International Journal of Emerging Trends in Health Sciences

Volume 04, Issue 1, (2020) 01-10

www.ij-hs.eu

Evaluation of quality of life in patients with varicose veins of the lower extremities

Gamze Sengul Donmez*, Department of Pallative Care, Gulhane Research and Training Hospital, University of Health Sciences Turkey, 06010 Ankara, Turkeyhttps://orcid.org/0000-0002-4167-0604

Tulay Basak,Fundamentals of Nursing Department, Gulhane Faculty of Nursing, University of Health Sciences Turkey ,06010 Ankara, Turkeyhttps://orcid.org/0000-0001-5148-5034

Suggested Citation:

Donmez, G. S. & Basak, T., (2020). Evaluation of quality of life in patients with varicose veins of the lower extremities. *International Journal of Emerging Trends in Health Sciences.04*(1), 01–10.

Received December 28, 2019; revised January 20, 2020; accepted April 15, 2020.

Selection and peer review under responsibility of Prof. Dr. Nilgun Sarp, Uskudar University, Istanbul.

Abstract

In this descriptive study, the presence of any association between risk factors and quality of life (QOL) in patients with lower extremity varicose veins was determined using a disease-specific scale. This study included 200 patients admitted to the cardiovascular surgery polyclinic of a hospital between January and December 2018 with chronic venous insufficiency and lower extremity varicose veins. The data collection form was applied to the patients who accepted the study after appropriate information was given about the research by a face-to-face interview method. The QOL was found to be higher in the 51–70 age group, with a fixed standing time of less than 7 hours a day, without constipation and with one or more chronic diseases other than varicose veins. About 83.5% of the patients had used compression stockings (CS) and 40.5% of the patients had previously used complementary treatment methods. The QOL scores of the patients with lower extremity varices were found to be low. Causes of dissatisfaction of the patients when using CS include swelling of the feet and fingers, pain and numbness, itching of the wrist, firmness, wrinkles, keeping warm, gliding down the leg and not being cosmetic.

Keywords: Varicose veins, chronic venous insufficiency, compression stockings, quality of life, nurse's role

* ADDRESS FOR CORRESPONDENCE: Department of Pallative Care, Gulhane Research and Training Hospital, University of Health Sciences Turkey, 06010 Ankara, Turkey.

E-mail address: gdonmez2015@gmail.com

1. Introduction

Varicose veins of the lower limbs are important health problem because it affects the quality of life (QOL) with various problems, such as loss of labour, diagnosis and treatment costs, cosmetic problems and severe pain that can cause serious complications, such as ulcers, which are very common in the society and do not heal if not treated early (Redolfi et al., 2015; Tracz, Zamojska, Modrzejewski, Zaborski & Grzesiak, 2015). Varicose veins of the lower limbs are caused by an increase in venous pressure on the superficial veins in the lower extremity as a result of chronic venous insufficiency (CVD). It causes various symptoms such as blunt pain, feeling of heaviness in the legs, night cramps, itching/tingling, warmth/burning sensation, fatigue, swelling and restless legs (Kabalci & Kultur, 2017; Kabalci, Bolat, Kultur, Gultekin &Yorubulut, 2018). These symptoms often occur while being idle and often limit daily activities (Ozturk & Ozturk, 2014). The symptoms caused by varicose veins negatively affect patients' QOL (Tracz et al., 2015). However, most patients continue their daily life activities without treatment.

Although there is no definite data on the prevalence of varicose, it has been found in 25%–50% of the adult population, and this was revealed in different studies conducted in Europe and America (Kelleher, Lane, Franklin & Davies, 2012; Ozturk & Ozturk, 2014). Varicose veins are observed in both women and in youngsters (Akbulut et al., 2012). One of the reasons for this is thought to be the female sex hormone (progesterone)(Hayashi et al., 2014).Another reason is that varicose vein formation is closely related to pregnancy (Kabalci & Kultur, 2017). In some studies, obesity, high blood pressure and sedentary lifestyle in women, and smoking habits and an inactive lifestyle in men are among the factors that increase the risk of varicose veins (Brown &Rossi, 2013). In addition, there are findings indicating that the increase in male height and chronic constipation are positively associated with the development of superficial venous insufficiency (Brown & Rossi, 2013). There are about 70%–85% of family history in varicose veins (Akbulut et al., 2012).

In the treatment of varicose veins, patients are first trained to change their lifestyle. The aim of patient education is to encourage the use of varicose stockings (WC), to reduce the symptoms of the disease with other preventive methods, to prevent the progression of the varicose and the development of complications (The Joanna Briggs Institute, 2008; National Institute for Health and Clinical Excellence (NICE), 2012). Nurses play an important role in providing this training (Ozkan, Findik & Unver, 2016; Totur & Dal, 2018). With VF, which is not only effective in CVD prophylaxis but can also be used in treatment at any stage, the diameter of the main vessels is reduced, and the speed and volume of blood flow is increased. Thus, venous hypertension and symptoms are also reduced (Bakker, Schieven, Bruins, van den Berg & Hissink, 2013; Szewczyk, Cwajda-Bialasik & Jawien, 2012). In this sense, nursing care should use up-to-date data for quality of care and patient safety (Ozkanet al., 2016).

In this study, when the patients' discomfort due to varicose veins were added to their reduced QOL due to varicose veins for prophylaxis and treatment, they did not use the socks effectively or discontinued the treatment because they did not want to use it (Kabalci et al., 2018; Oglakcioglu & Marmarali, 2009; Tracz et al., 2015; Yilmaz, Yaylaci, Diken, Yalcinkaya & Aksoy, 2015). Even tight clothing disturbed many people, but it is not easy to accept socks that wrap the leg with considerable pressure throughout the day. Therefore, another matter as important as the effectiveness of the socks is to choose socks that the patient can adapt to. Considering that non-worn socks will have no effect on the treatment, it is preferable that an under-knee sock conforms to the patient, even if the pressure is slightly lower than the required pressure and/or full leg length (Kabalci & Kultur, 2017). If patients are convinced to use CS for a short term, positive effects might also encourage their long-term use.

The aim of this study is to determine whether there is any relationship between the risk factors of the disease and the QOL in patients with varicose veins of the lower limbs. In addition, as a result of the study, it was aimed to determine whether patients had any difficulties during WC use and, if any, their causes.

2. Materials and methods

2.1. Research scope and data

Between January 2018 and December 2018, 200 patients who were diagnosed with peripheral venous insufficiency –varicose veins of the lower limbs– at a training and research hospital cardiovascular surgery policlinic were willing to participate in the study.

2.2. *Data collection tools*

The data were obtained through questionnaires. This form consists of two parts. In the first part, there are 17 questions regarding the socio-demographic characteristics of patients and their use of varicose stockings.

In the second part, there is an epidemiological and economic study-quality of life / symptom scale in venous insufficiency. This scale is a unique scale consisting of 26 items and two parts, developed to measure the effect of venous diseases on symptoms and QOL of the patient (Lamping, 1997). This scale was developed by Cirak et al. (2013) as a Turkish version study, and its Cronbach's alpha coefficient was found to be 0.996 for VEINES-Sym and 0.992 for VEINES-QOL (Apprentice)(Prosecutor, Karahan & Demirkilic, 2013). Two points were obtained on the VEINES-QOL / Sym scale. The first was VEINES-QOL (providing information about QOL), the second was VEINES-Sym (providing information about the severity of symptoms). The minimum and maximum scores for VEINES-QOL were 12 and 67, respectively, while the minimum and maximum scores for VEINES-Sym were 9 and 45, respectively. The VEINES-Sym total score provides information about the severity of the symptoms. The higher the score indicated, the lesser the severity of the disease and the lesser it affects the patient's life. VEINES-Sym's total score in the survey on Question 1 (How often did you experience any of the following problems related to the leg (s) during the last 4 weeks?) was obtained by adding the points of the patient's answers to the 9 items under the question (Cirak et al., 2013). VEINES-QOL's score shows the effect of the disease on the QOL. The higher the total VEINES-QOL score, the better the QOL of the patient. A low score indicates a low QOL. When calculating the total VEİNES-QOL score, the total points were obtained by summing up the points of the 3rd, 4th, 5th, 6th, 7th and 8th questions and the answers given to the sub-items of these questions. In addition, the score of the patient's answer to Question 2 is not added to the sum of any scoring, it is used only to provide general information about the symptoms (Cirak et al., 2013).

2.3. Collecting data

The questionnaire was given to the patients who were diagnosed with varicose veins of the lower limbs after accepting appropriate information about the research by the researcher, by a face-to-face interview method.

2.4. Statistical analysis of data

The analysis was carried out using the 21.0 version of Windows IBM SPSS computer programme. In defining the data, mean, standard deviation, number and percentage were used. The suitability of variables to normal distribution was evaluated by the Shapiro–Wilk test. In the analysis of the data, *t*-test, Mann–Whitney U test, Kruskal–Wallis test, ANOVA test, K independent Sample Test and correlation analysis were used. A p value <0.05 was considered statistically significant.

2.5. Ethical and legal aspects of the research

The ethics committee approval required for the research was obtained from the ethics committee on which the research was conducted, with the evaluation made on 19 December 2017, with the project

number 17/18 and decision number 17 / 18-16. This study was carried out in accordance with the Helsinki declaration principles. The study included patients with lower extremity varicose veins, above the age of 18, and who volunteers. The participants were informed that the information would not be used for scientific purposes, they would not be shared with individuals and that the participants could leave the research if they wanted.

Table 1. Quality of life and symptom severity scores according to risk factors in patients with lower extremity varicose veins (*n* = 200)

Risk factors	*n*/%	QOL Score	SS Score
Gender			
Woman	95(47.5)	44.6	29.6
Male	105 (52.5)	45.6	29.1
		T= −1.386; p=0.167	T=0.830; p=0.408
Age group			
19–34	32 (16.0)	81.13	112.41
35–50	78 (39.0)	89.07	104.29
51–70	90 (45.0)	117.29	92.98
		χ^2 =14.276; p=0.001	χ^2 =3.226; p=0.199
Waist / Height Ratio			
Below 0.5	64 (32.0)	92.32	92.21
Above 0.5	136 (68.0)	104.35	104.40
		Z= −1.374; p=0.169	Z= −1.394; p=0.163
Time to Stand Up			
0–6 hours	86 (43.0)	114.16	97.91
7--12 hours	95 (47.5)	86.96	104.16
13--18 hours	19 (9.5)	106.34	93.95
		χ^2 =10.233, p =0.006	χ^2 =0.801, p =0.670
Genetic predisposition			
No	77 (38.5)	97.06	88.81
There is	123 (61.5)	299.08	328.49
		Z= −0.667; p=0.505	Z= −2.267; p=0.023
Constipation			
No	81 (40.5)	45.8	29.3
There is	119 (59.5)	44.3	29.5
		Z= −2.210; p=0.027	Z= −0.446; p=0.656
Comorbidity			
No	107 (53.5)	44.4	29.5
There is	93 (46.5)	46.1	29.3
		T= −2.376; p=0.018	T=0.498; p=0.619
Smoking-Alcohol Use			
No	74 (37.0)	94.09	97.31
There is	126 (63.0)	104.27	102.37
		Z= −1.204; p=0.229	Z= −0.599; p=0.549
Smoking Status (Number / Gun)			
not using it	74 (37.0)	94.09	97.31
≤10	30 (15.0)	108.95	94.83
10–20	47 (23.5)	100.24	108.07
≥20	49 (24.5)	105.26	101.52
		χ^2=1.889; p=0.596	χ^2=1.341; p=0.719
Alcohol Use Status			

Can not use	141 (70.5)	99.76	102.97
Social performer	27 (13.5)	101.3	93.74
Once a week	14 (7.0)	113.18	86.43
A few days a week	10 (5.0)	101.25	120.4
Everyday	8 (4.0)	87.75	79.56
		χ^2=1.095; p=0.895	χ^2=3.704; p=0.448

3. Results

About 52.5% of the 200 patients participating in the study are male and their average age is 48.0 ± 12. 1 years and their distribution is between 19 and 70 years.

Table 1 shows the QOL and symptom severity (SS) scores of the patients participating in the study according to the risk factors of the lower extremities. About 68.0% of the patients in the study had a waist/height ratio above 0.5 (risky group in terms of obesity), 91.6% of women had a history of pregnancy, 26.4% of whom had three or more pregnancies, 61.5% had genetic predisposition, 59.5% had constipation, 46.5% had comorbidity, and 49.4% had hypertension. It is seen that 57% of patients survive for more than 7 hours a day, 63% smoke, 76.1% of smokers smoke more than 10 cigarettes per day, 70.5% of patients do not use alcohol and those who use alcohol also smoke.

About 89.0% were aged 35–50years and 117.2% were aged 51–70 years. According to these findings, the QOL of patients aged 51 years and older was found to be statistically significant compared to the other age groups (χ^2 = 14.276; p = 0.001). Average QOL scores of the patients participating in the study were determined according to their survival time. Those who survived between 0 and 6 hours were 114.1, those who survived between 7 and 12 hours were 86.9 and those who survived 13 hours and above were 106.3. According to these findings, the QOL scores of those who remained stable for less than 6 hours were statistically significant compared to others (χ^2 = 10.233, p = 0.006). The average QOL scores of patients who complained of constipation in the study were 44.3, while those without this complaint were 45.8. There was a statistically significant difference (t=−1.989; p = 0.048). While the average QOL scores of the patients who participated in the study with diseases other than varicose veins were 46.1, and the patients without this complaint were found to be 44.4; there was a statistically significant difference (t=−2.376; p = 0.018) (Table 1).The average QOL scores of the patients participating in the study were determined according to age.

Table 2. Varicose stockings and other complementary therapy methods, quality of life and symptom severity scores of patients with lower extremity varicose veins (*N* = 200)

	n / (%)	VEINES-QOL Score	VEINES-Sym Score
Duration of varicose disease			
0--10 Years	112 (56)	44.49	29.5
More than 11 Years	88 (44)	46.06	29.2
Use of CS			
No	29 (14.5)	98.36	112.55
Yes	171 (85.5)	100.86	98.46
Applied Outside the Use Of Varicose Veins			
Cobra			
Complementary Treatment Method			
No	79 (39.5)	101.61	103.25
Present	121 (40.5)	99.77	98.70
Preference for loose clothing and comfortable shoes	31 (15.5)	47.1	29.7
Exercise	30 (15)	42.4	29.9
Balanced Nutrition To Prevent Obesity	27 (13.5)	44.5	29.2
Leg Elevation	26 (13)	46.1	28.9

Cold Shower to Legs	20 (10)	45.7	29.0
Avoiding Overexposure	17 (8.5)	46.3	29.1

Table 2 shows the CS and other complementary treatment methods and QOL and SS scores of the patients who participated in the study. It is seen that 44% of the patients who participated in the study were diagnosed with varicose veins for more than 11 years. It is seen that 83.5% of the patients used CS earlier and 40.5% tried complementary treatment methods (Table 2).While 31% of the patients stated that they received training from the nurse about CS use, 19.5% of them were informed by the brochures given from the hospital. About 43.5% of them experienced problems while using CS because they were not able to find the socks that fit them, 48.5% experienced problems with the socks squeezing their legs and it was observed that 39.5% experienced difficulties while putting on and taking off the socks. No relation was found between the education levels of the participants and the use of WC. However, when the YK scores of the patients were examined according to their education levels, the group with the lowest QOL was found to be undergraduates and above, and there was a statistically significant difference (χ^2 = 16.893; p<0.001).

Table3. VEINES-QOL and VEINES-Sym score distributions of patients with CVD-lower extremity varicose (*n* = 200)

	Median (IQR)	**Min–Max**
VEINES-Sym	30 (IQR: 5)	16–39
VEINES-QOL	45 (IQR: 7)	33–55
The Situation of Leg Problems 1 Year Prior	4 (IQR: 2)	1–6
Blocking Activities During the Day	8 (IQR: 3.75)	3–12
Activity-Success Blocking Status in the Last 4 Weeks	6 (IQR: 1)	4-8
Prevention of Activities with Family-Friends in the Last 4 Weeks	2 (IQR: 1)	1–5
The Condition of Leg Pain in the Last 4 Weeks	3 (IQR: 2)	1–5
Feelings and Thoughts about Leg Problems in the Last 4 Weeks	22 (IQR: 7)	13–30

Table 3 shows the VEINES-QOL and VEINES-Sym score distributions of patients with varicose veins of the lower extremities participating in the study. Low scores in both areas indicate a low QOL. The maximum value of the total score in the responses to the VEINES-QOL part of the scale was 67. The median score of VEINES-QOL was 45 (CAG = 7) in the study. The maximum value of the total score in the responses to the VEINES-Sym part of the scale was 45. The median score of VEINES-Sym was 30 (CAG = 5) in the study. According to these findings, complaints of patients with varicose veins of the lower extremities affect SS and QOL. About 39.5% (*N* = 79) of the patients stated that the most severe time of their pain was at the end of the day.

4. Discussion

Lower limb pain and multi-faceted effects, which proceeded slowly and irreversibly, limited the daily life activities with symptoms such as pain, oedema, itching, cramping, feeling of heaviness and pronounced visual disturbances (Ceviker et al., 2016; Darwood, Theivacumar, Dellagrammaticas, Mavor & Gough, 2008; Darvall, Bate, Adam & Bradbury, 2012; Ozkan, Findik, & Unver, 2016) Considering the literature, patients with CVD had a lower QOL compared to healthy individuals (Moura, Goncalves, Navarro, Britto & Dias, 2010; Darvall et al., 2012; Staniszewska, Tambyraja, Afolabi, Bachoo & Brittenden, 2013). In a study evaluating the QOL after a minimally invasive varicose vein treatment, the VEINES-QOL average score of patients was found to be 40.3, and VEINES-Sym mean score was 21.8, which was considered as low QOL when considering postoperative changes (Coban & Dirimese, 2019). The QOL and SS scores in this study are similar to our study.

In a study conducted by Staniszewska et al. (2013), which examined patient factors in the treatment of varicose veins, it was found that the QOL of female patients was worse. The results of this study are

in line with the gender results that were found in the study by Ceviker et al (2016), who reported that the QOL of patients with CVD in 2015 does is not impacted.

The frequency of lower extremity varices has been observed to decrease with increasing age factor in some studies (Gloviczki et al, 2011; Kuet, Lane, Anwar & Davies, 2014).However, in some studies, the prevalence of the disease (Bergan, Schmid-Schonbein, Smith, Nicolaides, Boisseau & Eklof, 2006; Kuet et al., 2014), its severity (Moura et al., 2010) and its complications (Moura et al., 2010) were observed to increase with age. Considering that 45% of patients with varicose veins included in this study are individuals aged between 51and 70 years, it is thought that varicose veins may increase as a result of the deterioration in vascular structure. However, the QOL was found to be higher in the 51–70 age group. The reason for this is that it is thought that the symptoms of varicose veins can be felt less and the QOL can be higher with the decrease in the active life in progressing age.

Clark Harvey and Fowkes (2010) emphasised that individuals with BMI>30 or BMI<20 are three times more likely to have varicose veins than other individuals (Clarket al., 2010). In this study, the waist / height ratio (B / B) used in the assessment of abdominal obesity, which is among the risk factors of cardiovascular diseases, was calculated and the cut-off point of this ratio was taken as 0.5, and patients who exceeded 0.5 were evaluated in the risk group for obesity (Ashwell & Browning , 2011). Mishra et al. (2017) stated that obesity is an important risk factor in the development and progression of varicose veins in their studies investigating the epidemiological factors and clinical profiles of primary varicose veins (Mishra, Ali & Singh, 2016). When the literature was examined, it was found that the risk of varicose veins was higher in obese patients and their QOL was lower (Allen, 2009; Joseph, Faizan Thouseef, Devi, Abna & Juneja, 2016). The majority of patients with varicose veins (68%) included in this study were found to be in the obese group, which is in parallel with the literature, but no significant difference was found between the two groups in terms of QOL.

It is reported in the literature that pregnancy is a secondary CVD factor and this increases the risk of developing varicose veins by around 30% (Gloviczki et al., 2011; Moura et al., 2010). In one study, the QOL of multiparous women was found to be lower than others, and it was concluded that the number of pregnancies in varicose patients is an important factor that negatively affects the QOL (Ceviker et al., 2016). However, in this study, there was no significant difference between the QOL and SS scores of women according to the number of pregnancies.

Standing for a long time is considered as a secondary risk factor for developing chronic venous insufficiency (CVI) (Campbell, 2007). In our study, more than half of the patients stated that they remained stable for more than 7 hours a day. In a study conducted by Coban and Dirimese (2019), the mean VEINES-QOL scores of patients who were constantly standing in the pre-op period of patients were 43.0, and the mean VEINES-Sym scores were 24.8; this was interpreted as low QOL considering the postoperative changes (Coban & Dirimese, 2019). The scores of QOL and SS in this study also contain similar results.

In the literature, it has been reported that comorbidity increases CVD complaints (Kahn et al., 2004). In another study, it was observed that patients with CVD and comorbidity were more affected than those with CVD only (Kutlu, Chechen, Kutlu, Onol & Yilmaz, 2010). It was found that 46.5% of the patients participating in this study had at least one chronic disease other than varicose veins, but there was no statistically significant difference between individuals' QOL and SS scores according to the chronic disorder variable.

Kutlu et al. (2010) stated in their study that 47.8% of patients with varicose veins had a family history of the same and genetic factors may have an effect on the development of the disease. In a study conducted by Ceviker et al. (2016), 32.5% of the patients had a family history and their QOL scores were found to be significantly higher than other patients with CVD without a genetic history. The results of our study are similar to that described by Ceviker et al (2016). In patients with genetic predisposition, it was found that the severity of the symptoms of the disease was felt less and affected the life of the patient less. The reason for this is that the presence of varicose veins in a family member helps to

recognise the disease, to accept the results and to deal with the complications of the disease more easily (Ceviker et al., 2016).

In the literature, the habit of smoking has been shown to be among the factors that increases the incidence of varicose veins (Cil, 2015; Joseph et al., 2016; Zhang & Melander, 2014). The rate of harmful habits, such as cigarettes and alcohol, in patients with varicose veins participating in this study was 63%. However, according to the harmful habit variable, it was observed that there was no significant difference between individuals' QOL and SS scores.

It has been emphasised in many studies that using CS reduces the severity of symptoms of varicose disease and has positive effects on QOL (Coban & Dirimese, 2019; Melo, Toja, Lea & Couto, 2015). About 85.5% of the patients who participated in the study stated that they used the CS recommended by their doctor. Melo et al. (2014) emphasised that CS is a good method for the treatment of the disease and it improves the QOL of patients with CVI and who use CS (Melo et al., 2015). Ozdemir et al. (2016) divided the patients with CVI into two groups as those who use and do not use CS, and emphasised that the clinical severity of the disease decreased in patients who used CS compared to patients who did not use CS after one month (Ozdemir, Sevim, Duygu, Tugral & Bakar, 2016).

Andreozzi, Cordova, Scomparin, Martini, D'Eri & Andreozzi (2005) reported that there was an improvement in the YK of 27 patients with CVI who had a significantly decreased QOL after CS treatment (Andreozziet al., 2005). However, in this study, there was no difference between patients' QOL and SS scores according to their CS use status. It is considered as the reason for this finding that patients do not use ICs regularly. Contrary to the studies in the literature that CSs used at every stage of treatment reduce the clinical severity of the disease (Ozdemir et al., 2016) and help to increase their QOLs (Melo et al., 2015),there are studies indicating that they may fall, thus disrupting the treatment of patients (Kutlu et al., 2010; Kabalci et al., 2018). It is stated in the literature that patients do not regularly use recommended CSs for various reasons because they are disturbing (~~Ayhan, 2012;~~ Hirai, Iwata, Miyazaki, Koyama & Nakamura, 2013; Coban & Dirimese, 2019). In our study, the reasons for dissatisfaction about the WC of patients worn during daily activities were swelling of the feet and toes, pain and numbness, itching in the wrist, tightness, wrinkles, keeping warm, sliding down the leg and not being cosmetic.

5. Conclusion and recommendations

In the evaluations of patients with varicose veins of the lower extremities included in the study, the QOL and SS scores were found to be low and in parallel with the literature results. The QOL of individuals between the ages of 51 and 70 years, that is those who have less than 7 hours of standing time, those without constipation, and those with one or more chronic diseases other than varicose veins, were found to be higher. In line with these results, our suggestions are as follows:

- The IC prescribed for treatment should be a sock that the patient will adapt to and the patient's participation in the sock selection should be ensured.

- Healthcare professionals should inform patients about proper use of WC, monitor patients' WC use and correct and incorrect practices.

- CS manufacturers should consider the problems that patients experience in this regard.

- Studies should be repeated in more sample groups.

References

Akbulut, B., Ucar, H.I., Oc, M., Ikizler, M., Yorgancioglu, C., Dernek, S. & Boke, E. (2014). Characteristics of venous insufficiency in western Turkey: VEYT-I study. *Phlebology, 27*, 374–377.

Allen, L. (2009). Assessment and management of patients with varicose veins. *Nursing Standard, 23*, 49–57.

Andreozzi, G. M., Cordova, R., Scomparin, M. A., Martini, R., D'Eri, A.& Andreozzi, F. (2005). Effects of elastic stocking on quality of life of patients with chronic venous insufficiency. An Italian pilot study on Triveneto Region. *International Angiology, 24*(4), 325–329.

Ashwell, M. & Browning, L.M. (2011). The increasing importance of waist-to-height ratio to assess cardiometabolic risk: aplea for consistent terminology.*The Open Obesity Journal, 3*, 70–7.

Ayhan, H. (2012). Yuksek riskli gruplarda postoperatif derin ven trombozunu onleme protokollerinin karsilastirilmasi(Yayinlanmis Doktora Tezi). Gulhane Askeri Tip Akademisi, Ankara, Turkey.

Bakker, N. A., Schieven, L.W., Bruins, R.M., van den Berg, M. & Hissink, R. J. (2013). Compression stockings after endovenous laser ablation of the great saphenous vein: a prospective randomized controlled trial. *European Journal of Vascular and Endovascular Surgery, 46*, 588–592.

Bergan, J. J., Schmid-Schonbein, G. W., Smith, P. D. C., Nicolaides, A. N., Boisseau, M. R.& Eklof, B. (2006). Chronic venous disease. *New England Journal of Medicine, 355*(5), 488–498.

Brown, K. R. & Rossi, P. J. (2013). Superficial venous disease. *Surgical Clinics of North America, 93*, 963–982.

Campbell, W. B., Decaluwe, H., Boecxstaens, V., MacIntyre, J. A., Walker, N., Thompson, J. F., Cowan, A. R. (2007). The symptoms of varicose veins: difficult to determine and difficult to study. *European Journal of Vascular and Endovascular Surgery, 34*(6), 741–744.

Clark, A., Harvey, I. & Fowkes, F. G. R. (2010). Epidemiology and risk factors for varicose veins among older people: cross-sectional population study in the UK. *Phlebology, 25*, 236–240.

Ceviker, K., Sahinalp, S., Cicek, E., Demir, D., Uysal, D., Yazkan, R., Akpınar, A. & Yavuz, T. (2016). Quality of life in patients with chronic venous disease in Turkey: influence of different treatment modalities at 6-month follow-up. *QualityofLifeResearch, 25*, 1527–1536.

Cirak, Y., Savci, S., Karahan, Z. & Demirkilic, U. (2013). Akut Derin Ven Trombozu Sonrasi Yasam Kalitesi: VEINES-QOL/Sym Olceginin Kulturel Adaptasyonu, Guvenirligi ve Gecerligi: Turkce Versiyon Calismasi. *Turk Gogus Kalp Damar Cerrahisi Dergisi, 21*(3), 659–668.

Cil, B. E. (2015). Alt ekstremite varis tedavisi. *Turk Radyoloji Seminerleri,* (3), 316–327.

Coban, P. T. & Dirimese, E. (2019). Evaluation of quality of life after minimally invasive varicose vein treatment. *Turkish Journal of Thoracic and Cardiovascular Surgery, 27*(1), 49–56.

Darvall, K. A. L., Bate, G. R., Adam, D. J. & Bradbury, A. W. (2012). *European Journal of Vascular and Endovascular Surgery, 44*, 341–344.

Darwood, R. J., Theivacumar, N., Dellagrammaticas, D., Mavor, A. I. & Gough, M. J. (2008). Randomized clinical trial comparing endovenous laser ablation with surgery for the treatment of primary great saphenous varicose veins. *British Journal of Surgery, 95*, 294–301.

Gloviczki, P., Comerota, A. J., Dalsing, M. C., Eklof, B. G., Gillespie, D. L., Gloviczki, M. L., … Wakefield, T. W. (2011). The care of patients with varicose veins and associated chronic venous diseases: clinical practice guidelines of the society for vascular surgery and the American venous forum. *Journal of Vascular Surgery, 53*(5), 2–48.

Hayashi, S., Shibutani, S., Okubo, H., Shimogawara, T., Ichinose, T., Ito, Y., … Kitagawa Y. (2014). Examination of clinical efficacy of keishibukuryogan on non-specific complaints associated with varicose veins of the lower extremity. *Annals of Vascular Diseases, 7*(3), 266–273.

Hirai, M., Iwata, H., Miyazaki, K., Koyama, A. & Nakamura, H. (2013). Development of separated elastic stockings. *Phlebology, 28*(4), 201–208.

Joseph, N. B. A., Faizan, T. M., Devi, M. U., Abna, A. & Juneja, I. A. (2016). Multicenter review of epidemiology and management of varicose veins for national guidance. *Annals of Medicine and Surgery (London)*, 8, 21–27.

Kabalci, M., Bolat, A., Kultur, T., Gultekin, Y. & Yorubulut, S. (2018). Kronik venoz yetmezligi olan hastalarda, yasam kalitesi, depresyon ve anksiyete belirtileri. *Ortadogu Tip Dergisi, 10*(1), 38–44.

Kabalci, M. & Kultur, T. (2017). Kronik venoz yetmezlik ve guncel tedavi secenekleri. *Ortadogu Tıp Dergisi, 9*(4), 191–197.

Kahn, S. R., M'lan, C. E., Lamping, D. L., Kurz, X, Berard, A, Abenhaim, L. A.&VEINES Study Group (2004). Relationship between clinical classification of chronic venous disease and patient-reported quality of life: results from an international cohort study. *Journal of Vascular Surgery*, 39, 823–828.

Kelleher, D., Lane, T. R., Franklin, I.J. & Davies, A.H. (2012). Treatment options, clinical outcome (quality of life) and cost benefit (quality-adjusted life year) in varicose vein treatment. *Phlebology, 27*, 16–22.

Kuet, M. L., Lane, T. R., Anwar, M. A. & Davies, A. H. (2014). Comparison of disease-specific quality of life tools in patients with chronic venous disease. *Phlebology, 29*(10), 648–653.

Kutlu, A. K., Cecen, D., Kutlu, S., Onol, H. & Yilmaz, A. (2010). Kronik Venoz Yetmezligi Olan Hastaların Klinik Sınıflamaya Gore Yasam Kalitesi ve Yeti Yitimi Durumlarinin Belirlenmesi. *Damar Cerrahi Dergisi, 19*(2), 29–37.

Lamping, D. L. (1997). Measuring health-related quality of life in venous disease: practical and scientific considerations. *Angiology, 48*, 51–57.

Melo, B. V., Toja, P. G. M. D., Lea, F. J. & Couto, R. C. (2015). Quality of life in chronic venous patients who do or do not wear compressive stockings. *Jornal Vascular Brasileiro, 14*(1), 62–67.

Mishra, S., Ali, I. & Singh, G. (2016). A study of epidemiological factors and clinical profile of primary varicose veins. *Medical Journal of Dr. D.Y. Patil University, 9*(5), 617–621.

Moura, R. M. F., Goncalves, G. S., Navarro, T. P., Britto, R. R. & Dias, R. C. (2010). Correlacao entre classificacao clinica CEAP e qualidade de vida na doença venosa cronica. *Revista Brasileira de Fisioterapia, 14*(2), 99–105.

National Institute for Health and Clinical Excellence (NICE) (2012). Venous thromboembolism: Reducing the risk evidence update.Retrieved January 1, 2019, from https://www.nice.org.uk/guidance/cg92/evidence/ evidenceupdate- 243917533

Oglakcioglu, N. & Marmarali, A. (2009). Kompresyon coraplari ve basinc tedavisi.*Tekstil Teknolojileri Elektronik Dergisi, 3*(3), 84–94.

Ozdemir, O. C., Sevim, S., Duygu, E., Tugral, A. & Bakar, Y. (2016). The effects of short-term use of compression stockings on health related quality of life in patients with chronic venous insufficiency. *Journal of Physical Therapy Science, 28*(7), 1988–1992.

Ozkan, Z. K., Findik, U.Y. &Unver, S. (2016). Hastalarin ameliyat sonrasi kompresyon corabi kullanma durumlarının degerlendirilmesi. *F.N Hemsirelik Dergisi, 24*, 30–37.

Ozturk, H. &Ozturk, S.Y. (2014). Alt Extremite Venoz Doppler Ultrasonografik Inceleme Yapilan Hastaların Ozellikleri. *Van Tıp Dergisi, 21*(4), 193–196.

Redolfi, S., Bettinzoli, M., Venturoli, N., Ravanelli, M,Pedroni, L, Taranto-Montemurro, L,… Tantucci, C (2015). Attenuation of obstructive sleep apnea and overnight rostral fluid shift by physical activity. *American JournalofRespiratoryandCritical Care Medicine, 191*, 856–858.

Staniszewska, A., Tambyraja, A., Afolabi, E., Bachoo, P. & Brittenden, J. (2013). The aberdeen varicose vein questionnaire, patient factors and referral for treatment. *European Journal of Vascular and Endovascular Surgery, 46*(6), 715–718.

Szewczyk, M. T., Cwajda-Bialasik, J. & Jawien, A. (2012). Prevention of recurrent venous ulceration. *Postepy Dermatol Alergol, 4*, 308–312.

The Joanna Briggs Institute (2008). Best practice evidence based information sheets for health professionals, graduated comprassion stockings for the prevention of postoperative venous thromboembolism. *Best Practice, 12*(4), 1–4.

Tracz, E., Zamojska, E., Modrzejewski, A., Zaborski, D. & Grzesiak W. (2015). Quality of life patients with venous stasis ulcers and others with advanced venous insufficiency. *Holistic Nursing Practice, 29*, 96–102.

Totur, D. B. & Dal, Y. U. (2018). Varis cerrahisi ve hemşirelik bakımı. *Turkiye Klinikleri Surgical Nursing - Special Topics, 4*, 85–92.

Winslow, E. H., Debra, L. & Brosz, D. L. (2008). Graduated compression stockings in hospitalized postoperative patients: correctness of usage and size. *AJN, 108*(9), 40–50.

Yılmaz, S., Yaylaci, S., Diken, A. I., Yalcinkaya, A. & Aksoy, E. (2015). Alt Ekstremite Venoz Yetmezligi Tedavisinde Kompresyon Coraplari ve Kullanimini Etkileyen Faktorler. *DamarCerrahi Dergisi, 24*(1), 47–53.

Zhang, S. & Melander, S. (2014). Varicose veins: diagnosis, management, and treatment. *The Journal for Nurse Practitioners, 10*(6), 417–424.