists to the quality of life issues that accompany these skin diseases. In conclusion, dermatologists should consider psychological aspects of skin diseases especially in psoriasis cases to achieve an effective treatment.

Further studies could compare the results in the clinic of this study to patients with skin disease in other settings. Further research could also consider appropriate interventions targeted towards improving quality of life outcomes for patients with skin disease. Finally, future research could seek to isolate the role of social, ethnic, and psychological issues in quality of life assessment.

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