

The Relationship Between The Clinical Features of Venous Ulcers and Dermatologic Quality of Life, Depression and Anxiety

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Abstract

Background: Many studies have shown negative effects of venous ulcers on quality of life. Our aim was to evaluate the impact of ulcer duration, size and number on dermatology life quality, depression and anxiety.

Material and Methods: This was a cross-sectional study conducted with 25 (41.7%) female and 35 (58.3%) male patients with venous ulcers who admitted to the Wound Council of our hospital. Socio-demographic and Clinical Data Form including information such as age, gender ulcer size, duration, number, symptoms, concomitant systemic disease, Dermatology Life Quality Index (DLQI) and the Hospital Anxiety and Depression Scale (HADS) were filled out by all voluntary patients.

Results: DLQI, anxiety and depression scores of the patients with symptoms were significantly higher than those of the patients without symptoms ($P < 0.05$). There was a significantly positive correlation between ulcer size and DLQI ($r = 0.378 / p = 0.003$), anxiety ($r = 0.325 / p = 0.011$) and depression scores ($r = 0.389 / p = 0.002$). DLQI scores in patients with multiple ulcers were significantly higher than that of patients with a single ulcer ($P < 0.05$). When the effect of DLQI was controlled, there was not any correlation between ulcer size and ulcer duration with anxiety or depression ($p > 0.05$). When the effect of DLQI was not controlled, the correlation analysis showed a positive correlation between these two ulcer parameters and anxiety or depression ($p < 0.05$).

Conclusion: We concluded that patients with venous ulcers are at the risk of anxiety and depression because of the impairment in quality of life.

Introduction

Venous ulcers are frequently recurrent ulcers which are caused by venous hypertension and venous insufficiency in lower extremities. They represent more than %80 of chronic leg ulcers and healing lasts long because of chronic course [1]. Even though clinical management of the wounds and advancement in wound care increase the healing rates [2], it should be remembered that 20% of chronic

leg ulcers never heal [3] and approximately %34 of them relapse [4].

Quality of life of patients with venous ulcer is affected negatively because of the impairment of the daily routine by the frequency of changing the dressings, discomfort and disability caused by the compression bandage, fatigue caused by sleep deprivation, pain, smell, stigmatization and social isolation [5]. Slow and long lasting nature of the recovery is known

Table 1. Clinical Characteristics of the Study Group

	Mean±s.d./n - %	
Ulcer duration (month)	10,45 ±	14,59
Ulcer size (cm)	6,59 ±	3,47
Multiple ulcer (≥2)	21	35,0 %
Presence of symptoms	45	75,0 %
Presence of comorbidities	45	75,0 %

Table 3. The Difference Between Male and Female Patients in Terms of DLQI, Anxiety and Depression Scores (by using Independent Samples t Test)

	Female	Male	
	Median±s.d.	Median±s.d.	p
DLQI Score	16,76±6,58	16,4±7,06	0,842
Anxiety Score	12,44±5,69	8,4±4,97	0,005
Depression Score	12,32±6,22	10,43±5,64	0,225

to be the most important cause of complaints [6, 7]. In addition, there are many psychosocial problems seen in venous ulcer patients like psychological inconvenience caused by the stress of chronic disease, being ashamed, avoidance, being restricted in social and physical activities. Also, studies have shown that depression rates in these patients are higher than normal population [8].

Almost all of the studies aiming to observe the effects of chronic venous ulcers on quality of life and psychosocial well-being target to measure health related quality of life. In addition to these negative effects of venous ulcers on general health, they also appear as a cosmetic problem causing visual changes on the skin. Basically, all the pathology in venous system reflects to the skin, hence it may be considered that dermatology life quality may also be affected.

This study was designed to test two hypothesis: (i) Venous ulcer is likely to affect quality of life negatively. We aim to clarify the relationship between the deterioration in quality of

Table 2. The Difference Between Patients with/without Symptoms In Terms of DLQI, Anxiety and Depression Scores (by using Independent Samples t Test)

	Symptom (-)	Symptom (+)	
	Mean±s.d.	Mean±s.d.	p
DLQI Score	10,10±3,65	19,95±5,28	0,000
Anxiety Score	6,48±4,53	12,03±5,19	0,000
Depression Score	7,1±3,86	13,44±5,66	0,000

Table 4. The Correlation Between Age and Ulcer Size or Duration with DLQI, Depression and Anxiety Scores (by using Pearson Correlation Analysis)

	DLQI	Age	Ulcer Size (cm)	Ulcer Duration
DLQI Score	r -	-0,174	0,378	0,402
	p -	0,184	0,003	0,001
Anxiety Score	r 0,484	0,091	0,325	0,18
	p 0	0,491	0,011	0,168
Depression Score	r 0,474	-0,111	0,389	0,136
	p 0	0,397	0,002	0,302

r: the value gives the strength of the relationship

life and the clinical parameters of venous ulcers. (ii) if the quality of life impairs, it may be associated with depression or anxiety.

Material and Methods

Following the local ethics committee approval was obtained, voluntary patients, over the age of 18 with venous insufficiency confirmed by the clinical and radiological examinations, who admitted to the Wound Council of our hospital between October 2012 and April 2013, were included in the study.

Wound Council of our hospital consists of the following members: a dermatologist, a vascular surgeon, a plastic surgeon, an orthopaedist, an endocrinologist and an infectious diseases specialist, who come together every two weeks. Therefore, all patients with leg ulcers are evaluated by these members in every aspect. This council is the first place where the patients are thoroughly examined and diagnosed. Afterwards, the treatment options

Table 5. The Correlation Between Ulcer Size and Duration with Depression or Anxiety Scores (by using Partial Correlation Correlation Analysis)

		Ulcer Size (cm)	Ulcer Duration	Depression Score
Anxiety Score	r	0,175	-0,018	0,648
	p	0,184	0,895	0,000
Depression Score	r	0,257	-0,068	-
	p	0,049	0,61	-

r: the value gives the strength of the relationship

are determined according to the co-decision of the members.

A diagnosis of venous reflux or obstruction was established by vascular surgeons using objective tests beyond the routine clinical examination of the extremity. Venous duplex scan and Ankle-brachial pressure index (ABPI) for the arterial evaluation were the initial diagnostic workup for patients with leg ulcers, especially to ensure that compression therapy can safely be employed. Even in some cases, MR-angiographic imaging were performed.

All ABPI measurements in this study were made in routine clinical practice in the vascular laboratory at the Department of Vascular surgery and the patients with ABPI lower than 0,9 was accepted as peripheral arterial disease. Also, we accepted ≥ 2 ulcers as multiple ulcers.

Patients who had leg ulcers without the etiology of venous insufficiency such as infectious, traumatic, diabetic or arterial, also patients who were under psychiatric treatment, and who did not want to fill out surveys were excluded from the study. After obtaining informed consents by all subjects and explaining the aim of the study to them Socio-demographic and clinical data form including patients' information and the clinical features such as age, gender, ulcer duration, size, number, and the presence of symptoms, presence of concomitant systemic disease were filled up by all patients.

We determined clinical variables like ulcer size, duration and number according to Wilson and Cleary model and divided ulcers into

Table 6. The Difference Between Patients with/without Any Comorbidities in Terms of DLQI, Anxiety and Depression Scores (by using Independent Samples t Test)

	Comorbidities (-)	Comorbidities (+)	p
	Mean \pm s.d.	Mean \pm s.d.	
DLQI Score	15,27 \pm 7,11	16,98 \pm 6,74	0,404
Anxiety Score	8,47 \pm 6,28	10,62 \pm 5,33	0,2
Depression Score	10,8 \pm 6	11,36 \pm 5,94	0,756

2 groups as symptomatic and asymptomatic according to CEAP classification's symptom parameters [9]. The CEAP classification for chronic venous disorders was developed in 1994 by an international ad hoc committee of American Venous Forum and revised in 2004. It is a descriptive classification based on clinical class (C), etiological factors (E), anatomic localization (A) and pathophysiology (P). In this classification, presence or absence of symptoms is taken into consideration for clinical evaluation. According to this classification, a venous ulcer becomes symptomatic if there are some complaints such as ache, pain, tightness, skin irritation, heaviness, muscle cramps, and other complaints attributable to venous dysfunction [10].

Dermatologic quality of life was measured with DLQI (Dermatology Life Quality Index) which consists of ten questions with four possible answers including the sub-titles of symptoms and feelings, daily activities, leisure, school/work life, personal relationships and treatment. Each question can be scored between 0 and 3, and accordingly, the total score changes between 0 and 30. Higher scores indicate impaired quality of life [11]. Turkish validity and reliability of this survey was done by Öztürkcan et al. [12].

The Hospital Anxiety and Depression Scale (HADS) was used to assess the risk of anxiety and depression in patients with venous ulcer. This self-assessment scale was developed to detect states of depression, anxiety and emotional distress among patients who were being treated for a variety of clinical problems [13]. There are two subscales assessing anxiety and depression separately. The scale

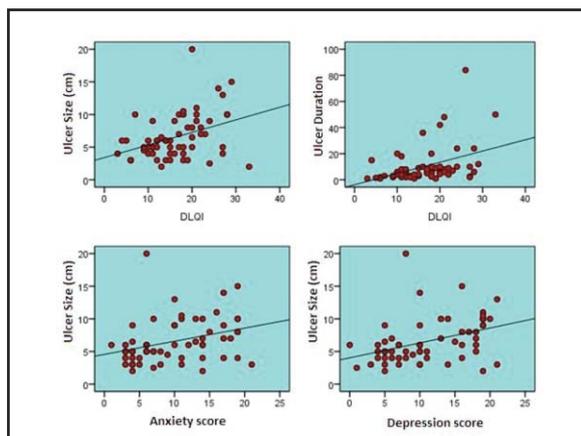


Figure 1. Correlation between clinical parameters with anxiety, depression scores and DLQI scores

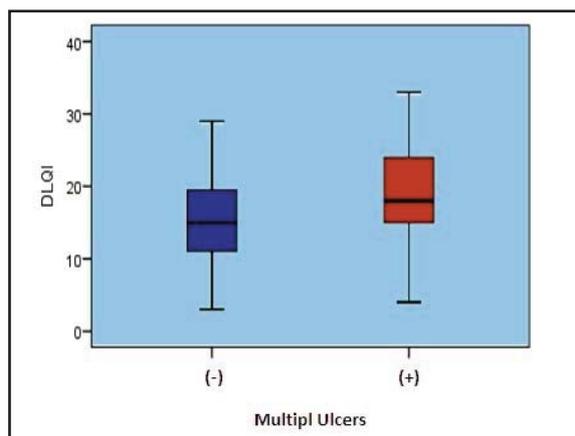


Figure 2. The difference between the groups with single and multiple ulcers and DLQI scores

consists of [14] questions; seven of them (odd numbers) assess anxiety and the other seven (even numbers) assess depression. This scale provides a Likert-type measurement. Turkish reliability and validity was tested by Aydemir et al. The cut-off scores of Turkish version are 10 for the anxiety subscale and 7 for the depression subscale. Accordingly, those who get over these scores are considered to be at risk of depression and anxiety [14]. In this study, the HADS was preferred because it has designed to detect the presence and severity of mild mental disorders, it can easily be applied and it has good psychometric properties.

In statistical analysis, mean, median, standard deviation, rate and frequency values were used. The distribution of variables was checked with Kolmogorov-Smirnov test. Independent-samples t test was used for quantitative analysis of the data. Correlation analysis was performed by Pearson correlation and partial correlation tests. SPSS 21.0 software was used for all analysis. Initially, a P value less than 0.05 was accepted as statistically significant.

Results

A total of 60 patients, 25 (41.7%) female and 35 (58.3) male, with venous ulcers, who were between the ages 22 and 75 (mean age 56.18 ± 11.9) were included in the study. All of the ulcers were all localized on the patients' one leg and twenty-one (35%) patients had multiple ulcers. The average diameter of the ulcers was 6.59 cm and the average duration was 10.45 months. Forty-five (75%) patients had a systemic disease in which

arthritis was the most common (18/45) (Table 1). The average DLQI, anxiety and depression scores were 16.55, 10.08 and 11.22 respectively. Forty-five patients (75%) had symptoms in which pain was the most detected one. DLQI, anxiety and depression scores in patients with symptoms were significantly higher than that of those without symptoms ($P < 0.05$) (Table 2).

There was not any significant difference between male and female patients according to DLQI or depression scores ($P > 0.05$). Anxiety scores were significant in female patients than that of male patients ($P = 0.05$) (Table 3).

The age of the patients were not correlated with DLQI, anxiety and depression scores ($p > 0.05$). There was a significantly positive correlation between the ulcer size and DLQI ($r = 0.378 / p = 0.003$), anxiety ($r = 0.325 / p = 0.011$) or depression scores ($r = 0.389 / p = 0.002$). While there was a significantly positive correlation between ulcer duration and DLQI scores ($r:0,402 / p=0,001$), this clinical parameter did not show any correlation with anxiety or depression scores ($p > 0.05$) (Table 4, Figure 1).

When the effect of DLQI was controlled, there was not any correlation between ulcer size and duration with anxiety or depression scores ($p > 0.05$). When the effect of DLQI was not controlled, the correlation analysis showed a positive correlation between these two ulcer parameters with anxiety and depression scores ($p < 0.05$). These findings demonstrated that the dermatologic quality of life can be corrupted by the deterioration of ulcer parameters. Thus, depression and anxiety occurred to be the end result of the impaired quality of life (Table 5).

Depression and anxiety scores did not show any significant difference between the groups with sin-

gle and multiple ulcers ($p > 0.05$). However, patients with multiple ulcers had significantly higher DLQI scores than that of patients with single ulcer ($P < 0.05$) (**Figure 2**).

Depression, anxiety and DLQI scores did not show any significant difference between the patients with and without systemic disease ($p > 0.05$) (**Table 6**).

Discussion

Venous ulcers mostly occur among older adults, but the beginning of the venous disease may be seen in patients at the age of twenties [15]. It was suggested that physical problems, daily handicaps and social problems all increase with age in the patients with venous ulcer [16]. Hopman et al. found that poorer health related quality of life (HRQL) was significantly associated with older ages [17]. However, Franks' study suggested that those younger than 65 years had poorer HRQL scores than those who were older and they thought that younger adults had higher expectations and they were more likely to be active due to work and family life which may exacerbate pain [18]. Nevertheless, the ages of the patients were not correlated with DLQI, anxiety and depression scores in our study. This means that age is not an affective parameter in daily activities and psychiatric symptoms.

In the literature, effect of gender on quality of life in patients with venous ulcers is controversial. Lindholm et al. have reported that men had significantly worse quality of life in the domains of pain and physical activity, while they had better quality of life than women in the domains of sleep, emotional reaction and social isolation [19]. In another study, it has been stated that women have a worse quality of life in the fields of physical and social activities [20]. But in our study, there was no significant difference between male and female patients in terms of DLQI and depression scores. However, similar to the study of Jones et al. [6], anxiety scores of women were higher than that of male patients in our study.

Considering the symptoms of venous ulcer, pain is the most commonly detected one [21]. and in a recently reported review, pain has been determined as the most common factor affecting the quality of life [1]. In the study of

Guarnera et al. a direct correlation has been reported between pain and quality of life [22]. Jones et al. have shown varying degrees of pain in 73% of patients with chronic venous ulcers and declared the association between pain and anxiety or depression [6]. In our study, most of the patients suffered from pain and the ulcer symptoms were found to be significantly related with anxiety and depression.

In the study of Shukla et al, poor quality of life scores which were correlated with increase in the diameter of the wound were obtained in 56% of patients with chronic wounds [23]. Guarnera et al. have showed worse quality of life scores in patients with venous ulcers with larger diameters and longer duration [22]. In our study, a significant positive correlation was found between DLQI scores and the duration and size of ulcers. These findings indicated that the dermatologic quality of life can be corrupted by the deterioration of clinical parameters. Furthermore, our study also presented the positive correlation between the ulcer size and anxiety or depression scores while no statistically significant correlation was found between the duration of ulcer and anxiety or depression. Souza et al. have reported that patients with venous ulcers may present with anxiety and depression independent of ulcer duration, which supports our finding [24]. Herein, it can be understood that the increase in ulcer size may have an adverse effect on patients' psychological state leading to feelings of disgust, self-loathing, low self-esteem and hopelessness.

Jones et al. conducted risk of depression and anxiety in 27% and 26% of patients with chronic venous ulcer, respectively [6]. In another study conducted by Souza et al., anxiety was identified in 30% of the patients and depression in 40% [24]. The results of this study revealed high levels of anxiety (51.6%) and depression (71.6%). Although a very little data exist to discuss this issue, it seems that three different countries present different figures and sociocultural factors may affect the results.

Anxiety and depression are the psychiatric conditions that directly affect patients' quality of life in terms of the difficulty in concentration, loss of motivation, sleep disturbance, fatigue and pessimistic mood [6]. Also, they

both worsen the quality of life of patients with venous leg ulcer by influencing the perception of pain, response to pain, treatment compliance and benefits from the treatment [25]. Patients refer their feelings to those words “bored, gloomy, non-energized, unable to sleep, do not want to do anything” that are included in the symptoms of depression [6]. Conversely, in our study, we analysed that depression and anxiety seemed to occur as the end result of the corrupted dermatologic quality of life in patients with venous ulcer.

A chronic venous ulcer and its clinical symptoms negatively affect patient’s quality of life and work productivity. In spite of all the evidence-based therapy methods, it should be emphasized that 20% of chronic leg ulcers do not heal [3]. Based on this point, we can estimate that multiple ulcers can bring a larger physical, psychological and social load and dermatologic quality of life is impaired excessively in patients with multiple ulcers. In this study, patients with multiple ulcers had significantly higher DLQI scores than that of patients with single ulcer. Even though, depression and anxiety scores did not show any significant difference between the groups with single and multiple ulcers. While this uncomfortable, long lasting and frustrating process can be challenging for the patient with multiple venous ulcers, coping and living with this chronic condition can become a habit for the sufferers.

Venous ulcer is a chronic disease which leads to physical, social, economic, and emotional consequences for sufferers. Its psychosocial effects are similar to systemic diseases such as diabetes and rheumatoid arthritis. In this study, no statistically significant difference was found between the patients with/without concomitant diseases in terms of DLQI, anxiety or depression. It suggested that patients with venous ulcers may present with anxiety and depression independent of concomitant systemic diseases.

Limitations: Our study group contained purely venous disease patients and surely the compression bandaging were suggested for them. But we applied questionnaires to the patients before the treatment modalities were set or the treatments were started. Although it would be better to evaluate these patients

after treatment, this issue was beyond our study aim.

To conclude, the most important result of the study is that the dermatology quality of life firstly impaired by the unfavorable clinical parameters (ulcer size, ulcer duration and number of ulcers) of the lesions, then depression or anxiety occurred by the deterioration in quality of life. This is the new knowledge that the study reveals.

When assessing the physical and mental condition of patients with venous ulcers as a whole, family members and health care professionals should pay attention to psychological status of the patients besides physical care.

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