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Original Research Article

Phleboscore in chronic venous disease

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ABSTRACT

Background: Chronic venous disease (CVD) is a multifactorial condition affecting among populations worldwide. The symptoms appear early in the progression of the disease and as the time progresses the severity of the disease increases. Thus a proper clinical management tool is essential to prevent potential harms of the disease, which also entails a significant loss of the quality of life in these individuals. The aim of the present study is to make use of the tool phleboscore for the patients with lower limb problems to quantify the risk of developing CVD complications.
Methods: A prospective observational study with 2788 patients with lower limb complaints of venous disease was conducted in the out-patient department at A. J. Institute of medical sciences, Mangalore. Patients were asked about the symptoms of the venous diseases like sensation in the limb, any changes in the limb. The patients with two or more symptoms were assessed with phleboscore questions. Based on the phleboscore a descriptive analysis of the collected data was done.
Results: With regards to the phleboscore patients were divided into three classes; low risk, moderate risk and high risk. Almost 73.6% patients were at medium risk of developing CVD. 7.6% patients at high risk. 63.5% of patients with sedentary lifestyle were at medium risk.
Conclusions: Phleboscore is an essential tool to assess the potential risk of patients developing CVD. This tool helps in early identification of patients who are about to go into high risk group and help them by early interventions to prevent the development of more serious disease.

Keywords: CEAP classification, Chronic venous disease, Phleboscore, Venous pathophysiology, Venous hypertension

INTRODUCTION

Chronic venous disease is a persistent, progressive, common condition widely present among general population worldwide, and the prevalence of these disorders is likely to impact socioeconomically and physically. It is seen to increase with the aging population.[1-4] The exact definition of CVD has remained homogenous probably due to differences between the reported rate of prevalence and recruitment bias.

Chronic venous disease can be graded or classified clinical, etiological, anatomical, and pathophysiological (CEAP), which provides an orderly framework for communication and decision making.[5,6] The clinical signs in the involved limb can be categorised into several clinical classes from C0 to C6.

The descriptive CEAP (Clinical-Etiology-Anatomy-Pathophysiology) classification for chronic venous disorders is widely utilised.

For clinical classification C0 was considered as no signs of venous disease, C1 was telangectasia or reticular veins, C2 was varicose veins, C3 was oedema, C4a was pigmentation or eczema (some include malleolar flare in

this category), C4b was lipodermatosclerosis or atrophie blanche, C5 was healed venous ulcer, and C6 was active venous ulcer.

Each clinical class is further characterised depending upon whether the patient is symptomatic (S) or asymptomatic (A). This classification is used in the recent population based surveys. Management of CVD is usually based on the clinical examination and investigations, but these evaluations do not take into account the lifestyle of the patient, family history or inheritance which is known to be associated with the disease. A specific patient oriented tool-phleboscore allows patient to identify the risk factors of CVD and self-assess the impact these factors may have on CVD progression. It is the key in prevention and early disease management. The objective of the study was to self-assessment tool-phleboscore to quantify the risk of developing CVD.

METHODS

A prospective observational study was carried out in the out-patient department at A.J. Institute of Medical Science for lower limb symptoms of 2788 patients from January 2019 to March 2022. The study was approved by the ethical committee of the institute. The patients were explained about the study protocol and written informed consent was obtained.

Inclusion criteria

Patients aged more than 10 years of age and above were considered who had two or more symptoms of venous diseases were included.

Exclusion criteria

Patients who had symptoms of venous disease after trauma, patients who had venous disease with abdominal tumour were excluded.

Patients were asked screening questions of venous disease in the out-patient department like 1) feeling of any sensation in the lower limb, 2) any changes in the lower limb (discolouration, swelling, reticular veins and itching).

Table 1: Screening questionnaire for the patients.

Question	Response	
Can you feel for any sensation in the limb	No	Yes
Any changes in the limbs like		
Discolouration		
Swelling	No	Yes
Reticular veins		
Itching		

Table 2: Phleboscore questions.

Category	Population
Sex	
Male	0
Female	1
Age	
>10 to 20 years	1
21 to 40 years	2
>40 years	3
Sedentary lifestyle	
Active lifestyle	0
1to 3 years	1
4 to 10 years	2
10 years and above	3
What is your BMI	
<18.5	0
18.5 to 22.9	1
23 to 24.9	2
>25	3
How many times have you given birth?	
Never	0
Once	1
Twice	2
More than twice	3
Which position are you in most of the working day?	
Seated/standing for less than 4 hours	0
Seated/standing for 4-8 hours	1
Seated/standing for more than 8 hours	2
Seated/standing for more than 8 hours and frequent traveling	3
Have a family history of varicose veins?	
No	0
One parent	1
Both parent	2
Both parents with complication	3
Do you walk, swim, cycle or go to gym?	
Yes, at least 3 hours in a week	0
Less than 3 hours in a week	1
Occasionally	2
Never	3
Do your limbs feel heavy?	
No	0
Occasionally	1
Often	2
Always	3
Is this heaviness increased by	
Hot weather?	0
Hormone replacement therapy?	1
Menstruation?	2
Do you have swelling in the feet	
Never	0
Only in hot weather or long trips	1
Yes only in the evening	2
Yes all day	3

The patients with these symptoms were assessed with the phleboscore questions (Table 1). Out of 2788 patients 2498 patients were included and the assessment of venous disease risk score using phleboscore was done. The phleboscore is a tool which uses 11-point questionnaire to asses patient risk of developing CVD (Table 2). Based on the phleboscore, patients were divided into three classes; low risk, moderate risk and high risk. The low-risk class were patients with score <11, moderate risk were patients with score 12 to 22, and high risk were patients with score >22. A descriptive analysis of the collected data was performed.

Table 3: Treatment recommendation as per phleboscore.

Risk category	Treatment recommendation
Low risk group	Lifestyle recommendations to keep veins healthy
Medium risk group	Lifestyle recommendations and treatment like use of venotonics and compression stockings.
High risk group	Progression can be stopped by venotonics, surgery, laser therapy

RESULTS

Out of the 2788 patients included in the study, 2498 patients were assessed with the phleboscore questions.

1281 were females and 1217 were males. Out of 1281, 175 (7.0%) females had a higher risk of developing CVD compared to males 14 (0.6%) (Figure 1).

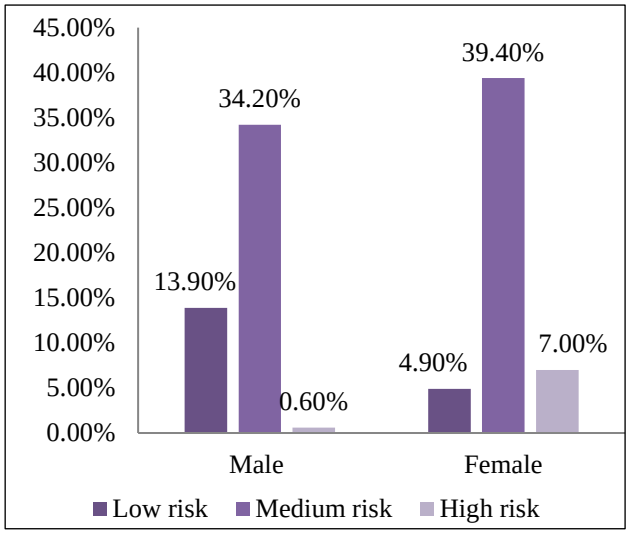

Figure 1: Risk of developing CVD: gender.

Out of 2498 patients 500 patients had active lifestyle and 1998 patients had sedentary life style. In this active lifestyle group 245 (9.8%) were at low risk, 253 (10.1%) were at medium risk and 2 (0.1%) patients had high risk of developing CVD. In the sedentary lifestyle 225 (9.0%) were in low risk, 1586 (63.5%) were at medium risk and 187 (7.5%) were at high risk of developing CVD (Figure 2).

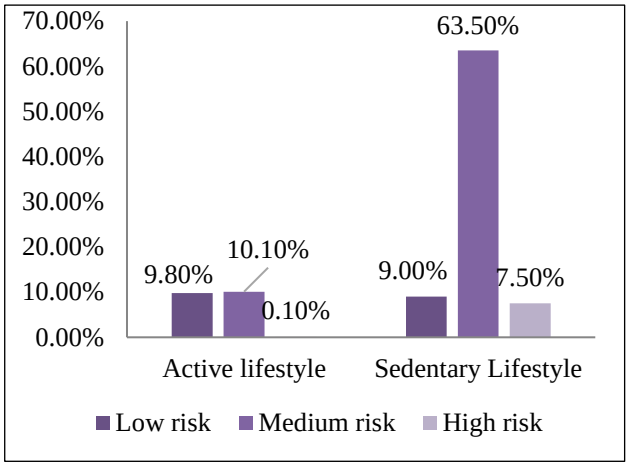

Figure 2: Risk of developing CVD: lifestyle.

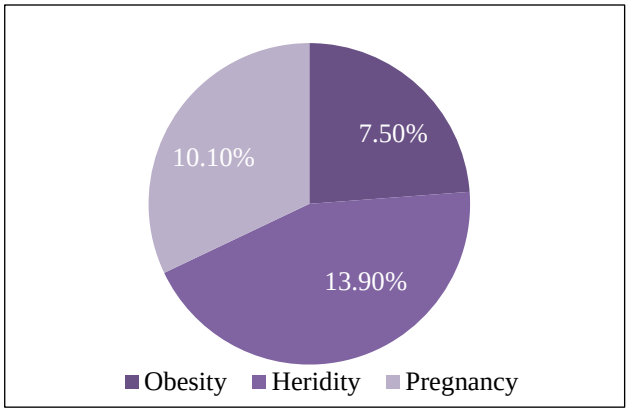

Figure 3: Causes of CVD.

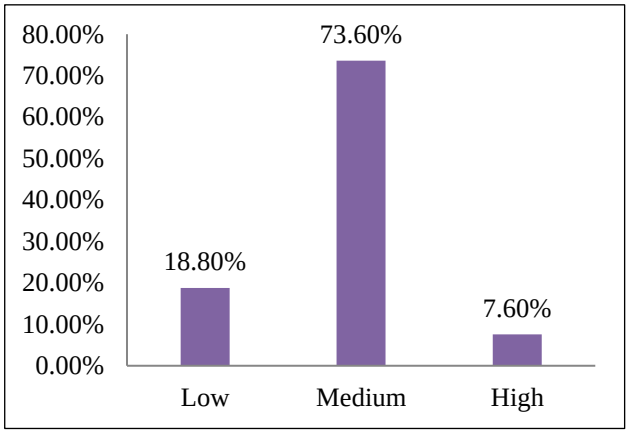

Figure 4: Risk stratification of patients.

The BMI of 7.5% patients with venous disease indicated obesity, 10.1% patients had pregnancy related venous disease and 13.9% patients had family history of CVD (Figure 3).

Overall 189 (7.6%) patients were at higher risk with a score of more than or equal to 23, 470 (18.8%) were at lower risk with a score of less than or equal to 11 and 1839 (73.6%) were at medium risk of developing CVD with a score of 12 to 22 (Figure 4). Low risk patients were advised lifestyle changes to keep vein healthy, moderate risk patients were given venotonics and compression stockings along with lifestyle changes and high risk patients were advised surgery and laser therapy (Table 3).

DISCUSSION

The study focussed on the use of the tool phleboscore to identify patients at risk of developing CVD early.

Age

The prevalence of CVD in our study was more in patients of 40 years and above. In a study conducted by Maly in the Czech Republic, the mean age of CVD was of 44 years.[10] In epidemiological studies it has been seen that the prevalence of CVD increases with age.[1,2,3] Aging was established as an important factor responsible for changes in the venous wall and valves where inflammatory events play a vital role in the aging process and development.[11,12]

Sex

Studies have shown that CVD is more frequent in women than men.[7-9] In this study there was also a predominance of female study participants. 7% of the females had a higher risk of developing CVD than males. Sex related and lifestyle risk factors, such as genetic factors, obstetric history and oral contraceptive use, could be considered partly responsible for the higher frequency of CVD in females.

Lifestyle

Both active and sedentary lifestyles were considered in the study. In this study 63.5% with sedentary lifestyle were at medium risk. Studies have shown the effect of prolonged standing on development of CVD.[13] Regular movement when sitting for long periods was related to lower rates of moderate disease in men.[9] The incidence of varicose veins was higher with the length of time women spent sitting or standing in Framingham study.[7]

Obesity

This study showed 7.5% patients with BMI above 25kg/m^2 were at higher risk in developing CVD. Epidemiological studies like Basel study, Edinburg vein study and Jaw et al study showed relationship between obesity and varicose vein.[14-16] Since obese patients have more severe forms of CVD than non-obese patients, Van Rig et al postulated that obesity increases the severity of the CVD once venous reflux occurs.[17]

Pregnancy

Our study showed 10.1% patients were at medium risk of developing CVD who had more than two deliveries. Several studies found that a greater number of pregnancies were related to an increasing prevalence of developing CVD.[7,18,19] The belief that pregnancy leads to varicose veins due to pressure from the uterus that obstruct venous return from the limbs has been related to the cause of CVD.

Heredity

In our study 13.9% of patients had family history of CVD. There is a strong evidence of genetics in the etiology of CVD. Many studies have showed that risk of developing CVD was 90% when both parents had CVD and 25% when a single parent had CVD.[20] These suggest a strong genetic component, but the genes involved have yet to be discovered.

The advice to the patients depended on the score which divided the patients into three risk groups. Actions were taken according to the risk group (Table 3).

CONCLUSION

In conclusion we found that phleboscore is useful tool to assess the potential risk of patients developing CVD. This tool helps in identifying patients who are about to go into high risk group and help them in early intervention to prevent the development of more serious disease.

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