QUALITY OF LIFE AND ASSOCIATED FACTORS IN PATIENTS WITH LOWER LIMB CHRONIC VENOUS INSUFFICIENCY

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ABSTRACT

Background: Lower limb chronic venous insufficiency (CVI) is a global issue. The disease has significant effects on the quality of life (QoL) with substantial burden on the healthcare system. In Vietnam, the QoL of patients suffering from lower limb CVI has not received much attention. This study evaluated the QoL and associated factors in patients with lower limb CVI in order to improve care as well as the well-being of patients.

Objectives: To identify the QoL score and associated factors in patients with lower extremity CVI.

Study methods: This is a retrospective observational study of 68 randomly selected patients with lower limb CVI at Medicine and Pharmacy Hospital. All patients were interviewed using the SF-36 questionnaire. Multivariate linear regression was used to evaluate the relationship between QoL score and other factors.

Results: The mean scores of patients with lower limb CVI in physical health was 51.56±14.53, mental health was 53.91±15.20, overall QoL was 52.74±10.30. Factors associated with QoL was gender, income, disease severity based on CEAP clinical classification, level of physical activities and the use of medial pressure socks.

Conclusions: QoL of patients with lower limb CVI was decreased, both physically and mentally. Patients should be encouraged to exercise more and use medial pressure socks to improve the QoL.

Keywords*:* Lower limb chronic vein insufficiency, Quality of life, SF-36

I. BACKGROUND

Lower limb chronic venous insufficiency (CVI) is a chronic disease that causes debilitating symptoms, especially disability and death due to pulmonary embolism[1]. The disease is a global issue with increasing prevalence that could reach up to 71%[5], especially in Western countries with developed industrialised economy. In America, the prevalence of lower limb CVI is 40%[7]

Disease management is complicated as lower limb CVI is a progressive and recurring disease that requires expensive and complex treatment, the patience from both patients and doctors. The disease also affects cosmetically, reduces the working ability, increases the number of premature retirements, all of which result in decreased quality of life (QoL) and is a socio-economic burden for the society. Previously published studies have shown that lower limb CVI is associated with reduced QoL, both physically and mentally [4],[11],[13],[19].

In Vietnam, together with economic development and changes in lifestyle, the prevalence of this disease is increasing, especially in young people. To date, studies of QoL in this group of patients has not received much attention. Accordingly, we conducted this study to contribute to a complete evaluation of this disease and form a foundation for nursing care to improve the well-being as well as quality of life for affected people.

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Study objectives

To identify the QoL score of patients with lower limb CVI based on SF-36 scale.

To determine factors associated with QoL in patients suffering from lower limb CVI.

II. SUBJECTS AND STUDY METHODS:

2.1. SUBJECTS

We randomly selected patients from those with suspected lower limb CVI that presented to the outpatient clinics of Department of Thoracic – Vascular Surgery, Medicine and Pharmacy Hospital from 3/2018 to 6/2018.

2.1.1. Inclusion criteria:

Men or women ≥ 18 years old, diagnosed with lower extremity CVI, provided written-informed consent.

2.1.2. Exclusion criteria:

Patients with follow-up visits during data collection period, who was having acute conditions, severe disease, pregnant women, who were suffering from at least two chronic diseases at the same time, and who did not provide consent

2.2.2. Sample size

Based on the formula to estimate the 95% confidence intervals with an error of 2%, standard deviation of 8.37 according to Soydan study (2016)[19], the necessary sample size for our study was 68.

2.2.3. Data collection

Face-to-face interviews were performed with all patients using the SF-36 questionnaire.

The SF-36 questionnaire includes 36 questions focusing on 2 aspects: physical functioning and mental health. The QoL is evaluated in a scale from 0 to 100 with higher score indicates better QoL with 4 categories: 0-25 points: poor QoL, 26-50 points: lower than average QoL, 51- 75 points: fairly good QoL, 76-100 points: very good QoL[2].

2.2.4. Data analysis

Dependent variables were physical functioning, mental health, QoL scores using SF-36 scale. Independent variables included age, gender, income, the use of medical pressure sock, level of physical activities, CEAP clinical classifications, etc.

Data were analysed using SPSS software version 20.0. We used Kolmogorov – Smirnov test to identify whether the distributions of physical functioning, mental health and QoL scores were normal or near normal. Descriptive statistics included mean ± standardised deviation for normally distributed continuous variables and frequency (%) for categorical variables. Statistical analyses were performed to identify the association between physical functioning, mental health, and QoL scores with other variables. First, univariate analysis with independent student t-test and ANOVA was performed. Variables significant in univariate analysis with a p value $p \leq 0.2$ were put into the multivariate linear regression with stepwise selection to identify factors associated with those scores. A two-way p value <0.05 was considered statistically significant.

III. RESULTS

Our study included 68 patients with lower limb CVI at Medicine and Pharmacy Hospital. The mean age of the study cohort was 48.47±14.23 (range: 25 – 78 years old). Women accounted for 72.1% of all patients, corresponding to a female : male ratio of 2.6:1.

Average QoL score based on SF-36 scale

Table 1. *The average QoL score in patients with lower limb CVI (n=68)*

Category	Mean ± SD	Min	Max
Physical functioning	51.56±14.53	83	21
Mental health	53.91±15.20	89	18
Quality of life	52.74±10.30	82	29

Patients with lower limb CVI had lower mean physical functioning score than mean mental health score. All physical functioning, mental health, and QoL scores were in the fairly good category.

Factors associated with QoL in patients with lower limb CVI

Table 2. *Factors associated with QoL in patients with lower limb CVI in multivariate linear regression (n=68)*

Variables	Score					
	Physical functioning		Mental health		Quality of life	
	Coefficient	95% CI	Coefficient	95% CI	Coefficient	95% CI
Female gender			-7.47*	-14.57-(-0.37)	-7.16***	-11.05-(-3.26)
Low income			-17,95*	-32,45-(-3,46)		
Use of medical socks	17.91***	11.93-23.90			13,29***	9.67-16.91
Moderate physical activities			10.19**	3.72-16.67	4.63*	0.93-8.33
CEAP grade >2			-10.40**	-17.08-(-3.72)	-5.74**	-9.57-(-1.92)

**p≤0.05, **P≤0.01, ***p≤0.0001 (multivariate linear regression)*

After multivariate linear regression, we found that females had lower metal health ($p<0.05$) and overall QoL scores ($p<0.001$) compared with their male counterparts. Patients with CEAP grade 3 or higher also had lower mental health ($p<0.01$), overall QoL ($p<0.01$) scores compared with those with less severe disease (grade 2 or lower). Another factor associated with lower quality of life indicated by lower mental health ($p<0.05$) was low income. Conversely, the use of medical socks was associated with higher physical functioning ($p<0.001$) and overall QoL ($p<0.001$) scores while moderate physical activities were associated with better mental health ($p<0.01$) and overall QoL ($p<0.05$) scores.

IV. DISCUSSIONS

This study aimed at evaluating the quality of life of patients suffering from lower limb CVI. We found that these patients have low physical functioning and mental health scores while their

QoL scores were reduced. The mean physical functioning (51.56±14.53), mental health (53.91±15.20) and QoL scores (52.74±10.30) all fall within the fairly good category. Similarly, many studies have reported that lower limb CVI is associated with significantly reduced physical functioning, mental health with physical health being affected more [9],[11],[13],[19]. Lower limb CVI limits the normal functions and the ability to perform everyday life activities, causes negative emotions and changes in physical appearance, complications and accordingly, affects all aspects of life and eventually, decreases the QoL of the patient.

Our study found that female gender was associated with lower QoL among patients with lower limb CVI. Several studies also report the lower QoL in females compared with males [11],[13]. In contrast, in a study by Soydan et al[19], no gender differences in QoL was found. This gender disparity could be explained by the better durability, higher awareness of health status, more optimistic attitude towards the disease and life in males while females are usually more anxious, overthinking, and pessimistic.

According to Ruckley and Valencia[18],[20], lower limb CVI has negative effect on the patient's economy due to the long-term requirement for treatment of chronic lesions, especially ulcers and vice versus. In this study, we found that in low income group (poverty/near poverty) had lower mental health scores compared with those with average or high income. This observation may be explained by the lower working ability and high expenses for continuing treatment caused by the disease. For low income households, this could be a big challenge.

May studies worldwide have shown that the more severe the disease based on CEAP classification, the worse the QoL of patients with lower limb CVI is [9],[11],[13],[19]. Consistent with these studies, we also found that patients with higher CEAP grade (C3-C4-C6) had lower mental health and QoL score compared with patients with less severe disease (C1-C2). Our study did not find any association between disease severity with physical functioning score, may be because more than half of our patients had grade 1 disease while according to Rossi[17], in early stages, the disease mainly affects mental health. The later the stage, the more reduced the physical functioning, the more affected the work, everyday life activities, and family-social relationships. Regarding metal health, in early stages, the patient may feel tired, uncomfortable, the skin changes and ulcers make the patient less confident, all of which lead to negative emotional, psychological effects.

The use of pressure sock is the most common recommended therapy for lower limb CVI in national treatment guidelines [14]. Worldwide, studies have proven the efficacy of pressure socks in improving the QoL of patients with lower limb CVI [3],[16],[21]. This study showed similar results, patients who used medical socks had higher physical health and QoL scores compared with those did not. In lower limb CVI, pressure socks assist the venous blood return, reduce the vein diameter, close the valves, prevent the reflux flow of blood to the lower parts of the legs and eventually, slow disease progression.

Pump insufficiency of calf muscles is associated with the progression of lower limb CVI. May studies have shown that symptoms are improved with supervised exercises [10],[12],[15],[19]. Despite most patients with lower limb are old persons, physiotherapy is still effective [8]. Campbell[6] suggests that walking is one of the physiotherapies that could slow the progression of the varicose veins. In this study, patients with moderate physical activities had higher metal health and QoL scores compared with those with too much or too little of physical activities. Moderate physical activities appear to improve the strength of calf muscles, increase the

hemodynamic of lower limb veins, improve the movements, reduce symptoms, improve mental health, reduce stress and eventually, increase the QoL of patients.

V. CONCLUSIONS – PROPOSALS

The QoL of patients with lower limb CVI are reduced in both physical and mental health components. Therefore, the care of these patients needs to consider their mental health as well, not only physical functioning.

Factors that associated with lower QoL are female gender, low income, higher disease severity and therefore, these patients may need extra care. Conversely, the use of pressure socks and moderate physical activities were associated with better QoL so during the consultation and education process, nurses should encourage the patient to comply with the use of pressure socks as well as to change lifestyle to include moderate physical activities to improve QoL.

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