

# Pattern of Presentation of Chronic Venous Insufficiency in CVI Clinic of Chittagong Medical College Hospital

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## Abstract

**Background:** Chronic Venous Insufficiency (CVI) is a common but often ignored problem in primary health care, sign and symptoms may range from mild leg heaviness or aching, dilated or unsightly veins, or troublesome edema to fibroses subcutaneous panniculitis associated with recurrent cellulitis and chronic ulceration. **Methods:** The prospective observational study was carried out in the Department of Surgery, Chittagong Medical College Hospital, Chittagong. The primary purpose of the present study was to evaluate the impact of the diagnostic approach on patients of chronic venous insufficiency, varicose vein to differentiate primary and secondary venous insufficiency. **Results:** Most common sign of edema was found in 56 (65.12%) patients, followed by dermo-hypodermatitis in 15 (17.44%) patients, stasis eczema in 9 (10.47%) patients and thrombophlebitis in 6 (6.98%) patients. Most frequent lower leg symptoms are heaviness 82 (95.35%) & the lowest is throbbing 55 (63.95%). The others are according to order of frequency: cramps 66 (70.0%), itching 63 (73.26%), burning 61 (70.93%), tiredness 69 (80.23%), restless leg 71 (82.55%), pain aching 76 (88.37%). CVI (Chronic Venous Insufficiency) studied 04 (4.65%) were in C1, 54 (62.79%) were in C2, 03 (3.49%) were in C3, 11 (12.79%) were in C4, 6 (6.98%) were in C5 and 8 (9.30%) were in C6 according to clinical CEAP classification. **Conclusion:** Majority of patients presented with the complaints 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.

**Key words :** Chronic Venous Insufficiency (CVI); Progressive disease; Thrombotic syndrome; Varicose veins.

## INTRODUCTION

The term chronic venous insufficiency refers to the venous valvular incompetence in the superficial, deep and/or perforating veins. Incompetence of the vein valves permits reversal of flow and promotes venous hypertension in the distal segments. This form of venous dysfunction may be the result of recanalisation of thrombosed venous segments, pathological dilation of the vein or due to congenital absence of competent valves<sup>1</sup>. Chronic Venous Insufficiency (CVI) is one of the most prevalent, frequently unrecognized and underestimated disease world wide<sup>2</sup>. It is a progressive disease<sup>3</sup>. Chronic venous insufficiency includes all changes resulting from dilatation of veins of the lower limb, incompetence of their valves and resultant venous hypertension. presentation of CVI varies, ranging from uncomplicated ankle oedema to the most severe form of post thrombotic syndrome<sup>4</sup>.

Typical symptom of Chronic venous insufficiency includes aching pain, tightness, skin irritation, purities, heaviness, tingling, muscle cramps, cosmetically unsatisfying varicose vein. In Europe, the Prevalence of venous diseases in subjects aged 30 to 70 has been estimated at between 25% and 50%<sup>5-7</sup>. venous leg ulcer is certainly one of the most severe complication of CVI. Its prevalence in general population is between 0.1% and 3.2%<sup>8</sup>. Prevalence estimates vary widely by geographic location, with the highest reported rates in Western countries. Reports of prevalence of chronic venous insufficiency vary from < 1% to 40% in females and from < 1% to 17% in males. Prevalence estimates for varicose veins are higher, <1% to 73% in females and 2% to 56% in males<sup>9</sup>. A lower prevalence has been observed in men but some recent surveys have suggested that the occurrence in men may be comparable to that in women<sup>10</sup>. This study was designed to see various modes of presentation of chronic venous insufficiency, to find out the risk factors and to see relationship to various symptoms of chronic venous insufficiency with age, sex and body mass index of the patient.

## MATERIALS AND METHODS

This prospective cross sectional study was carried out Dept of Surgery, Chittagong Medical College Hospital (CMCH). Chittagong during July 2008 to June 2009 patients who attended in CVI clinic at Chittagong Medical College Hospital. Patients who were aged 18 years and above and willing for treatment and given informed written consent were included in this study and patients below 18 years of age were excluded in this study. Data collected with a pre-tested structured questionnaire containing history, clinical, laboratory investigations, pre-operative, post operative complications and post operative follow up findings. Data collected, compiled and tabulated according to key variables. The analysis of different variables was done according to standard statistical analysis by using SPSS-19.

## RESULTS

The mean age was 54.68 ( $\pm 7.45$ ) years, minimum age was 18 years and maximum age was 75 years. Among 86 patients, majority of the patients in this study was male which was 45(52.33%) rest of 41(47.67%) were female. Male female ratio 1.09: 1. Most of the patients 34(39.53%) showed both symptoms & sign of venous diseases for less than 5 years (Table 1). BMI of all patients were calculated and it shows that 20(44.44%) male patients are obese and 30(73.17%) were female patients obese (Table 2). Among 86 Patients, 56 gave history of prolonged standing. Most of the patients 36 (64.30%) gave history of standing more than 8 hrs/day (Table 3). Determinants of chronic venous insufficiency majority 48(55.81%) were varicose disease, followed by 35(40.70%) were

deep thrombophlebitis, 03(3.49%) were venous dysplasia cases (Table 4). The most frequent lower leg symptoms are heaviness 82 (95.35%) & the lowest is Throbbing 55(63.95%). The others are according to order of Frequency cramps 66 (70.0%), Itching 63 (73.26%) Burning 61(70.93%) Tiredness 69 (80.23%) Restless leg 71 (82.55%) Pain aching 76 (88.37%) ( Table 5). Among 85 cases of CVI studied 04 (4.65%) were in C1, 54(62.79%) were in C2, 03(3.49%) were in C3, 11(12.79%) were in C4, 6 (6.98%) were in C5 and 8(9.30%) were in C6 according to clinical CEAP classification. Analysis of doppler ultrasound finding of 59 patients shows 46 patients had involvement of superficial venous system (78%). Among them 15 patients had superficial venous incompetence (25.42%) 13 patients had perforators incompetence (22.03%) & 18 patients had both superficial venous & perforators incompetence (30.51%) 13 patients had deep venous involvement among them. 11 patients had venous incontinence (18.64%) 2 patients had deep venous thrombosis (3.40%) (Table 6).

## RESULTS

**Table 1 :** Demographic characteristics of the study population.

Demographic characteristics	Number	Percentage
Age in years (Mean $\pm$ SD)	54.68 ( $\pm 7.45$ )	Range 18-75 years
Sex		
• Male	45	52.33%
• Female	41	47.67%
Time of diagnosis by years		
• 0-5 yrs	34	39.53%
• 6-10 yrs	28	32.56%
• > 10 yrs	24	27.91%

**Table 2 :** Distribution of patients according to BMI (Body Mass Index).

BMI (kg/m <sup>2</sup> )	Number of Patients	Percentage
Male (n=45)		
>25	20	44.44%
20-25	24	53.33%
<20	02	4.17%
Female (n=41)		
>24	30	73.17%
19-24	09	21.95%
<19	02	4.88%

**Table 3 :** Prolonged standing position.

Group	Total no of patients	Percentage
< 4 Hrs/Day	06	10.71%
4-8 Hrs/Day	14	24.99%
> 8 Hrs/ Day	36	64.30%
Total	56	100.00%

**Table 4 :** Determinant factors distribution.

	Number	Percentage
Varicose disease	48	55.81%
Deep thrombophlebitis	35	40.70%
Venous dysplasia	03	3.49%
Total	86	100.00%

**Table 5 :** Lower leg symptoms.

Symptoms	Total no of patients	Percentage
Pain aching	76	88.37%
Heaviness	82	95.35%
Swelling	79	91.86%
Cramps	66	70.00%
Burning	61	70.93%
Itching	63	73.26%
Tiredness	69	80.23%
Restless Leg	71	82.55%
Throbbing	55	63.95%
Total	86	100.00%

**Table 6 :** CEAP classification.

CEAP Classification	Total no of patients	Percentage
C0	--	0.00%
C1	04	04.65%
C2	54	62.79%
C3	03	03.49%
C4	11	12.79%
C5	06	06.98%
C6	08	09.30%
Total	86	100.00%

**Table 7 :** Doppler Ultrasound findings of patients with varicose vein.

Findings	No of patients	Percentage
Superficial venous incompetence	15	31.25%
Perforators Incompetence	13	27.08%
Mixed Superficial & perforates in competence	20	41.67%
Total	48	100.00%

**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<sup>11</sup>. 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<sup>12-20</sup>.

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<sup>21</sup>.

In present study showed the most frequent lower leg symptoms are heaviness 82 (95.35%) & the lowest is throbbing 55(63.95%). The others are according to order of Frequency cramps 66 (70.0%), Itching (73.26%) Burning 61(70.93%) Tiredness (80.23%) Restless leg (82.55%) Pain aching 76 (88.37%). Shahin-UI-Islam MM et al. study showed 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<sup>22</sup>.

In present study showed BMI of all patients were calculated and it shows that 20(44.44%) male patients are obese and 30(73.17%) were female patients obese. In Shahin-UI-Islam MM et al study searching obesity, 63 patients (63%) out of 100 were obese/ overweight having BMI >25 kg/m<sup>2</sup> in case of male and >24 kg/m<sup>2</sup> in case of female<sup>22</sup>. This finding is comparable with the study conducted at the Straub Clinic and Hospital in Hawaii, they studied 272 patients and found that 61% of patients were overweight<sup>23</sup>. Out of 63 overweight patients, 42 were female and 21 were male, this is also comparable with analysis of the Balse, the Framingham, and the Edinburgh studies, which shows association between varicose vein and obesity or overweight, is more marked in female than in male<sup>24-26</sup>.

In this study shows among 85 cases of CVI studied 04 (4.65%) were in C1, 54(62.79%) were in C2, 03(3.49%) were in C3, 11(12.79%) were in C4, 6 (6.98%) were in C5 and 8(9.30%) were in C6 according to clinical CEAP classification. In study of Shahin-UI-Islam MM et al observed among 100 cases of CVI 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<sup>22</sup>. 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<sup>27</sup>. 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<sup>28</sup>. In current study showed determinants of chronic venous insufficiency majority 48(55.81%) were varicose disease; followed by 35(40.70%) were deep thrombophlebitis 03(3.49%) were venous dysplasia cases. Compare with Florea I et al study, they showed the determinants of chronic venous insufficiency were varicose disease 582(67.36) cases; deep thrombophlebitis 273(31.60) cases, venous dysplasia 9(1.04) cases<sup>29</sup>.

In this study shows ulcer location unilateral leg ulcers were 59(68.60%) cases and bilateral leg ulcers were 27(31.40%) cases. Florea I et al study showed ulcer location unilateral leg ulcers 618 cases (71.5%); bilateral leg ulcers 246 cases (28.5%)<sup>29</sup>.

In this study the contributory factors in our group of patients with chronic venous insufficiency of were diabetes mellitus 13(15.12%) cases, surgical factors 7(8.14%) cases, hypothyroidism 12(13.95%) cases, obesity 05(5.81%) case, cardiovascular disease vascular 5(5.81) cases, digestive disease 06(6.98%) cases, osteo-articular pathology 15(17.44%) cases, genetic predisposition 02(2.33%) cases, multiple pregnancies 14(16.28%) cases, inactivity 05(5.81%) cases. Florea I, et al study showed associated diseases chronic venous insufficiency of were diabetes mellitus 129(14.93%) cases, surgical factors 68(7.87%) cases, hypothyroidism 122(14.12%) cases, obesity 51(5.90%) case, cardiovascular disease vascular 46(5.32%) cases, digestive disease – 59(6.83%) cases, osteo-articular pathology 148(17.13%) cases, genetic predisposition 25(2.89%) cases, multiple pregnancies 137 (15.86%) cases, inactivity 53(6.13%) cases In present study showed the most common sign flebedema found in 56 (65.12) patients was followed by dermo-hypodermatitis in 15(17.44) patients, stasis eczema in 09(10.47) patients and thrombophlebitis in 06(6.98) patients. Florea I, et al study showed the most common sign flebedema found in 65.74% patients was followed by dermo-hypodermatitis in 19.09% patients, stasis eczema in 9.49% patients and thrombophlebitis in 5.67% patients<sup>29</sup>.

## CONCLUSION

CVI (Chronic Venous Insufficiency) is not so uncommon in our country. Determinants of chronic venous insufficiency majority were varicose disease. Chronic venous insufficiency of were diabetes mellitus, surgical factors, hypothyroidism, obesity, cardiovascular disease, osteo-articular pathology, multiple pregnancies. Most common sign were flebedema, dermo-hypodermatitis, stasis eczema and thrombophlebitis. The most common symptoms were cramps, Itching, burning, Tiredness, restless leg, pain aching. CVI (Chronic Venous Insufficiency) studied were in C1, C2, C3, C4, C5 and C6 according to clinical CEAP classification. 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.

## DISCLOSURE

All the authors declared no competing interest.

