DOI: https://doi.org/10.3329/medtoday.v35i2.69273

ORIGINAL ARTICLE OPEN ACCESS

Disease Characteristics of Chronic Venous Disease in Referral Hospital in Bangladesh

Md. Shamim Reza*[1], Md. Nazmus Sabah[2], Mst. Tanzila Yasmin[3], Most. Nusrat Zahan[4], Abul Hasan Muhammad Bashar[5], Md. Moynul Islam[6], Md. Mokhlesur Rahman[7], Shantonu Kumar Ghose[8]

Abstract

Introduction: *Chronic venous disease (CVD) is widespread, underdiagnosed, and can progress to chronic venous insufficiency and venous ulcer, which can require extensive treatment. This condition negatively impacts patient quality of life and place substantial burdens on healthcare resources. In Bangladesh this problem is increasing with very poor awareness.* ***Materials and Methods:*** *The prospective observational study was carried out in department of vascular surgery of National Institute of Cardiovascular disease. We randomly choose 180 patients with chonic venous disease (CVD) and evaluate their characteristics and prevalence of several types. Data collection started from May 2021 for next 6 months.* ***Results:*** *: The patients of this survey were aged between 24 to 70 years and the Mean±SD age was 43.6±12.2. 78.3% of total study population were male, 33.3% were businessman and 10% were housewife. 66.6% patients were having low socio-economic condition. C2 varicose veins were highly prevalent among the study population (35%) & lowest prevalence of C4b lipodermatosclerosis or atrophie blanche (11.7%) we have seen in the study. (31- 40) & (51-60) these two age group were more prone to have CVD, 28.33% (n51) & 26.67% (n48) (p <0.001*) respectively. Male were predominantly more prevalent to having CVD, 78.33% (n141), (p <0.001).* ***Conclusion:*** *Patients having CVD, invariably presented with the complains of heaviness of leg and unexplained leg swelling and Varicose vein were highly prevalent irrespective of sex. Advanced stages are more common in male patients. In every age group were having different stages of CVD. More awareness can help patients to get proper management and relief from chronic venous disease.*

Keywords: *CVD, leg swelling, varicose veins, oedema, skin discolouration.*

Number of Tables: 06; Number of References: 17: Number of Correspondences: 04.

***1. Corresponding Author:**
Dr. Md. Shamim Reza
Assistant Professor
Department of Vascular Surgery
National Institute of Cardiovascular Diseases (NICVD)
Dhaka, Bangladesh.
Email: dr.msreza@gmail.com
Mobile: 01711172952

2. Dr. Md. Nazmus Sabah
Department of Vascular Surgery
National Institute of Cardiovascular Diseases (NICVD)
Dhaka, Bangladesh.

3. Dr. Mst. Tanzila Yasmin
Department of Obstetrics and Gynecology
Bangabandhu Sheikh Mujib Medical University
Dhaka, Bangladesh.

4. Dr. Most. Nusrat Zahan
Department of Medical Affairs
SERVIER Bangladesh operations
Dhaka, Bangladesh.

5. Dr. Abul Hasan Muhammad Bashar
Department of Vascular Surgery
National Institute of Cardiovascular Diseases (NICVD)
Dhaka, Bangladesh.

6. Dr. Md. Moynul Islam
Department of Vascular Surgery
National Institute of Cardiovascular Diseases (NICVD)
Dhaka, Bangladesh.

7. Dr. Md. Mokhlesur Rahman
Department of Vascular Surgery
National Institute of Cardiovascular Diseases (NICVD)
Dhaka, Bangladesh.

8. Dr. Shantonu Kumar Ghose
Department of Vascular Surgery
National Institute of Cardiovascular Diseases (NICVD)
Dhaka, Bangladesh.

Introduction:

Patients with chronic venous disease (CVD) seek treatment for a variety of symptoms and signs that may substantially impact their quality of life (QoL). Symptoms include leg pain, discomfort, and heaviness, whereas the clinical signs of CVD are varicose veins (VVs), oedema, skin discolouration, lipodermatosclerosis, and, in severe cases, venous ulceration. Based on the presence of specific clinical signs, which may or may not be symptomatic but are associated with increasing clinical severity, CVD can be classified from C0 (no signs) to C6 (venous ulceration)[1]. This form of venous

Received: 27 March 2023 *Accepted revised version:* 03 September 2023

dysfunction may be the result of recanalisation of thrombosed venous segments, pathological dilation of the vein or due to congenital absence of competent valves[2]. CVD is a very common problem with varicose veins affecting more than 25 million adults in the United States and more than 6 million with more advanced venous disease[3]. Estimates from the west show that prevalence of varicose veins varies widely from 2–56% in men and from 1–60% in women and venous ulceration affect approximately 0.3% of the adult population[4]. In Bangladesh, there is no published data regarding the prevalence of CVD. However, unpublished data from the National Institute of cardiovascular diseases (NICVD) suggest that about 50% of all patients undergoing Duplex study for vascular diseases are venous patients and more than 80% of venous consultations are for C4-C6 disease[5]. Prevalence estimates for varicose veins are higher, <1% to 73% in females and 2% to 56% in males[6]. 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[7]. This study was designed to see prevalence of chronic venous disease in NICVD and also to see the relationship to various symptoms of chronic venous disease with age, sex and body mass index of the patient.

Materials and Methods:

The prospective observational study was carried out in department of vascular surgery of National Institute of Cardiovascular disease. We randomly choose 180 patients with chronic venous disease (CVD) and evaluate their characteristics and prevalence of several types. Data collection started from May 2021 for next 6 months in patients who was admitted with CVD like symptoms. Who were aged 18 years and above and willing for treatment and given informed written consent were included 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 variable done according to standard statistical analysis by using SPSS-19.

Results:

The patients of this survey were aged between 24 to 70 years and the Mean±SD age was 43.6±12.2. 78.3% patient were male and male: female ratio was 3.6:1. around 80% patient were employed that includes service (23.3%), business (33.3%), farming(10%) and garments working(13.3%). 66.7% patients were from low socio-economic background [Table I]. All types of CVD patients were seen in our study [Table II], among them C2 varicose vein was more prevalent (35%). Advanced stage C5 healed venous ulcer also seen highly prevalent (21.7%).

Table-I: Demographic characteristics of the study patients (n=180)

Variables	Number of patients	Percentage (%)
Age group (years)		
20-30	27	15.0
31-40	51	28.3
41-50	42	23.3
51-60	48	26.7
61-70	12	6.7
Mean±SD Range (min-max)	43.6±12.2 24-70	
Sex		
Male	141	78.3
Female	39	21.7
Male : Female ratio	3.6:1	
Occupation		
Service	42	23.3
Business	60	33.3
Garments worker	24	13.3
Retired	12	6.7
Farmer	18	10.0
Housewife	24	13.3
Socioeconomic status		
Low	120	66.7
Middle	48	26.7
High	12	6.7

Table-II: Distribution of the study patients by clinical classification (n=180)

Clinical classification	Number of patients	Percentage (%)
C2 varicose veins	63	35.0
C3 edema	24	13.3
C4b lipodermatosclerosis or atrophie blanche	21	11.7
C5 healed venous ulcer	39	21.7
C6 active venous ulcer	33	18.3
Total	180	100.0

31-40 years age group were most prevalent having CVD with 51 patients, then 41-50 years age group with 42 patients and 51-60 years age group with 48 patients showing diversified distribution of the disease in the several age groups [Table III]. Male were more prevalent having CVD [Table IV] with 78.3% presence. 27.7% male showed C5 healed venous ulcer ($p<0.001$*) whereas C2 varicose veins were most prevalent among female (69.2%) ($p<0.001$*). C5 healed venous ulcer and C6 healed venous ulcer were mostly prevalent among service holder and businessman [Table V]. Association of CVD with socio-economic status results were in Table VI.

Table-III: Association of clinical classification of CVD with age group (n=180)

Age group (years)		Clinical classification					p-value
		C2 varicose veins	C3 edema	C4b lipodermato-sclerosis or atrophie blanche	C5 healed venous ulcer	C6 active venous ulcer	
20-30	27	24(88.9%)	3(11.1%)	0(0.0%	0(0.0%	0(0.0%	<0.001*
31-40	51	21(41.2%)	0(0.0%)	6(11.8%)	9(17.6%)	15(29.4%)	
41-50	42	12(28.6%)	9(21.4%)	3(7.1%)	3(7.1%)	15(35.7%)	
51-60	48	6(12.5%)	12(25.0%)	0(0.0%)	27(56.3%)	3(6.3%)	
61-70	12	0(0.0%)	0(0.0%)	12(100.0%)	0(0.0%)	0(0.0%)	
Total	180	63(35.0%)	24(13.3%)	21(11.7%)	39(21.7%)	33(18.3%)	

p-value obtained by Chi-square test, *significant

Table-IV: Association of clinical classification of CVD with sex (n=180)

Sex		Clinical classification					p-value
		C2 varicose veins	C3 edema	C4b lipodermatos-clerosis or atrophie blanche	C5 healed venous ulcer	C6 active venous ulcer	
Male	141	36(25.5%)	12(8.5%)	21(14.9%)	39(27.7%)	33(23.4%)	0.001*
Female	39	27(69.2%)	12(30.8%)	0(0.0%)	0(0.0%)	0(0.0%)	
Total	180	63(35.0%)	24(13.3%)	21(11.7%)	39(21.7%)	33(18.3%)	

p-value obtained by Chi-square test, *significant

Table-V: Association of clinical classification of CVD with occupation (n=180)

Occupation		Clinical classification					p-value
		C2 varicose veins	C3 edema	C4b lipodermato-sclerosis or atrophie blanche	C5 healed venous ulcer	C6 active venous ulcer	
Service	42	18(42.9%)	3(7.1%)	9(21.4%)	0(0.0%	12(28.6%)	<0.001*
Business	60	18(30.0%)	9(15.0%)	0(0.0%)	12(20.0%)	21(35.0%)	
Garments worker	24	12(50.0%)	3(12.5%)	0(0.0%)	9(37.5%)	0(0.0%)	
Retired	12	0(0.0%)	0(0.0%)	12(100.0%)	0(0.0%)	0(0.0%)	
Farmer	18	0(0.0%)	0(0.0%)	0(0.0%)	18(100.0%)	0(0.0%)	
House wife	18	15(62.5%)	9(37.5%)	0(0.0%)	0(0.0%)	0(0.0%)	
Total	180	63(35.0%)	24(13.3%)	21(11.7%)	39(21.7%)	33(18.3%)	

p-value obtained by Chi-square test, *significant

Table-VI: Association of clinical classification of CVD with socioeconomic status (n=180)

Socioeco-nomic status		Clinical classification					p-value
		C2 varicose veins	C3 edema	C4b lipodermatos-clerosis or atrophie blanche	C5 healed venous ulcer	C6 active venous ulcer	
Low	120	45(37.5%)	15(12.5%)	9(7.5%)	27(22.5%)	24(20.0%)	0.001*
Middle	48	18(37.5%)	9(18.8%)	0(0.0%)	12(25.0%)	9(18.8%)	
High	12	0(0.0%)	0(0.0%)	12(100.0%)	0(0.0%)	0(0.0%)	
Total	180	63(35.0%)	24(13.3%)	21(11.7%)	39(21.7%)	33(18.3%)	

p-value obtained by Chi-square test, *significant

Discussion:

In our body, venous system is an important and one of the largest organs of the body, and venous disease is a burden for the society and a cause of much disability[8]. The prevalence of CVD increases with age and it is more common in women than men[9]. However, estimates of CVD prevalence vary widely from study to study (15–80%) due to differences in study design and target population [10–15], A study conducted in 3000 primary care patients in Pakistan, which reported a CVD prevalence of 34.8% [16]. This study also reported a higher prevalence of CVD in men (36.4%) than in women (33.0%) and of C3 (36.7%) than symptomatic C0 (C0S) (14.6%), C1 (13.8%) and C2 (15.8%). Compared with other studies, the sample population of this study was younger (mean age 39 years) and consisted mostly of males (52.6%)[16]. Our study showed consistent result with the Pakistani one, showing high prevalence in male than female. Vein Consult was an international study that recruited 91,545 patients from 20 countries in Europe, Latin America, Middle East and South East Asia, while the study conducted by Vuylsteke and colleagues included 6009 patients from Belgium and Luxembourg[17] had a similar mean age (50.6 and 53.4 years, respectively) with which our result remain consistency with similar age group.

Conclusion:

Chronic venous disease is not uncommon in Bangladesh. Patients often faces heaviness of leg and unexplained leg swelling and engorged vein but rarely seek support from healthcare professionals at the first place. In our study we found there is no distinct age group was there with high prevalence rather CVD can be happened every group. Moreover, male are having more CVD than female> advance stages comes with increasing age and also without proper follow up by the physicians. A well-designed awareness activity can be implemented nationally in order to increase awareness so that patients get to know the disease characteristics and seek support from health care professional.

Conflict of Interest: None.

Acknowledgement:

Department of vascular surgery for their tremendous support in collecting data and counseling the patients.

References:

1. Adv Ther. https://doi.org/10.1007/s12325-019-0881-7
2. Zwiebel WJ. Ultrasound diagnosis of venous insufficiency. In: Zwiebel WJ. Introduction to vascular ultrasonography. 5th ed, WB saunders company. 2005; 479. https://doi.org/10.1016/B978-0-7216-0631-6.50032-4
3. Beebe-Dimmer JL, Pfeifer JR, Engle JS, Schottenfeld D. The epidemiology of chronic venous insufficiency and varicose veins. Ann Epidemiol. 2005; 15: 175-184. https://doi.org/10.1016/j.annepidem.2004.05.015 PMid:15723761
4. Robertson L, Evans C, Fowkes FG. Epidemiology of chronic venous disease. Phlebology 2008; 23(3):103-111. https://doi.org/10.1258/phleb.2007.007061 PMid:18467617
5. Chronic Venous Disorders: A Contemporary Review Abul Hasan Muhammad Bashar Department of Vascular Surgery, NICVD, Dhaka. https://doi.org/10.3329/cardio.v12i1.43421
6. Das S. Ulcers of the leg. Surgical Short cases. 3rd edition. 2007; 15:183.
7. Beebe-Dimmer JL, Pfeifer JR, Engle JS, Schottenfeld D. The epidemiology of chronic venous insufficiency and varicose veins. Ann Epidemiol. 2005; 15(3): 175-84. https://doi.org/10.1016/j.annepidem.2004.05.015 PMid:15723761
8. Jhon J, Bergan. Update on Fundamental Causes and Management of Chronic Venous Insufficiency. The Journal of Vascular Disease, Angiology. 2003; 54: S1. https://doi.org/10.1177/0003319703054001S02 PMid:12934752
9. Bergan JJ, Schmid-Schonbein GW, Smith PD, Nicolaides AN, Boisseau MR, Eklof B. Chronic venous disease. N. Engl. J. Med. 2006; 355(5), 488-498. https://doi.org/10.1056/NEJMra055289 PMid:16885552
10. Onida S, Davies AH. Predicted burden of venous disease. Phlebology 31(Suppl. 1). 2016;74-79. https://doi.org/10.1177/0268355516628359 PMid:26916773
11. Reviews the current and future burden of chronic venous disease from an epidemiological, quality of life and economic perspective.
12. Dimakakos E, Syrigos K, Scliros E, Karaitianos I. Prevalence, risk and aggravating factors of chronic venous disease: an epidemiological survey of the general population of Greece. Phlebology.2013; 28(4), 184-190. https://doi.org/10.1258/phleb.2011.011143 PMid:22451459
13. Khan AF, Chaudhri R, Ashraf MA, Mazaffar MS, Zawar-Ul-Imam S, Tanveer M. Prevalence and presentation of chronic venous disease in Pakistan: a multicentre study. Phlebology. 2013; 28(2), 74-79. https://doi.org/10.1258/phleb.2012.011122 PMid:22528694
14. Vuylsteke ME, Thomis S, Guillaume G, Modliszewski ML, Weides N, Staelens I. Epidemiological study on chronic venous disease in Belgium and Luxembourg: prevalence, risk factors, and symptomatology. Eur. J. Vasc. Endovasc. Surg. 2015;49(4), 432-439. https://doi.org/10.1016/j.ejvs.2014.12.031 PMid:25701071
15. Zolotukhin IA, Seliverstov EI, Shevtsov YN, et al. Prevalence and risk factors for chronic venous disease in the general Russian population. Eur. J. Vasc. Endovasc. Surg.2017; 54(6), 752-758. https://doi.org/10.1016/j.ejvs.2017.08.033 PMid:29031868
16. Rabe E, Guex JJ, Puskas A, Scuderi A, Fernandez Quesada F, Coordinators VCP. Epidemiology of chronic venous disorders in geographically diverse populations: results from the Vein Consult Program. Int. Angiol. 2012; 31(2), 105-115 (2012).
17. J. Comp. Eff. Res. (2020); 9(17).