

CHRONIC VENOUS INSUFFICIENCY (CVI) - A STUDY OF 100 CASES

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Abstract:

This study was carried out in the out patient department of Dhaka Medical College Hospital. 100 patients presented with chronic venous insufficiency during the period of January 2005 to June 2005 were studied to find out the various modes of presentation, risk factors and relationship of symptoms with age, sex and Body Mass Index of the patients. It was found that, maximum patients presented with heaviness in the leg (87%), followed by aching leg pain (75%), leg swelling (70%), cramping leg pain (68%), tiredness (48%), burning pain (43%), engorged leg vein (39%), restless leg at night (21%), throbbing leg pain (18%), itching (13%), various skin changes without active ulceration (7%) and active leg ulceration only 3% of cases. Increasing age of the patients, obesity, increasing number of pregnancy, prolonged standing and sitting position at work were found to be positively correlated with CVI. Advanced age is associated with more advanced stage of CVI according to clinical CEAP classification. There is almost equal sex distribution among the stages of CVI except in advanced stage, in stage C4, C5 and C6 there is 10 patients out of them 9 are male and only 1 is female. Relationship of symptoms with BMI of the patients were also sort out and found that, in C3 group of CEAP classification out of 61 patients 46 are obese according to BMI, of which 32 are female and 14 are male and only 17 patients have BMI within normal range, but in other group there is no significant difference in incidence between two groups.

Introduction:

Chronic venous insufficiency (CVI) is one of the most prevalent, frequently unrecognized & underestimated disease world wide.¹ It is a progressive disease.² CVI includes all changes resulting from dilatations of the veins of the lower limbs, incompetence of their valves & resultant venous hypertension. Presentation of CVI varies, ranging from uncomplicated ankle edema to the most severe forms of post- thrombotic syndrome.³ In Europe, the prevalence of venous disorders in subjects aged 30 to 70 has been estimated at between 25% and 50%.⁴⁻⁶ Venous leg ulcer is certainly one of the most severe complications of CVI. Its prevalence in the general population is between 0.1% and 3.2%.⁷ There is no study on CVI in our country. This study was designed to see various mode of presentation of Chronic Venous Insufficiency, to find out the risk factors and to see relationship of various symptoms of Chronic Venous Insufficiency with age, sex & body mass index of the patients.

Materials and methods:

This prospective study was carried out in the OPD (out patient department) of Dhaka Medical College

Hospital. Hundred patients presented with CVI (chronic venous insufficiency) during the period of January 2005 to June 2005 were enrolled in the study. Chronic venous insufficiency was diagnosed on the basis of clinical criteria including leg swelling, heaviness, aching pain, cramp, itching, burning, throbbing, visible veins, skin pigmentations, active or healed ulceration in the leg. Each patient came to medicine out patient department of DMCH with various leg problems mentioned above was carefully interviewed, initially to exclude other cause of leg swelling such as cardiac failure, chronic liver disease, renal failure, nephrotic syndrome, thyroid disease, fileriasis, obvious arthritis in legs & taking drugs which causes fluid retention such as NSAID's, steroids, calcium channel blockers . After apparent exclusion informed written consent was taken from the patients about the motive of the study. Detailed history was taken and relevant clinical examination was done to all patients. After that, relevant investigations were done to those having suspicion of other cause responsible for edema. Findings of history, clinical examinations and laboratory investigations were recorded in a case record form. Serum albumin and

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urinary albumin was done in all cases and patients having hypoalbuminaemia or proteinuria are finally excluded from the study. A serum albumin < 35 mg/dl was taken as hypoalbuminaemia and urine albumin “+” or more was taken as proteinuria in this study. Serum creatinine, ECG, CXR P/A view, echocardiography, USG of whole abdomen, CFT for fileriasis, serum TSH level were performed in suspected cases and patients having one of the disease may cause leg edema was excluded from the study. Data were coded, edited and entered into computer and were analyzed by using Microsoft Excel program keeping in view the objectives of the study.

Results and Observation

Among 100 cases of CVI (chronic venous insufficiency) studied, 3 (3%) were in C0, 11 (11%) were in C1, 16 (16%) were in C2, 60 (60%) were in C3, 5 (5%) were in C4, 2 (2%) were in C5 and 3 (3%) were in C6 according to clinical CEAP classification. (Table-I).

Table-I

Distribution of patients according to clinical CEAP classification

CEAP	No. of Patients
C0	3
C1	10
C2	16
C3	61
C4	5
C5	2
C6	3

N.B: C0-no visible or palpable signs of venous disease but patient have symptoms; C1- telangiectasia, reticular veins; C2- varicose veins; C3- edema without skin changes; C4- skin changes; pigmentation, eczema, lipodermatosclerosis; C5- skin change with healed ulceration; C6- skin change with active ulceration

Out of these 100 cases, 52 (52%) were female and 48 (48%) were male. (Table-II).

Table - II

Distribution of patients according to sex:

Sex	No. of patients
Male	48
Female	52

Age of the patient ranging from 24 years to 75 years, maximum patient (57 patients) having age between 31- 50 years, 7 patients are below 30 years, 18 having 51- 60 years, 15 having 61- 70 years and only 3 patients of this study are more than 70 years of age. (Table-III).

Table - III

Distribution of patients according to age:

Age (years)	No. of patients
<20	0
21-30	7
31-40	25
41-50	32
51-60	18
61-70	15
>70	3

BMI of all patients were calculated and it shows that 65 (65%) patients are obese, out of them 42 were female and 23 were male. (Table-IV).

Table - IV

Distribution of patients according to BMI (Body Mass Index):

BMI(kg/m ²)	No. of patients
Male	
>25	23
20-25	23
<20	2
Female	
BMI (kg/m ²)	No. of patients
>24	42
19-24	9
<19	1

According to presentation, 87(87%) patients have heaviness in leg, 75(75%) patients have aching pain in leg, 70 (70%) have leg swelling, 68 (68%) have cramping leg pain, 48 (48%) have tiredness, 43 (43%) have burning pain, 39 (39%) have engorged leg vein, 21 (21%) have restless leg at night, 18 (18%) have throbbing leg pain, 13 (13%) have itching, 7 (7%) have

various skin changes including lipodermatosclerosis, eczematization, white atrophy etc and only 3 (3%) patients have active leg ulcer. (Table-V) Maximum patient presented with combination of two or more symptoms, they are shown in Table-VI, Fig.-1.

Table - V
Distribution of patients according to symptomatology:

Symptoms	No. of Patients (Percentage)
Aching	75 (75%)
Heaviness	87 (87%)
Swelling	70 (70%)
Cramping	68 (68%)
Burning	43 (43%)
Itching	13 (13%)
Tiredness	48 (48%)
Restless leg at night	21 (21%)
Throbbing	18 (18%)
Engorged vein	39 (39%)
Skin changes without ulcer	7 (7%)
Active leg ulcers	3 (3%)

Searching family history, it was found that, only 20 (20%) patients have positive family history of venous disease, out of them 9 were positive for father, 10 for mother and 1 patient having both father and mother involvement. (Table-VII)

Prolong standing and prolong sitting position in work place is a risk factors for venous insufficiency, in this study it was found that 27 (27%) patients have history of prolong standing (more than 6 hours in a day) and 35 (35%) patients have history of prolong sitting (more than 6 hours in a day) position in work place.

Out of these hundred patients 9 were diabetic, 6 were hypertensive and 1 is with IHD & HTN.

Table - VIII shows relationship of symptoms with age of the patients. Only positive correlation is patients with C6 i.e. having active leg ulcers are older age group, all of them are above 60 years of age, other CEAP groups have almost similar age distribution.

Relationships of symptoms with sex of the patients were evaluated and plotted in table-IX. 48 patients are male in this study and according to CEAP classification 2 patients are in C0, 3 are C1, 8 are in C2, 26 are in C3, 4 are in C4, 2 are in C5 and 3 patients are in C6 group. In contrast with male, female (total-52 patients) have no C5 or C6 group, more C3 presentation accounting 35 cases, other groups are almost equal such as 1 in C0, 7 in C1 and 8 in C2 group.

Table - VI
Distribution of patients according to reason of consultation:

With leg swelling (70 cases)		Without swelling at present (30 cases)			
Symptoms	No. of pt.	With OLS (9 cases)		Without OLS (21 cases)	
		Symptoms	No of pt.	Symptoms	No of pt.
Only LS	11	Only OLS	2	Only EV	2
LS+P	41	OLS+P	1	EV+P	18
LS+P+EV	9	OLS+P+EV	6	EV+SC	1
LS+P+EV+U	3				
LS+P+SC	6				

N.B: LS- Leg swelling; OLS- Occasional leg swelling; P- Pain; EV- Engorged vein; U- Ulcer; SC- Skin changes

Table -VII*Distribution of patients according to family history of venous disease:*

Positive for	No. of patients
Father	9
Mother	10
Both	1
None	80

Table - VIII*Relationship of symptoms with the age of the patients:*

CEAP	Age of pt.(years)	Mean age
C0	32-45	39
C1	24-68	45.3
C2	35-74	43.43
C3	25-75	48.31
C4	40-68	56.5
C5	52-54	53
C6	60-62	61

Table - IX*Relationship of symptoms with sex*

CEAP	No. patients	
	Male	Female
C0	2	1
C1	3	7
C2	8	8
C3	26	35
C4	4	1
C5	2	0
C6	3	0

Table X shows relationship of symptoms with BMI of the patients, in C3 group of CEAP classification out of 61 patients 46 are obese according to BMI, of which 32 are female and 14 are male and only 17 patients have BMI within normal range, but in other group there is no significant difference in incidence between two groups.

To find out the risk factors of CVI, age itself is a risk factor, as we have seen that increasing age is associated with advanced stage of CVI. Female sex is not such a risk, as we found sex incidence is almost equal among

the 100 patients. Obesity is a major determinant, as we found 65 (65%) patients were obese in this study. Family history of venous disease also sorts out as a risk factor, but only 20 (20%) patients had positive family history of venous disease. Previous history of venous thrombophlebitis is also important risk factors of venous disease, but in my study only 5 (5%) patients had previous history of thrombophlebitis. Number of pregnancy is also associated with CVI, in this study 45 female out of 52 (86.53%) patients have 2 or more pregnancy, and this is shown in table-XI. Smoking is also risk factors for venous disease, in these study total 19 patients were smoker, out of them only 1 is female and 18 are male.

Table - X*Relationship of symptoms with BMI*

CEAP	BMI (KG/M ²)			
	Male		Female	
	>25	≤25	>24	≤24
C0	0	2	1	0
C1	2	1	4	3
C2	2	6	4	4
C3	14	12	32	3
C4	2	2	1	0
C5	1	1	0	0
C6	2	1	0	0

Table-XI*Distribution according to number of pregnancy:*

No. of pregnancies	No. of patients
Nil	1
1	6
2	8
3	22
4	7
5	3
6	4
10	1

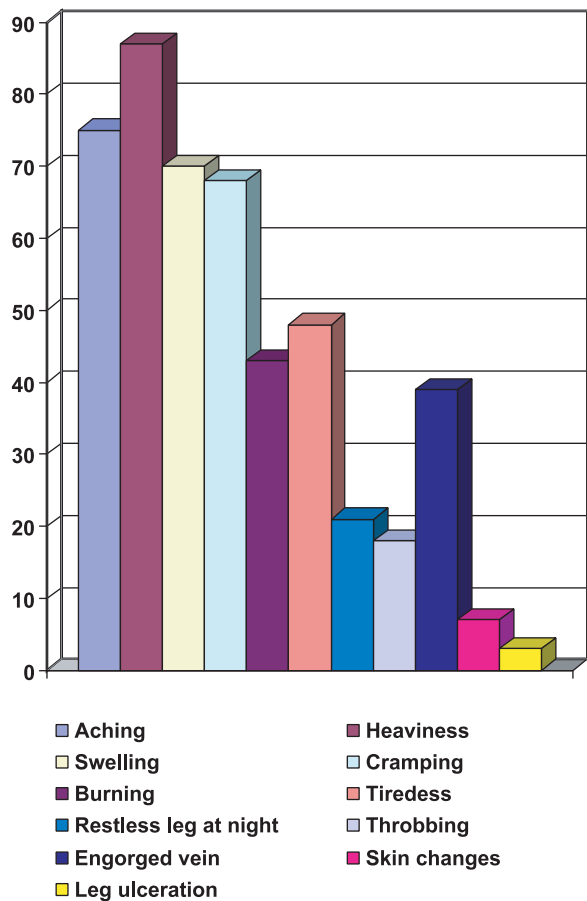


Fig- 1: According to mode of presentation.

Discussion:

The venous system is one of the largest organs of the body, and venous disease is a burden for the society and a cause of much disability.⁸ Chronic venous insufficiency may affect globally 25-50% of adult population and its costs both personal to individual and economic to society are well documented.⁹⁻¹⁷ Many contributing factors are involved in the genesis of varicose disease of the lower limbs such as age, sex, heredity, sedentary life style, number of pregnancies, overweight etc.¹⁸

To find out the relationship between age of the patients and clinical CEAP classification it was found that, higher clinical CEAP classification is associated with increasing age of the patients. Mean age for C0 is 39 years, C1 is 45.3 years, C2 is 43.43 years, C3 is 48.31 years, C4 is 56.5 years, C5 is 53 years and C6 is 61 years. This finding is comparable with RELIEF (Reflux assessment and quality of life improvement with micronized Flavonoids) study¹⁹ they shows a higher clinical CEAP classification correlated with

increasing age of the patients, mean age of patients in C0 was 40.3 years and in C4 it was 54.2 years.

Out of 100 patients 52 were female and 48 were male, this is almost equal in sex distribution, but in the most epidemiological study shows that prevalence of varicose vein is higher in females than in male.²⁰ Difference of result may be due to that, in our community females are less aware of health related problem than male, beside this they almost reside in house and does not come out for any kind of job. So, I did not get any significant sex difference in my study.

In the Polish study,²¹ they showed that, advanced form of venous pathology were more frequent in men compared with women. This finding is comparable to my study that, patient having C6 (the most advanced stage in clinical CEAP) are 3 in number and all are male.

In searching obesity, 63 patients (63%) out of 100 were obese/ overweight having BMI >25 kg/m² in case of male and >24 kg/m² in case of female. This finding is comparable with the study conducted at the Straub Clinic and Hospital in Hawaii,²² they studied 272 patients and found that 61% of patients were overweight. Out of 63 overweight patients, 42 were female and 21 were male, this is also comparable with analysis of the Balse,²³ the Framingham,²⁴ and the Edinburgh²⁵ studies, which shows association between varicose vein and obesity or overweight, is more marked in female than in male.

According to mode of presentation, most patients of this study were presented with clinical C3 groups of CEAP classification, i.e. 61(61%) patients out of 100. We know from previous description that C3 means edema of legs without skin changes. But in the community based study of Tecumseh shows 20% of subjects affected by CVI presents with leg edema.⁴ Number of patients presented with active leg ulceration i.e. C6 were 3 (3%), this finding is comparable with the study conducted by Cornwall JV, Dore CJ, Lewis JD, they shows 0.1 - 3.2% patients presented with leg ulceration.⁷

Prolong standing and sitting position at work has been believed to be associated with the development of varicose vein.²⁶ Whereas some studies have pointed to a relationship between long periods of standing and increased incidence of varicose vein, a lack of association had been reported by others.²⁷ In the women of the Edinburgh Vein Study,²⁵ a clear trend

of prevalence was seen for the amount of time spent standing. In this study it was found that 27 (27%) patients have history of prolong standing (more than 6 hours in a day) and 35 (35%) patients have history of prolong sitting (more than 6 hours in a day) position in work place.

In this study out of 52 female patients, 45 had 2 or more pregnancy. This finding is consistent with the results from Basle²³ and Framingham²⁴ studies, they shows woman with 2 or more pregnancy have an approximately 20% - 30% increased risk of venous insufficiency compared to women with single or no pregnancy.

Conclusion:

CVI (Chronic Venous Insufficiency) is not so uncommon in our country. Majority of patients presented with the complains of heaviness of leg and unexplained leg swelling, sex predilection is almost same for male and female but advanced stages are more common in male patients. Increasing age is associated with more advanced stage of the disease. There are strong association of CVI with obesity, prolong standing and sitting at working place.

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