Factors Affecting Adherence to the use of Compression Therapies in Varicose Veins in a University Hospital of Nepal

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Abstract

Background

Varicose vein is a very common venous disease which mostly presents as prominent dilated veins. This disorder can be managed conservatively early on in its course with the help of compression bandaging and regular physiotherapy for stretching and strengthening the calf muscles. Herein, we aim to study the possible factors responsible for lack of adherence in using these compression garments in patients with varicose veins.

Methods

This study is a cross-sectional study. All the individuals diagnosed as Varicose Veins between January 2020 to March 2020 were recruited for our study. Individuals having concomitant Deep Vein Thrombosis or Lower Extremity Peripheral Arterial Disease were excluded from the study. Prior to the study, detailed information regarding the study was provided and written consent was obtained. All the individuals were sent to the physiotherapy department for appropriate advice on use of compressive stocking and crepe bandages.

Results

A total of 48 participants diagnosed as varicose veins were recruited for our study. The mean age of the study participants was 43.7 years with standard deviation 13.8 and range between 19-78. Table 1 describes the general parameters of the participants including Age, Sex, Smoking, Occupation, and Educational level. Most of the participants were female (68.8%) and the most common occupation was housewife (27.1%). Most of the participants were educated except 22.9%, who fell under the illiterate category and 60.4% of the participants did not smoke.

Conclusion

Knowledge deficits and involvement of the great saphenous vein was found to be the major factor responsible for less adherence to compression therapies. Clinicians need greater evidence-based clarity regarding approaches to improve adherence with compression stockings.

Keywords: *Compliance, Compression therapies, Varicose veins.*

Introduction

Varicose Veins (VV) refer to the prominent and dilated superficial veins in the lower limb affecting 10-20% of the population with an incidence rate of 19%.[1,2,3] Symptoms include pain, itchiness, heavy sensation, leg cramps and pigmentation.[1]

Limb compression is a widely used technique for pre and post-operative management of VV. Stockings and bandages are commonly used for limb compression, the aim being to reduce haematoma, pain and edema.[4,5,6,7] Some of the known factors to decrease adherence for compression therapies are poor fit, inadequate counseling by doctors, cuts off circulation, too hot, needs assistance to wear, etc. [8] Adherence has always been an issue in practice of health care and particularly in the case of VV. Thus, concluding evidence is still lacking to determine the factors that make patients adhere to the use of compression therapies. Hence, the main aim of this study is to explore the factors affecting adherence to compressive therapies in Nepal.

Methods

This cross sectional study was conducted between November 2020 till September 2021 at Dhulikhel Hospital, a Kathmandu University Hospital. An official permission was taken from Kathmandu University School of Medical Sciences (KUSMS), Institutional Review Committee (IRC), Administrative Department, and from the Department of Surgery and Physiotherapy, KUSMS. Statistical analysis was done using SPSS version 16.0. The nominal variables are expressed in terms of frequency and percentage. Scalar variables are expressed in terms of mean and standard deviation.

All the individuals diagnosed as VV between January 2020 to March 2020 were recruited for our study. Individuals having concomitant Deep Vein Thrombosis or Lower Extremity Peripheral Arterial Disease were excluded from the study. Prior to the study, detailed information regarding the study was provided and written consent was obtained. All the individuals were sent to the physiotherapy department for appropriate advice on use of compressive stocking and crepe bandages. A self administered questionnaire was made by the team which contained detailed information about:

- Demographic information such as age (in years), education (primary/lower secondary/ higher secondary/ bachelors or others), occupation, gender (male/female) and side (right/left/both)
- History of smoking, previous VV surgeries/ sclerotherapy, veins involved
- Clinical characteristics such as pain, itchiness, pigmentation, ulceration
- Compliance related questions for crepe bandaging and compressive stockings

The questionnaire was pre-tested on 10 participants to check for its reliability and necessary corrections were made if any domain needs to be changed or corrected. If the patient was subjected for surgical management of VV, appropriate advice was given during the time of admission. However, in some patients who could not come every month, the questionnaire was filled by doing a telephone interview.

Results

A total of 48 participants diagnosed as varicose veins were recruited for our study. The mean age of the study participants was 43.7 years with standard deviation 13.8 and range between 19-78. Table 1 describes the general parameters of the participants including Age, Sex, Smoking, Occupation, and Educational level. Most of the participants were female (68.8%) and the most common occupation was housewife (27.1%). Most of the participants were educated except 22.9%, who fell under the illiterate category and 60.4% of the participants did not smoke.

Table 1: General parameters of the patients

Age Mean 43.27, SD: 13.8, Range 19-78

Parameters	Values	Percentage
Gender		
Male	15	31.3%
Female	33	68.8%
Occupation		
Housewife	13	27.1%
Farmer	8	16.7%
Teacher	7	14.6%
Nurse	5	10.4%
Others	15	31.25%
Educational level		
Bachelors	12	25.0
Higher secondary level	10	20.8
Lower secondary level	9	18.8
Primary level	6	12.5
Illiterate	11	22.9
Smoking		
Yes	19	39.6
No	29	60.4

Table 2: Clinical characteristics of the patients

Duration of symptoms	Mean duration 0.8 years	SD 1.08, Minimum 1 month, maximum 4 years.
Side		
Right	20	41.7
Left	12	25.0
Both	16	33.3
Pain		
Yes	38	79.2
No	10	20.8
Itchiness		
Yes	14	29.2
No	34	70.8
Pigmentation		
Yes	9	18.8
No	39	81.2
Ulceration		
Yes	1	2.1
No	47	97.9
Veins involved		
GSV	31	64.6
SSV	12	25.0
Both	5	10.4
History of surgical intervention		
Yes	13	27.1
No	35	72.9
History of sclerotherapy session		
Yes	3	6.3
No	45	93.8
Duration of compression therapy	0.80 years (SD 1.08, 0.1-4)	
Use of compression for recommended period		
Compliant	21	42.9
Not Compliant	28	57.1
Primary mode of compression		
Stocking	30	61.2
Both	15	30.6
Crepe bandage	4	8.2

Table 3: Compliance

	Compliant	Not compliant	P value
Mean age (years)	41.2	44.7	0.41
Smoking			
Yes	8	11	0.85
No	13	16	
Gender			
Male	11	4	**0.005**
Female	10	23	
Educational level			
Illiterate	0	3	**0.04**
School level	11	18	
University level	10	6	
Symptoms			
Pain	6	23	0.244
Itchiness	12	5	0.066
Pigmentation	17	5	0.963
Ulceration	1	0	0.252
Veins involved			
GSV	17	14	**0.017**
SSV	1	11	
Both	3	2	
Duration of Symptoms	0.65 years	0.91years	0.405

Among the participants, the most common symptoms were pain (79.2%) and itchiness (29.2%) as shown inTable 2. GSV was involved in 64.6% of the participants and the average duration of the compression therapy used was 0.8 years (8 months). The primary mode of compression was stocking (61.2%). 13 of the participants

had undergone some surgical intervention and 3 had sclerotherapy sessions. Among the participants only 42.9% were compliant to the use of compression therapy. We found that, male gender and having GSV involvement in varicose veins had significantly more non compliant rates. (Table 3). Logistic regression analysis was done using STATA for the significant factors associated with compliance and discomfort (Tightness, Sweating, Warmth, Itching) was found to be the main factor responsible for less compliance (Table 4).

Table 4: Factors determining compliance and non compliance by logistic regression analysis.

Variables	Odds ratio	P value
Gender	0.158	**0.005**
Educational Level	0.366	**0.04**
Veins involved	0.598	**0.017**

Table 5: Reasons for non compliance

Reasons for non compliance	Percentage (n=28)
Discomfort (Tightness, Sweating, Warmth, Itching)	22 (78.5%)
Affordability	14 (50%)
Problem during work	9 (32.1%)
Decrease in symptoms	6 (21.4%)
Cosmetic reason (poor appearance)	3 (10.7%)

Discussion

The results suggest that about half of the participants had less adherence to the use of compression therapies. People who were illiterate, men and who had involved GSV had significant association with compliance. The main factors responsible for less compliance were discomfort, affordability, problems during work, decrease in symptoms and cosmetic reasons. These findings are of clinical importance to health care workers who work for the treatment of varicose veins.

Some of the factors known to affect the compliance were compression discomfort, patient neglect and unfavorable environment. [9] Similar to our study, a study done by Raju et al in 2007, the major factor for non compliance was due to tightness of the stockings. Other factors stated by the literature are physical discomforts such as tightness, sweating, itching, etc, cosmetic reasons and problems during work. Another reason for non compliance was lack of education given by health professionals during the treatment so in order to avoid this, proper education was given by experienced doctors to all the patients beforehand.

In addition, another study found that only 11.5% of the patients who were prescribed compression stockings, used them regularly. [10] Therefore, the poor adherence to use of stockings and bandaging by patients has led to persistence and recurrence of symptoms. [8] Another study reported that 29.2% of the patients were wearing compression stockings, but only 10.4% did so on a daily basis. [5]

A study has found that there is nine times more risk of recurrence to patients who discontinue compressive therapies as compared with the used one. [11] Given that current treatments for VV have been shown to be more effective only when they are adhered to. Therefore, acknowledging the factors responsible can be utilized in improving the adherence. [12]

There is a lack of literature supporting the reason for lack of knowledge on patient's adherence. In a study done in 2021, 27% of the patients didn't wear compression stockings because of knowledge deficits. [13] Similarly in our study, illiterate people were less compliant than people who were educated.

In practice, the willingness of the patients along with its adherence to correctly use the compressive therapies is significantly important for the effectiveness of the treatment. Poor adherence may reduce the health benefits of interventions thus leading to patient dissatisfaction and poor quality of life.

Conclusion

Neither unidimensional or multidimensional studies that have attempted to improve adherence have been able to show a definitive preference for any intervention over others. Clinicians need greater evidence-based clarity regarding approaches to improve adherence with compression stockings and therefore further robust research into multidimensional patient centered approaches is needed.

Limitations

The patients selected in the study were the ones who visited physiotherapy OPD, thus the compliance will be better compared to the ones advised in the OPD. Although both methods were advised, patients were selected even if they opted for only one method and no segregation of the patients was done for this study.

Ethical approval

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Declaration of competing interest

There are no conflicts of interest.

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