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A STUDY FOR EVALUATION OF POSSIBLE PREDISPOSING CAUSES OF VENOUS OEDEMA AND ITS PREVALENCE AMONG PROLONGED STANDING OCCUPATIONS

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Abstract

Background

Venous oedema is very common among general population. The main predisposition for Venous Oedema is prolonged standing or sitting in dependant posture which is influenced based on their occupation.

Material and Methods

This was a cross sectional study done in Vascular Surgery Outpatient Department in Tertiary Care Centre. Patients who attended for leg swelling, pain, varicose veins and ulcers were evaluated, taking their occupation into account. Patients suffering from pathological secondary causes for venous oedema (post deep vein thrombosis) were excluded from this study.

Results

The study was conducted among 130 patients with leg swelling, among that 128 patients were suffering from varicose veins. So, 128 patients were suffering from venous oedema. Among these 128 patients, 112 patients belonged to occupational status which demands prolonged standing for more than 8 hours. In this study, the mean age of the study participants was 45.61 with a standard deviation of 12.52, the minimum age was 19 and the maximum age was 76, while maximum of the study participants belong to 31-60yr, i.e., 95 (72%). The development of venous oedema among participants with occupation involving standing more than 6 hrs is 93 (96.9%).

Conclusion

This study evaluated the possible predisposing causes of Venous Oedema and found varicose veins with occupation requiring prolonged standing being significant cause for Venous Oedema.

Keywords: Venous oedema, Long standing occupations, Varicose veins

Introduction

Chronic venous disorders are an important cause of disease and disability worldwide [1]. Venous oedema among people with occupation demanding prolonged hours of standing is common. The main disease behind disabling venous edema, itching , skin changes and ulcer is due to varicose vein. Varicose veins do not threaten life and are seldom disabling, but it causes a considerable demand on medical care [2] and it may lead to venous ulcers and disable the patient to carry out their daily routine occupation. So there is loss of job and income. Though in the western population venous diseases accounts for 10 – 20%, while in India it accounts to 5 % [3], it's not a correct indicator of the disease as the disease registry or proper accounting of venous diseases in India is not properly studied.

Varicose veins is not found in other animals and it is the human beings who have to pay for their erect posture. Varicose veins constitute a progressive disease that becomes steadily worse [4]. Varicose veins are common

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in persons, whose occupation forces them for prolonged standing, for long number of hours while executing their work [5]. Due to venous oedema and ulcer, the patient with prolonged standing suffer from economical loss due to this disability. Such pathophysiological problems are best understood by epidemiological approach by studying the patients who attend Vascular Surgery Department in Tertiary Care for venous oedema.

Materials and Methods

This was a cross sectional study done in Vascular Surgery Outpatient Department in Tertiary Care Centre. Patients who attended for leg swelling, pain, varicose veins and ulcers were evaluated, taking their occupation into account. Patients suffering from pathological secondary causes for venous oedema were excluded from this study. For the purpose of this study, patients with venous oedema due to varicose veins due to prolonged standing as occupation were identified.

Venous oedema is a swelling of the leg caused by a malfunction or obstruction of veins, not due to lymphatic vessels. Socio-demographic details was recorded from the patients who attended Vascular Surgery Department in Tertiary care Unit. In 3 months duration, 130 cases of leg swelling were identified. Among this 128 patients were suffering from venous oedema in which 112 patients work demands prolonged standing for more than 8 hrs.

Results:

Descriptive Statistics Age

	Frequency	Percent
less than 30 yr	16	12.1
31-60yr	95	72.0
more than 60yr	21	15.9
Total	132	100.0

Statistics

Mean age	45.61
Std. Deviation	12.526
Minimum	19
Maximum	76

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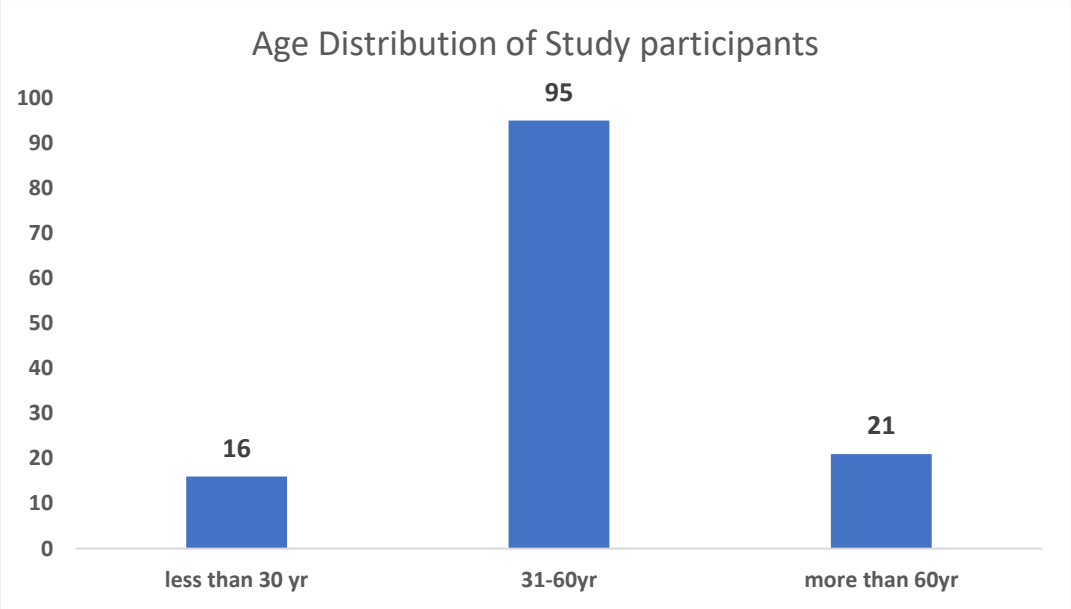
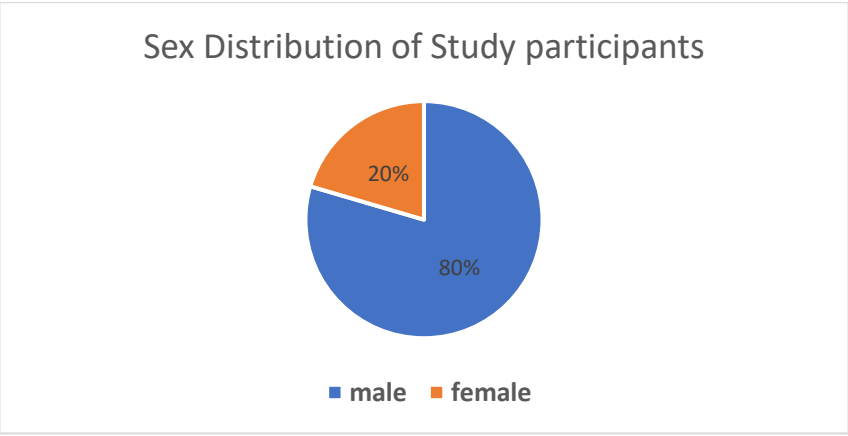


In this study the mean age of the study participants is 45.61 with a standard deviation of 12.526, the minimum age is 19 and the maximum age is 76, while maximum of the study participants belong to 31-60yr, i.e, 95 (72%)

Sex

	Frequency	Percent
male	105	79.5
female	27	20.5
Total	132	100.0



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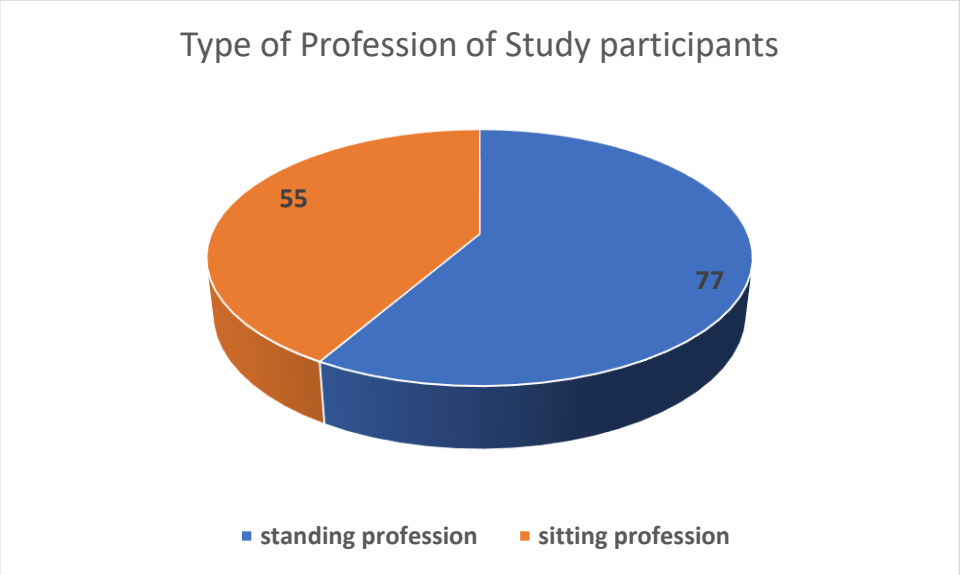
Occupation

	Frequency	Percent
standing profession	77	58.3
sitting profession	55	41.7
Total	132	100.0



Duration

	Frequency	Percent
till 1 yr	63	47.7
till 2yr	43	32.6
till 3yr	22	16.7
more than 3yr	4	3.0
Total	132	100.0

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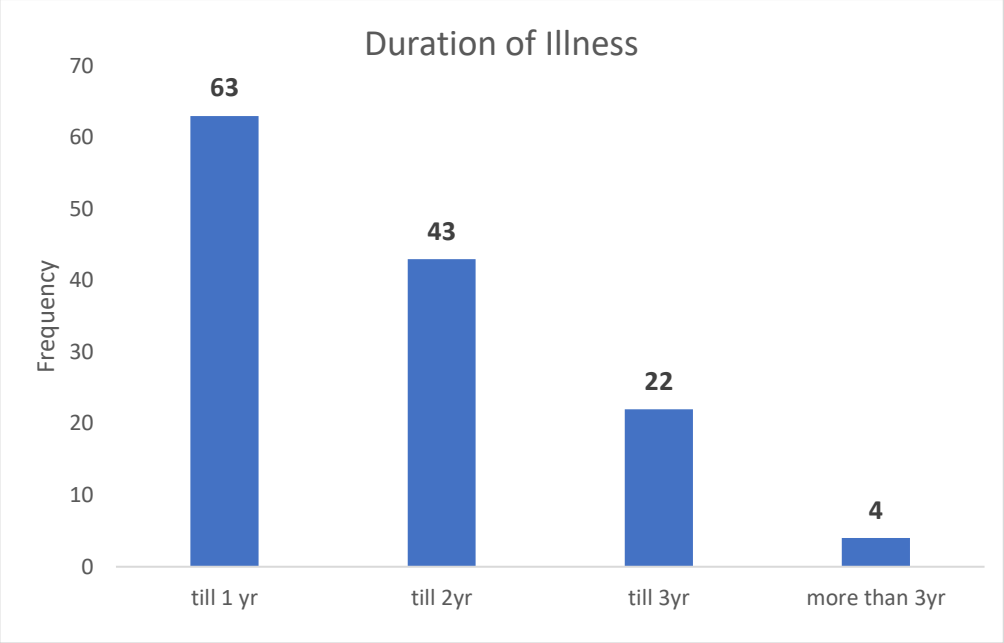
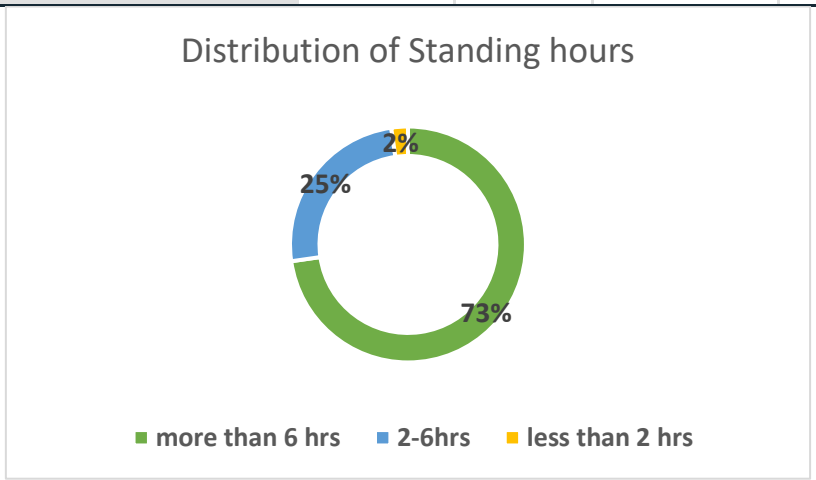


Standing hours

	Frequency	Percent
more than 6 hrs	96	72.7
2-6hrs	33	25.0
less than 2 hrs	3	2.3
Total	132	100.0



Sitting hours

	Frequency	Percent
till 4 hrs	68	51.5

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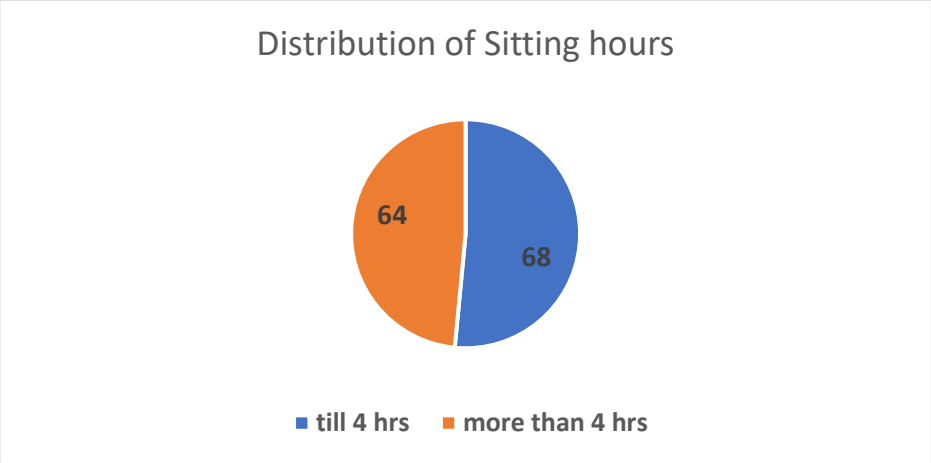
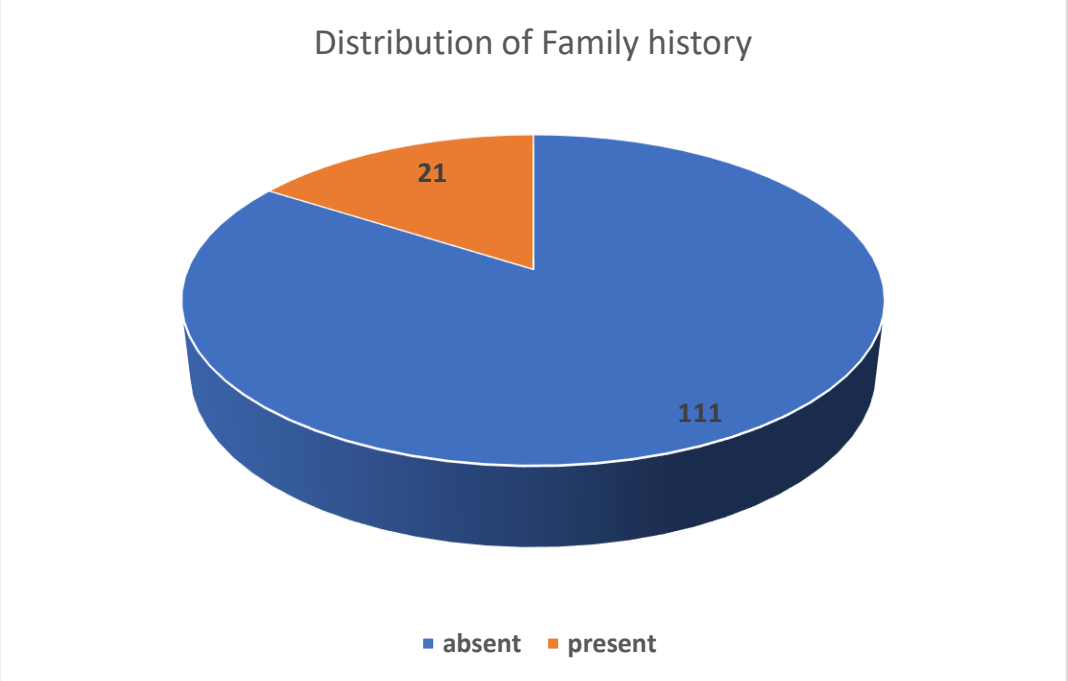
	more than 4 hrs	64	48.5		
	Total	132	100.0		



Family history

		Frequency	Percent		
Valid	absent	111	84.1		
	present	21	15.9		
	Total	132	100.0		



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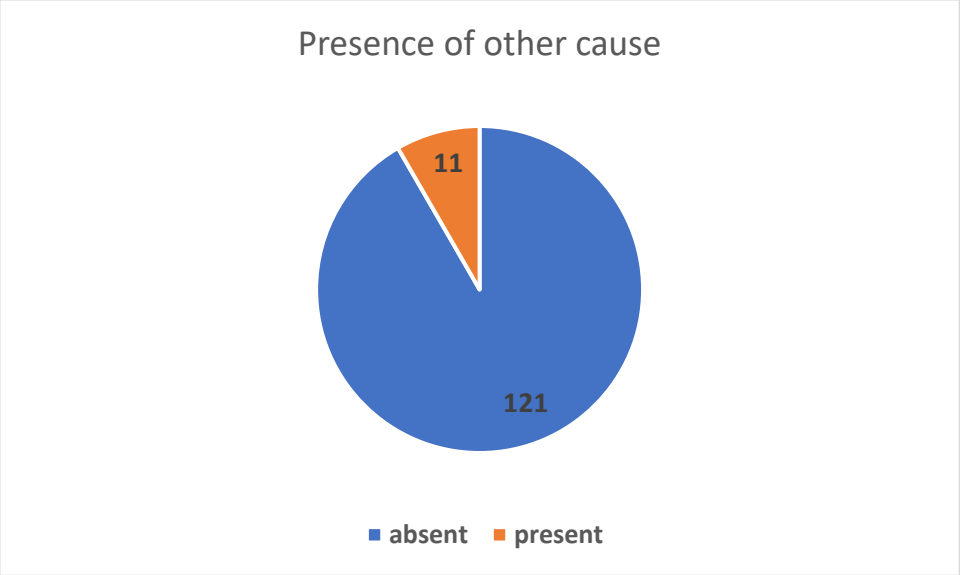
Other causes

		Frequency	Percent
Valid	absent	121	91.7
	present	11	8.3
	Total	132	100.0



Venous edema

		Frequency	Percent
Valid	present	127	96.2
	absent	5	3.8
	Total	132	100.0

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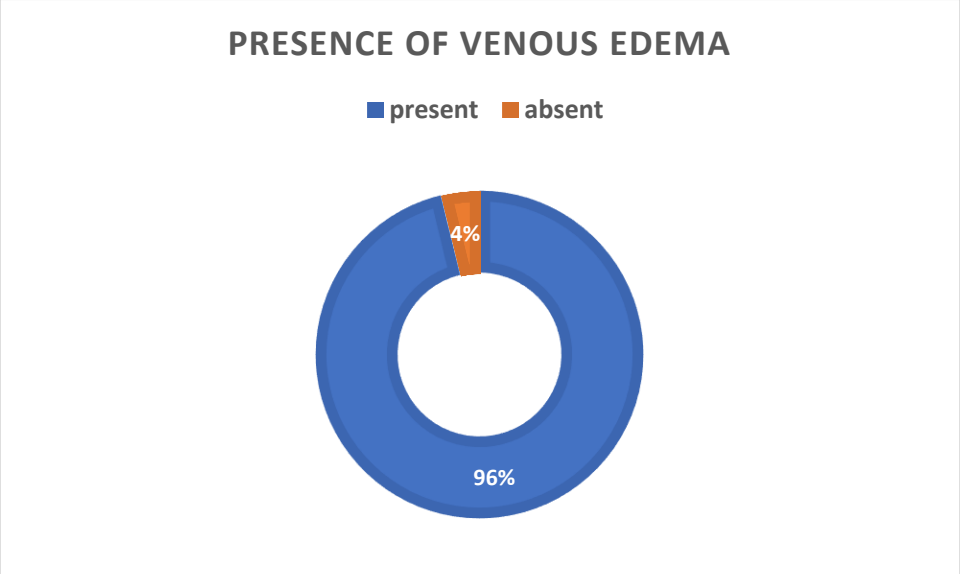
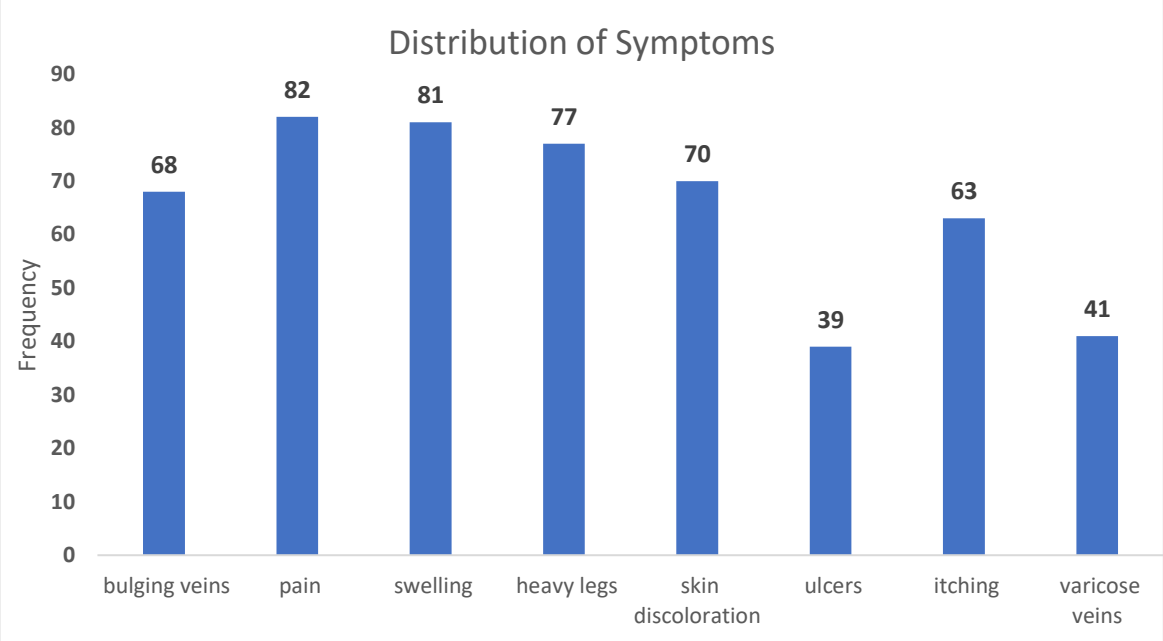


bulging veins	68
Pain	82
Swelling	81
heavy legs	77
skin discoloration	70
ulcers	39
Itching	63
varicose veins	41



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Association between various factors and development of Venous oedema

Variable		**Venous Edema**		**Test Value df**	**p value**
		present	**absent**		
Age of the study participant	Less than 30yr	16(100%)	0(0%)	Fisher's Exact Test Value=0.810	0.783
	31-60yr	90(94.7%)	5(3.6%)		
	More than 60yrs	21(100%)	0(0%)		
Sex of the study participant	Male	101(96.2%)	4(3.8%)	Fisher's Exact test Value=0.01	0.98
	Female	26(96.3%)	1(3.7%)		
Occupation of the study participant	Standing Occupation	74(96.1%)	3(3.9%)	Fisher's exact test Value=0.006	0.039*
	Sitting Occupation	53(96.4%)	2(3.6%)		

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Duration of Illness	Till 1 yr	61(96.8%)	2(3.2%)	Fisher's exact test Value=0.345	0.051*
	Till 2yr	41(95.3%)	2(4.7%)		
	Till 3yr	21(95.5%)	1(4.5%)		
	More than 3yr	4(100%)	0(0%)		
Standing Hours	More than 6 hrs	93(96.9%)	3(3.1%)	Fisher's exact test Value=0.702	0.04*
	2-6 hrs	31(93.9%)	2(6.1%)		
	Less than 2 hrs	3(100%)	0(0%)		
Sitting hours(leg dependant)	Till 4 hrs	65(95.6%)	3(4.4%)	Fisher's exact test Value=0.105	.699
	more than 4 hrs	62(96.9%)	2(3.8%)		
Family History	Absent	106(95.5%)	5(4.5%)	Fisher's Exact test Value=0.983	0.321
	Present	21(100%)	0(0%)		
Other cause	Absent	117(96.7%)	4(3.3%)	Fisher's Exact test Value=0.926	0.336
	Present	10(90.9%)	1(9.1%)		

*P value<0.05, significant

DISCUSSION:

This study was done to seek a better knowledge about the possible predisposing causes of venous oedema and its prevalence among prolonged standing occupations. Venous oedema is commonly associated with varicose veins, which are more common in the Western countries as compared to India which results in considerable morbidity and costs to the health services [6].

Analysing the age group among sample size of 132 patients, the prevalence of venous oedema and varicose vein complications were common among highly productive, earning class age group of 31-60 years which constitutes 72 % (95/132) of patients seeking treatment for venous oedema, pain and varicose vein complications. Productive age group requiring prolonged standing, sitting (Desk Jobs) or combination of both were suffering from venous oedema and pain, affecting their working hours and earnings.

Occupation: Among study sample of 132 participants, 72.7 % (96/132) were doing occupation requiring standing for more than 6 hours. These patients were suffering from venous oedema and varicose vein complications.

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48.5 % (64/132) participants with the similar symptoms and signs were doing occupations requiring sitting for more than 4 hours, keeping their legs in dependent posture. This data correlates with study by F Tu¨chsen et al [7]., which confirms that prolonged standing at work constitutes an excess risk of hospital treatment due to varicose veins.

The prospective study, the population-based Framingham study, has addressed occupational factors. It found that women who reported spending >8 hours a day in sedentary activities had a significantly higher incidence of varicose veins than those who spent < 4 hours a day in such activities, these timings correlate with other study findings, although Framingham study did not address the standing per se [8].

R M Krijnen et al., [9] study also showed venous disease to be high in male workers with standing profession similar to our study. Similarly Agarwal et al., [10] in their study found that prolonged standing (OR 1.78, p=0.032) was one of significant risk factors for venous symptoms with venous oedema being important of it.

Prolonged standing or sitting posture with legs in dependent posture significantly interferes with venous circulation, leading to venous pooling from lower limb. Occupation plays a major role in the development of venous oedema and its complications.

In this present study it was observed that, there was a statistically significant association between occupation of the study participants and development of venous oedema. The development of venous oedema among participants with occupation involving standing for more than 6 hrs is 93 (96.9%) and the p value was 0.039.

It was also found that there was a statistically significant association between duration of illness and development of venous oedema (p value=0.051). We also found an association between standing hours and development of venous oedema. This was also statistically significant, with p value = 0.04.

Conclusion

This study evaluated the possible predisposing causes of venous oedema and found varicose vein with occupation requiring prolonged standing being significant cause for venous oedema, with statistically significant correlation with duration of standing and duration of illness.

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