

ORIGINAL PAPER

CHOSEN ASPECTS OF QUALITY OF LIFE IN PATIENTS WITH VENOUS LEG ULCERS

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Abstract

Aim: The aim of the paper was to describe chosen aspects of quality of life in patients with venous leg ulcers treated at home in the Turiec region, and to find differences in assessing quality of life in relation to degree of adherence to external compression therapy. **Design:** A quantitative cross-sectional study. **Methods:** There were 61 patients with venous leg ulcers at 68.59 ± 9.49 years of age, with an average length of wound treatment of 6.34 ± 5.51 years. The adapted self-assessment questionnaire, the *Freiburg Life Quality Assessment wound module* (FLQA-w), was used to gain empirical data. **Results:** The findings revealed that the worst score was achieved in the category of everyday life (3.61 ± 0.93). Statistically significant differences were found between the group of respondents who apply bandages on a daily basis and those who did not use them at all. Regular bandage application is closely connected with positive assessment of wound therapy ($p = 0.043$), psychosocial life ($p = 0.023$), verbalisation of well-being in various categories ($p = 0.001$), assessment of state of the wound ($p = 0.032$), assessment of health condition ($p = 0.019$), and overall quality of life ($p = 0.014$). Length of wound treatment is related to assessments of quality of life. **Conclusion:** Non-healing wounds, the associated therapy and financial means required to treat them, and the pain resulting from them, are connected with physical difficulty, experience of negative emotions, and, thus, the worsening of patients' quality of life. The results of the study could form the basis for further studies on similar issues.

Keywords: patients, venous leg ulcer, quality of life, non-healing wound, FLQA-w.

Introduction

Leg ulcers are most often defined as a chronic complaint accompanied by damage to the skin and the subcutaneous tissues of the lower extremities. They are caused by loss of inflammatory tissue, affected by necrosis (Beláček et al., 2009). It is a non-healing wound (ulceration) with a tendency to heal slowly due to dysfunction of the vascular system. Venous leg ulcers, caused by chronic venous insufficiency, represent the highest percentage of ulcerations in the lower extremities. The occurrence and development of the wound is considered the worst and most serious complication of chronic venous insufficiency (Navrátilová, 2004; Karen et al., 2007). Leg ulcers are a chronic disease with frequent recurrence, involving protracted healing and long-term treatment (Haklová, 2010). The chronic nature of the disease results from multiple factors: local and general, and, in particular, physical and psychosocial. Women are three times

more likely to suffer from the disease than men (Vondráčková, 2014).

Making a diagnosis of venous leg ulcers directly implies the use of compression therapy, which is regarded as an effective method of venous ulceration treatment. Compression therapy involves the use of bandages and compression stockings. Various types of bandage may be used for bandaging, such as short extensible elastic bandages and non-elastic bandages (zinc oxide paste bandages). It is recommended that they be used until the ulcer healing process is completed. It is necessary to continue with compression using compression stockings even after the ulcer has healed (Peňázová, 2007; Kopal, 2009). With regard to bandaging, the adherence (compliance) of patients is important, i.e., their willingness to co-operate with, and keep to the therapeutic regimen. Patients often consider bandages uncomfortable and unpleasant to wear with the result that, although aware of associated risks, such as the prolongation of treatment, and the slowing of the wound-healing process, patients tend to remove their bandages (Herber, Schnepf, Rieger, 2007).

Non-healing wounds, including leg ulcers, have a negative impact on patients' quality of life (Payne et

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al., 2005; Green, Jester, 2009; Slonková, Vašků, 2014). Several factors related to occurrence of leg ulcers and their treatment have an impact on worsening quality of life. They include the number of wounds, the particular type and their size, the current condition of the wounds (smell, intensity of discharge of exudate, infection); pain; sleeping difficulties; decreased mobility; social isolation, dysfunctional social relationships in family; limited ability, or even inability to work and enjoy leisure activities; changes in (lowered) self-esteem; depression; experience of fear and anxiety; and dependence on the help of others. The age of patients suffering from leg ulcers is also one of the most significant factors affecting their quality of life. Elderly patients with ulcerations have lower quality of life than those who are younger (Slonková, Vašků, 2014). Other factors influencing quality of life of patients are gender, poly-morbidity, family situation, values, economic circumstances, education, religion, and opportunities to achieve social fulfilment (Slováček et al., 2004).

In recent years, the issue of assessment of quality of life in patients with chronic disease has been taken into consideration increasingly often, including its assessment in patients with non-healing wounds. The evidence can be found in studies on quality of life in patients with leg ulcers; for example, Jørgensen, Friis and Gottrup (2006), Green, Jester (2009), Renner et al. (2009), Williams (2010), Maddox (2012), Faria et al. (2014), Chamanga (2014), Slonková and Vašků (2014). Patients with non-healing wounds understand the term quality of life from the perspective of their ability to function in daily life, and their ability to take advantage of the options available to them. They assess their quality of life in the terms of, for example, how much their current health condition and disease influence their lifestyle, functioning, and social relationships. In patients with non-healing wounds, including leg ulcers, quality of life is assessed according to current symptomatology of the disease, e.g., pain, itching, dry skin, emotional factors - such as mood swings, level of self-esteem, and feelings of shame or fear, the assessment of their daily routines, hobbies, social roles, work, and treatment (wound dressing, and treatment in general) (Gurková, 2011). When assessing quality of life in patients with non-healing wounds, it is recommended that both the effectiveness of the local wound care applied, and the treatment as a whole be considered (Nelson, 2002; Slováček et al., 2004; Augustin et al., 2012).

Aim

The goal of the study was to describe chosen aspects of quality of life in patients diagnosed with venous leg ulcers treated at home in the Turiec region, and to find differences in assessment of quality of life in relation to level of adherence to external compression therapy.

Methods

Design

A quantitative cross-sectional study was used.

Sample

61 patients diagnosed with venous leg ulcers were selected according to particular pre-defined criteria: non-healing wounds – venous leg ulcers in their history diagnosed more than one year previously, willingness to participate in the study (to complete the questionnaire), and wound care involving bandage application. The exclusion criteria were as follows: depression (untreated, or treated for less than three months), cognitive disorders (evaluation was made after checking patients' medical records and interviews with a physician), and unwillingness to participate in the survey.

The sample consisted of 35 women and 26 men. The average age was 68.59 ± 9.49 years of age (from 49 to 90). The average length of wound treatment was 6.34 ± 5.51 years (from 1 to 24 years). In terms of level of education attained, the highest proportion of participants (32), were high school graduates, 19 participants had completed primary education, and 10 participants were university graduates. With reference to associated disorders, patients had mostly been treated for hypertension, diabetes mellitus, and erysipelas.

Data collection

An adapted version of the questionnaire known as the *Freiburg Life Quality Assessment wound module* (FLQA-w) was used to collect empirical data. It is a self-evaluation measurement tool for the assessment of quality of life in patients with non-healing wounds (Augustin et al., 1997). In our research, Cronbach's alpha for the measurement tool was 0.914, which ranged from 0.722–0.850 for particular subscales. The subscale of everyday life had the lowest Cronbach's alpha, while the subscale of satisfaction had the highest. Permission to use the adapted version of the questionnaire in Slovakia was granted by the original authors. The questionnaire consists of 27 items divided into nine subscales (physical ailments, everyday life, social life, psychological well-being, therapy, satisfaction,

assessment of overall health state, assessment of state of wound, and assessment of quality of life). Demographic items and items relating to care and treatment were added. In each item, the respondents chose the option most appropriate to themselves. For 23 items we used a scale of five options as follows: 1 – never / not at all; 2 – rarely / somewhat; 3 – sometimes / moderately; 4 – frequently / quite; 5 – always / very. For the scale assessing the length of time of wound care and time spent changing wound dressings, the respondents used a scale with five options as follows: 1 – no time; 2 – less than 10 minutes; 3 – from 10 to 30 minutes; 4 – from 30 to 60 minutes; 5 – more than 60 minutes. The final three items deal with assessment of general state of health, state of wounds, and quality of life. In these items, a scale of 10 options was used: 0 – very poor, 10 – very good. The questionnaire took approximately 15 to 20 minutes to complete. Data collection was performed during routine examinations at two specialized outpatients' clinics at the University hospital, Martin.

Data analysis

The statistical software SPSS 16 was used for data analysis. Methods of descriptive statistics: arithmetic mean (M) and standard deviation (SD) were applied. To detect mutual correlations, Spearman's correlation coefficient (rs) interpreted according to Cohen (Rimarčík, 2007) was applied: correlation under 0.1: insignificant correlation; 0.1–0.29: weak correlation; 0.3–0.49: medium correlation; 0.5–0.69: strong correlation; 0.7–0.89: very strong correlation; 0.9 and above: almost perfect correlation. The Mann-Whitney U test was used to compare differences between groups.

Results

According to the results of our study, 52 respondents need help with wound care at home, and in 26 cases this is provided by nurses from a domestic care agency. Only four patients in our sample neglect daily wound care. For 22 respondents, wound dressing takes: 10 to 30 minutes, for 12 respondents: 30–60 minutes, and for 10 patients: more than 60 minutes.

The results are presented generally and also specifically for each of three groups depending on regularity of bandage application: 0 – no bandage application; 1 – rare bandage application; 2 – regular bandage application. Table 1 below shows subjective assessment of quality of life in patients diagnosed with venous leg ulcers. It can be seen from the results that the worst score was for the subscale of everyday

life (3.61 ± 0.93), in particular for the item “the wound is a financial burden” (4.15 ± 1.06). Conversely, the group of items related to psychological well-being achieved the best score (2.76 ± 1.08), in particular for the item “helplessness” (2.34 ± 1.29).

One part of the questionnaire consists of items to assess general state of health, state of wounds, and quality of life. The lowest score was achieved in assessment of overall health condition, whereas the highest positive assessment in all three categories was reported in respondents who applied their bandages regularly (Table 2).

Table 3 presents the levels of statistical differences between the groups of respondents in the subscales depending on regularity of bandage application. Statistically significant differences were confirmed in assessment of quality of life in the subscales of the questionnaire (psychological well-being, therapy, satisfaction, assessment of general state of health, assessment of the state of wounds, assessment of quality of life) between the group of respondents who apply bandages regularly and those who do not apply them at all, even though it is part of venous leg ulcer therapy prescribed by doctors.

Table 4 presents the Spearman's correlation coefficients between average score of particular subscales of the questionnaire, age of the respondents and the length of treatment of their wounds. Low statistically significant negative correlations occurred between the length of treatment of wounds and assessment of general state of health ($rs = -0.278$) and assessment of the state of wounds ($rs = -0.293$), meaning that the longer the treatment of wounds takes, the worse the subjective assessment of health condition, and assessment of the state of wounds will be. In addition, there was a statistically significant mild negative correlation ($rs = -0.333$) between the length of treatment of the wound and assessment of quality of life, which might indicate that prolonged treatment is related to negative assessment of quality of life in general. In addition, a statistically significant mild or even strong negative correlation (rs from -0.314 to -0.681) occurred between subjective assessment of general state of health, the state of wounds, and particular subscales of the questionnaire. A very strong positive correlation between patient assessment of quality of life and of health condition was revealed ($rs = 0.719$), and also with state of wounds ($rs = 0.718$). Generally, the higher the patient assessment of quality of life, the better the assessment of health and state of wound.

Table 1 Assessment of quality of life by patients with venous leg ulcer using the *Freiburg Life Quality Assessment wound module (FLQA-w)*

Subscale / items	Total M ± SD	0 M ± SD	1 M ± SD	2 M ± SD
Physical ailments	3.31 ± 0.85	3.47 ± 1.02	3.39 ± 0.84	3.15 ± 0.75
Pain from wound	3.89 ± 0.95	3.93 ± 1.27	4.10 ± 0.89	3.69 ± 0.79
Sleeping problems	3.51 ± 1.20	4.14 ± 0.66	3.48 ± 1.25	3.19 ± 1.30
Itching from the wound	2.43 ± 1.09	2.43 ± 1.59	2.48 ± 1.68	2.38 ± 1.02
Discharge from the wound	3.49 ± 1.34	3.57 ± 1.56	3.48 ± 1.29	3.46 ± 1.30
Odour from the wound	3.21 ± 1.38	3.29 ± 1.64	3.43 ± 1.63	3.00 ± 1.27
Everyday life	3.61 ± 0.93	4.01 ± 0.76	3.40 ± 0.94	3.57 ± 0.96
Inability to sufficiently perform tasks at work/in the household	3.15 ± 1.39	3.36 ± 1.65	2.95 ± 1.36	3.19 ± 1.30
Difficulties with physical exertion	3.43 ± 1.42	4.21 ± 1.05	3.14 ± 1.53	3.23 ± 1.39
Restriction of leisure activities	3.75 ± 1.34	4.21 ± 0.98	3.67 ± 1.43	3.58 ± 1.42
Stair climbing is difficult	3.59 ± 1.49	3.93 ± 1.64	3.38 ± 1.43	3.58 ± 1.47
The wound is a financial burden	4.15 ± 1.06	4.36 ± 1.08	3.86 ± 1.32	4.27 ± 0.78
Social life	3.17 ± 1.27	3.57 ± 1.42	3.05 ± 1.27	3.06 ± 1.97
Limited activities with others	3.13 ± 1.48	3.57 ± 1.34	2.95 ± 1.50	3.04 ± 1.54
Dependence on the help of others	3.66 ± 1.50	4.00 ± 1.66	3.43 ± 1.54	3.65 ± 1.41
Withdrawing from others	2.74 ± 1.58	3.14 ± 1.70	2.76 ± 1.64	2.50 ± 1.48
Psychological well-being	2.76 ± 1.08	3.46 ± 1.09	2.59 ± 0.83	2.56 ± 1.12
Feelings of anger and rage	2.67 ± 1.29	3.36 ± 1.08	2.76 ± 1.80	2.23 ± 1.14
Dejection	2.34 ± 1.29	3.07 ± 1.44	2.05 ± 1.07	2.19 ± 1.27
Exhaustion or tiredness	3.49 ± 1.29	4.14 ± 1.10	3.14 ± 1.24	3.42 ± 1.33
Helplessness	2.54 ± 1.42	3.29 ± 1.54	2.24 ± 1.26	2.38 ± 1.39
Therapy	3.45 ± 1.13	3.89 ± 1.11	3.37 ± 1.70	3.28 ± 1.09
Treatment is a strain	3.44 ± 1.39	4.00 ± 1.78	3.19 ± 1.54	3.35 ± 1.36
Treatment is time consuming	3.44 ± 1.40	3.93 ± 1.33	3.43 ± 1.54	3.19 ± 1.30
Dependence on assistance from others	3.74 ± 1.53	4.43 ± 1.28	3.67 ± 1.94	3.42 ± 1.60
Time needed for daily assistance	3.18 ± 1.15	3.21 ± 1.31	3.19 ± 1.21	3.15 ± 1.05
Satisfaction	3.32 ± 1.09	4.10 ± 0.97	3.35 ± 1.23	2.87 ± 0.91
Satisfaction with health	3.57 ± 1.13	4.21 ± 0.70	3.62 ± 1.20	3.19 ± 1.13
Satisfaction with treatment	3.02 ± 1.34	3.93 ± 1.14	3.10 ± 1.41	2.46 ± 1.10
Satisfaction with state of wound	3.36 ± 1.27	4.14 ± 1.23	3.33 ± 1.24	2.96 ± 1.15

0 – no bandage application; 1 – rare bandage application; 2 – regular bandage application; scale: 1 – never/not at all, 5 – always/very; note: the higher the average score, the worse the assessment by patients

Table 2 The average values assessing general state of health, state of wounds, and quality of life

Items	Total M ± SD	0 M ± SD	1 M ± SD	2 M ± SD
Assessment of general state of health	4.34 ± 2.52	2.86 ± 2.74	4.48 ± 2.62	5.04 ± 2.03
Assessment of the state of wounds	5.03 ± 2.87	3.64 ± 3.69	4.95 ± 2.94	5.85 ± 1.99
Assessment of quality of life	4.74 ± 2.50	3.47 ± 1.01	4.76 ± 2.51	5.50 ± 2.18

0 – no bandage application; 1 – rare bandage application; 2 – regular bandage application; scale: 0 – very poor, 10 – very good; note: the higher the average score, the better the assessment by patients

Table 3 The difference between the groups of respondents in the subscales of the questionnaire depending on regularity of bandage application

Groups	0/1 14/21	1/2 21/26	0/2 14/26
	p	p	p
Physical ailments	0.543	0.246	0.185
Everyday life	0.054	0.562	0.172
Social life	0.256	0.949	0.162
Psychological well-being	0.011	0.780	0.023
Therapy	0.145	0.914	0.043
Satisfaction	0.059	0.136	0.001
Assessment of general state of health	0.137	0.896	0.019
Assessment of the state of wounds	0.236	0.348	0.032
Assessment of quality of life	0.078	0.306	0.014

the value of statistical significance ($p < 0.05$); 0 – no bandage application; 1 – rare bandage application; 2 – regular bandage application

Table 4 The Spearman's correlation coefficients between the subscales of the questionnaire and age of the respondents and the length of wound treatment

	Age	Length of wound treatment	Assessment of state of health in general	Assessment of the state of wound	Assessment of quality of life
Age	1	0.186	-0.511**	-0.359**	-0.292*
Length of wound treatment	0.186	1	-0.278*	-0.293*	-0.333**
Physical ailments	0.179	0.260*	-0.404**	-0.506**	-0.480**
Everyday life	0.447**	0.172	-0.558**	-0.314*	-0.430**
Social life	0.453**	0.233	-0.614**	-0.409**	-0.609**
Psychological well-being	0.331**	0.105	-0.621**	-0.466**	-0.429**
Therapy	0.493**	0.323*	-0.686**	-0.547**	-0.537**
Satisfaction	0.238	0.449**	-0.628**	-0.681**	-0.706**
Assessment of general state of health	-0.511**	-0.278*	1	0.695**	0.719**
Assessment of the state of wounds	-0.359**	-0.293*	0.695**	1	0.718**
Assessment of quality of life	-0.292*	-0.333**	0.719**	0.718**	1

the value of statistical significance * $p < 0.05$, ** $p < 0.001$

Discussion

The goal of our research study was to describe chosen aspects of life in patients with venous leg ulcers who are treated at home in the Turiec region, as well as to search for differences in assessment of quality of life with regard to level of adherence to external compression therapy. An adapted version of the self-assessment standardized measurement tool, the *Freiburg Life Quality Assessment wound module* (FLQA-w), was used. Non-healing wounds and other related problems influence patients' quality of life. According to the results, the worst score was achieved in the category of everyday life (3.61 ± 0.93). Patients claimed that treatment of wounds was a financial burden (4.15 ± 1.06) (Table 1). This might have been influenced by the average of age of the patients (68.59 ± 9.49) since most are retired. Similar conclusions can be found in studies by Herber, Schnepf, Riener (2007), and Renner et al. (2009), who revealed that the costs for total and partial wound treatment have an impact on patients' financial situation. Although the item that scored most highly was psychological well-being (2.76 ± 1.08), many patients complained of fatigue and exhaustion (3.49 ± 1.29). This may be due to chronic nature of the disease and prolonged duration of wound healing.

Pain is a common symptom in patients with venous leg ulcers (3.89 ± 0.95) in our study. Similar results can be found in Renner et al. (2009), and Augustin et al. (2010). Patients with this type of chronic wound consider and assess pain to be its worst and most bothersome symptom, the intensity of which is influenced by various factors (Jørgensen, Friis, Gottrup, 2006; Slonková, Vašků, 2014). Pain in patients with venous leg ulcers can be chronic or acute. The pain usually worsens (its intensity

increases) during wound care and changes of dressing (Faria et al., 2011; Miertová, Ďurkechová, 2012). Intensity of pain also increases when the state of the wound worsens, when moving, and during physical activity, including activities of daily living. Pain decreases when at rest (Green, Jester, 2009; Vondráčková, 2014). Pain has a negative impact on psychological well-being (feelings, mood), physical activity, overall mobility, and sleep. It reduces quality of life because it is a limiting factor in the performance of activities of daily living. It impedes social activities and social relationships. It causes tiredness, distorts body image, and reduces self-esteem; it is a source of fear, anxiety, concerns, helplessness, anger, and depressive mood on (Jørgensen, Friis, Gottrup, 2006; Green, Jester, 2009; Maddox, 2012; Chamanga, 2014).

According to the results of our study, only 26 respondents apply elastic bandages regularly. Statistically significant differences in assessment of quality of life between the respondents who apply bandages regularly and those who do not apply bandages at all were confirmed. Regular bandage application is related to positive assessment of wound therapy ($p = 0.043$), psychological well-being ($p = 0.023$), verbal expression of satisfaction in various tested items ($p = 0.001$), positive assessment of the state of the wound ($p = 0.032$), health condition ($p = 0.019$), and overall quality of life ($p = 0.014$) (Table 3). External compression therapy in patients with venous leg ulcers plays a significant and irreplaceable role in conservative therapy for non-healing wounds of this kind. The effect of compression bandages has a causal link to the course of disease of the vascular system. It has a positive impact on pain relief and wound healing, it boosts mobility, and improves patient quality of life. Bandages of various kinds and

elastic compression stockings of various compressive categories can be used for compression therapy. Besides choosing appropriate bandages, it is important that they be applied with the correct technique, following general guidelines related to, for example, position of the extremity, distribution of pressure of the bandage, and the site of application of the bandage on the extremity. Inappropriate application of compression bandages might even worsen the course of the disease and cause serious complications (Tabaková, 2015). Indeed, studies by Finlayson, Edwards, Courtney (2010), and Moffatt et al. (2009) show that irregular use and inappropriate technique of bandage application tend to mean that bandages must be worn for longer periods. According to the results in the study by Finlayson, Edwards, Courtney (2010), and Persoon et al. (2004), patients consider elastic bandages difficult to apply, burdensome, and tight. Their use is also related to the need to purchase and wear a larger shoe size. Use of bandages causes problems, especially, in hot weather. Bandage application also affects choice of clothing, or clothing style, especially for women. From their perspective, wearing bandages is not aesthetically pleasing, and, thus, they prefer to wear trousers rather than skirts in order to cover the bandage. External compression can be achieved with elastic compression stockings, which are prescribed for long-term treatment in patients with chronic stabilized conditions, and those who are able to apply elastic compression stockings (Peňázová, 2007).

85% of respondents in our study are dependent mostly on their surroundings and professional help with wound care. Half require the help of a nurse from a home care agency to dress wounds. In other cases, relatives, mostly life partners or descendants, help with wound care and changing of dressings. The results of our study revealed that length of wound care is demanding. Treatment and wound care in patients with venous leg ulcers is time-consuming, protracted, and the patients do not always regard treatment to have been effective, or consider it to have had only a slightly positive effect. This leads to negative emotions, poor mood, low self-esteem, negative self-appraisal, and hopelessness. Wound care (of venous ulcerations) is often time-consuming, requiring tens of minutes, and in most cases patients are dependent on the help of another in their treatment (Herber, Schnepf, Riener, 2007).

The results of our study revealed that the length of treatment of wounds influences assessment of general state of health in general and state of wounds. In other words, the longer the course of treatment, the worse patients' subjective assessment of their health condition and the state

of wounds will be. In addition, it was established that prolongation of wound treatment is associated with negative assessment of overall quality of life (Table 4). These findings are similar to those of Renner et al. (2010), Hareendran et al. (2005), and Maddox (2012), which also confirmed the relationship between non-healing wound treatment and quality of life for patients with venous leg ulcers.

The limits of the study

Using a relatively small sample from just one geographic area limits generalization of the results. However, when considering a specific group of respondents (patients with venous leg ulcers), our sample can be compared with samples of respondents in other studies, for example, by Renner et al. (2009), Hareendran et al. (2005), Green, Jester (2009), Maddox (2012).

Conclusion

The results in the specific group of patients can provide background for other studies dealing with a similar topic. A representative sample of respondents could be selected with a focus on obtaining qualitative data. It would be useful to focus on research concerning patient motivation and its relation to adherence to compression therapy, and to discover the reasons for non-adherence. Education plays a significant role in the achievement of patient adherence, which is reflected in patient self-management and treatment. It is education which can help to develop appropriate behaviour in patients to develop their ability to self-care (Nemcová, Hlinková et al., 2010, p. 31). We think that it would be useful to assess the benefits of education of patients suffering from venous leg ulcers with regard to increasing their adherence to compression therapy.

Ethical aspects and conflict of interest

The research study was undertaken with the consent of the Ethics committee of the University Hospital, Martin. The respondents were informed of the goals of the study, and method of data collection. Their anonymity was guaranteed in advance, and participation in the study was voluntary. The authors of this paper are not aware of any conflict of interests.

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Author contribution

Conception and design (MM, KD, AO, JČ), data analysis and interpretation (MM, KD, AO, JČ), drafting the manuscript (MM, AO, JČ), critical revision of the manuscript (MM, AO, JČ), finalization of the manuscript (MM, AO, JČ).

References

- Augustin M, Dieterle W, Zschocke I, Brill C, Trefzer D, Peschen M, Schöpf E, Vanscheidt W. Development and validation of a disease-specific questionnaire on the quality of patients with chronic venous insufficiency. *VASA*. 1997;26(4):291–301.
- Augustin M, Herberger K, Rustenbach SJ, Schäfer I, Zschocke I, Blome C. Quality of life evaluation of wounds: validation of the Freiburg Life Quality Assessment – wound module, a disease-specific instrument. *International Wound Journal*. 2010;7(6):493–501.
- Augustin M, Blome C, Zschocke I, Schäfer I, Koenig S, Rustenbach SJ, Herberger K. Benefit evaluation in the therapy of chronic wounds from the patients' perspective – development and validation of a new method. *Wound Repair Regeneration*. 2012;20(1):8–14.
- Beláček J, Jakubovský J, Kubíková E, Elhassoun O, Novotný J. Patogenéza ulcus cruris. *Kontakt*. 2009;11(2):459–464. (in Slovak)
- Faria E, Blanes L, Hochman B, Filbo MM, Ferreira L. Health-related quality of life, self-esteem, and functional status of patients with leg ulcers. *Wounds*. 2014;23(1):4–10.
- Finlayson K, Edwards H, Courtney M. The impact of psychosocial factors on adherence to compression therapy to prevent recurrence of venous leg ulcers. *Journal of Clinical Nursing*. 2010;19(9–10):1289–1297.
- Green J, Jester R. Health-related quality of life and chronic leg ulceration: part 1. *British Journal of Community Nursing*. 2009;14(12):S12–S17.
- Gurková E. *Hodnocení kvality života. Pro klinickou praxi a ošetrovatelský výzkum*. Praha: Grada Publishing, a.s.; 2011. (in Czech)
- Haklová O. Bércové vředy a chronická bolest. *Medicína pro praxi*. 2010;7(4):182–184. (in Czech)
- Hareendran A, Bradbury A, Budd J, Geroulakos G, Hobbs R, Kenkre J, Symonds T. Measuring the impact of venous leg ulcers on quality of life. *Journal of Wound Care*. 2005;14(2):53–57.
- Herber OR, Schnepf W, Rieger MA. A systematic review on the impact of leg ulceration on patients' quality of life. *Health Quality Life Outcomes*. 2007;5:44.
- Chamanga ET. Understanding the impact of leg ulcer bandaging on patient quality of life. *Journal of Community Nursing*. 2014;28(1):40–47.
- Jørgensen B, Friis GJ, Gottrup F. Pain and quality of life for patients with venous leg ulcers: proof of concept of efficiency of Biatain-Ibu, a new pain reducing wound dressing. *Wound Repair and Regeneration*. 2006;14(3):233–239.
- Karen I, Švestková S, Pospíšilová A, Vidim T, Franců M. *Chronický vřed dolní končetiny. Doporučený diagnostický a léčebný postup pro všeobecné praktické lékaře*. Praha: Centrum doporučených postupů pro praktické lékaře; 2007 [cited 2015 Sept 25]. Available from: <http://www.svl.cz/files/files/Doporucene-postupy-2003-2007/Vred-DK.pdf> (in Czech)
- Kopal T. Kompresivna liečba vredov predkolenia žilového pôvodu. *Dermatológia pre prax*. 2009; 3(3):111–114. (in Slovak)
- Maddox D. Effects of venous leg ulceration on patients' quality of life. *Nursing Standard*. 2012; 26(38):42–49.
- Miertová M, Ďurkechová D. Niektoré z problémov pacienta s ulcus cruris venosum. *Ošetrovatelstvo teória – výskum – vzdelávanie*. 2012;2(3):113–119. (in Slovak)
- Moffatt C, Kommala D, Dourdin N, Choe Y. Venous leg ulcers: patient concordance with compression therapy and its impact on healing and prevention of recurrence. *International Wound Journal*. 2009;6(5):386–393.
- Navrátilová Z. Ulcus cruris. *Interní medicína pro praxi*. 2004;6(11):558–559. (in Czech)
- Nelson EA. Health Related Quality of Life Measurement. *EWMA Journal*. 2002;2(1):5–7. Available from: http://ewma.org/fileadmin/user_upload/EWMA.org/EWMA_journal_archive/EWMA_Journal_Vol_2_No_1.pdf
- Nemcová J, Hlinková E et al. *Moderná edukácia v ošetrovatelstve*. Martin: Osveta; 2010. (in Slovak)
- Payne J et al. *Kvalita života a zdraví*. 1. vyd. Praha: Triton; 2005. (in Czech)
- Peňázová V. Chronická žilná insuficience, varixy. *Medicína Pro Praxi*. 2007;4(12):522–526. (in Czech)
- Persoon A, Heinen MM, van der Vleuten CJ, de Rooij MJ, van de Kerkhof PC, van Achterberg T. Leg ulcers: a review of their impact on daily life. *Journal of Clinical Nursing*. 2004;13(3):341–354.
- Renner R, Gebhardt C, Simon JC, Seikowski K. Changes in quality of life for patients with chronic venous insufficiency, present or healed leg ulcers. *Journal of the German Society of Dermatology*. 2009;7(11):953–961.
- Rimarčík M. *Štatistika pre prax*. Marián Rimarčík; 2007. (in Slovak)
- Slonková V, Vašků V. Kvalita života, sociálně-ekonomické aspekty bérkových vředů a nové možnosti celkové terapie. *Dermatológia pre prax*. 2014;8(4):133–135. (in Czech)
- Slováček L, Slováčková B, Jebavý L, Blažek M, Kačerovský J. Kvalita života nemocných – jeden z důležitých parametrů komplexního hodnocení léčby. *Vojenské zdravotnické listy*. 2004;73(1):6–9. (in Czech)
- Tabaková M. Ulcus cruris. In: Hlinková E, Nemcová J, Miertová M, editors. *Nehojace sa rany. Vysokoškolská učebnica*. 1. vyd. Martin: Osveta, spol. s r.o.; 2015. s. 148–175. (in Slovak)
- Vondráčková D. Bolesti u bérkových vředů a jejich léčení. *Medicína pro praxi*. 2014;11(4):115–158. (in Czech)
- Williams AM. Issues affecting concordance with leg ulcer care and quality of life. *Nursing Standard*. 2010;24(45):51–56.