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Clinical Profile of Patients with Chronic Venous Insufficiency in a Community-Based Population in the Philippines: National Nutrition and Health Survey

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ABSTRACT

There is a scarcity of data on the prevalence and presentations of chronic venous disease (CVD) and chronic venous insufficiency (CVI) among Asians. Our study population comprised 7,212 subjects surveyed during the last National Nutrition and Health Survey (NNHeS) in 2008. The previously validated Southern Tagalog Venous Insufficiency Questionnaire (STVIQ) was used by research assistants to identify patients with CVD. The survey found that 52.5% of the subjects had CVD, while only 1.6% had CVI. CVD is common in the Philippines. It is reported in approximately five out of 10 Filipinos, both as a symptomatic condition (about 60% report symptoms) and as manifested by visible veins. CVD is more common among women, and it increases in prevalence with age. It may lead to loss of productivity and greater healthcare costs. Early recognition and education may be necessary to increase awareness of this disorder. Early therapy may likewise be warranted to prevent its long-term debilitating sequelae. Increasing awareness of CVI and CVD among primary care physicians and other healthcare providers, as well as providing them with a low-cost clinical screening tool, will significantly contribute towards diminishing the burden of CVD.

INTRODUCTION

Chronic venous disease (CVD) is a significant cause of morbidity and mortality. CVD in the lower extremities has a substantial impact on quality of life. It causes loss of productivity. It also increases economic burden.

CVD is an underrecognized and underdiagnosed condition despite the fact that it is highly prevalent and results in significant morbidities with considerable costs.[1-5] There is a wide range of reported prevalence rates because of variations in working definitions, study populations and methods of screening and detection. Most of the previous studies of CVD included only visible disease, while other reports included both visible and functional disease, with the latter referring to the presence of obstruction or reflux documented by imaging methods such as venous duplex ultrasonography or venography.[3]

CVD encompasses various clinical conditions that manifest with structural, physiologic and functional abnormalities of the venous system, evinced by symptoms or signs or both. Therefore, the term CVD includes the full spectrum of venous abnormalities; namely, spider veins, reticular veins, telangiectasia, varicose veins, limb swelling, stasis pigmentation, lipodermatosclerosis or venous ulcers.[1,2] Chronic venous insufficiency (CVI) specifically refers to the more advanced conditions resulting from venous hypertension, manifested by edema, pigmentation changes and venous ulcers, including CVD symptoms such as tingling, aching, burning, pain, muscle cramps, swelling, throbbing, heaviness, pruritus, and tired or restless legs.[1,2] More contemporary reports include the presence of functional venous disease.[4] Available data reveal prevalence rates of CVD ranging from <1% to 40% in females and from <1% to 17% in males, while estimates of varicose veins prevalence range from 2% to 56% in men and from 1% to 60% in women.[1-9] One study reported on the presence of functional venous disease, where superficial functional disease was found to be more common in women, while deep functional disease was more common in men.[4]

There are limited data on the prevalence of CVD in the Asian population.[4,10-13] In 2008, the Southern Tagalog Venous Insufficiency Questionnaire (STVIQ) was designed by Maravilla et al as a tool for a nationwide survey on the prevalence of CVD.[14] This tool was used in the 2008 National Nutrition and Health Survey (NNHeS) to determine the overall burden of CVD in a community-based population in the Philippines. The NNHeS survey showed a high crude prevalence rate of CVD in the Philippines, at 52.5% among subjects who are ≥20 years old (Table 1).[12] The overall crude prevalence rate was similar to that reported in a contemporary Asian study using functional tests.[15]

The demographic and clinical profiles of patients with CVI have not been reported in a community-based Filipino population. Knowing the clinical presentation of patients with the more advanced stages of CVD may facilitate the earlier identification of these patients so that appropriate diagnostic and therapeutic measures can be promptly instituted.

The primary objective of this study was to report the demographic and clinical profiles of patients diagnosed to have CVI in a community-based Filipino population using the STVIQ.

METHODOLOGY

The NNHES used six standardized and validated questionnaires for the collection of clinical and health data. The STVIQ was standardized and validated by the Southern Tagalog peripheral vascular specialists under the Philippine Heart Association (PHA) Council on Stroke and Peripheral Vascular Disease. The questionnaire evaluated the respondents on the presence of CVD symptoms and signs. The questionnaire booklet was translated from English to Filipino to avoid any misunderstanding of the questions and to facilitate the interview process.

The questionnaire was approved by the Ethics and Clearance Committee of the National Statistical Coordination Board. Pretesting of the questionnaire was conducted last April 2008 in Bicutan, Taguig City, to assess the correctness, clarity, time requirement and suitability of each question before the booklets were finalized and reproduced.

Booklet 8A was used to list all the members of the sampled households, including some background information on each member, such as age, sex, relationship with the head of the household, civil status and physiological status. Booklet 8F, referred to as the NNHeS: 2008 questionnaire, contained all information regarding other noncommunicable diseases (NCD), including peripheral vascular disease.

The seventh NNHeS field operations were carried out by four major survey teams, each headed by a team coordinator. Each team comprised six sub-teams composed of a team leader, two anthropometric researchers, two dietary researchers, two clinical researchers (one registered medical technologist and one nurse), one biochemical researcher and a science aide. A total of 24 sub-teams participated in the entire survey.

Prior to field data collection, all members of the clinical survey team attended a series of training sessions provided by consultants/experts from the participating medical societies. The training included lectures, demonstrations and hands-on examinations. Another training session, provided by the PHA Council on Peripheral Vascular Disease, was dedicated for the STVIQ and ankle brachial index (ABI) determination. The FNRI-DOST also conducted a one-week training session to orient and familiarize participants with the different questionnaires used in the field, as well as to provide them with an in-depth understanding of the standard interview process. Finally, all researchers, including field supervisors, attended the field practicum and reliability tests to ensure adequate skills for nutritional assessment.

We checked the data collected in the field for completeness of entries. Data encoders entered the data using MySQL database. Two rounds of proofreading ensured the correctness and validity of encoded data. After manual and computer data validation, we merged several data files to create a master dataset. This was followed by another round of checking and validation of the dataset to eliminate errors and inconsistencies. Sampling weights were computed and attached to the master dataset in preparation for data analysis. We used Stata 11 to process and analyze the data. Distribution and prevalence of CVI and CVD based on signs and symptoms and were categorized according to age and sex. For this phase of the NNHeS study, only associations with age and gender could be analyzed.

Estimates of disease prevalence were corrected for false-positive and false-negative results of the instruments used. True disease prevalence was calculated using the Marchevsky formula.

RESULTS

A total of 7,212 subjects (3,319 males and 3,893 females) aged ≥20 years were randomly surveyed using the STVIQ. The crude overall prevalence rate of CVD was 52.5% (3,788 out of 7,212). CVD was more prevalent among females (58.6%) than males (45.2%). Prevalence increased with age in both genders (Table 1).[12] Table 2 shows the distribution of respondents with CVD according to clinical staging of visible venous disease in the general population.[12] No one was identified to have active venous ulcers (C6).

Table 1. Prevalence of CVD in the general population according to age and gender.

Gender/Age	Number of surveyed individuals	Prevalence of CVD (%, SE)
Males	3,319	45.2 (1.2)
20–29	822	33.4 (2.0)
30–39	757	44.7 (2.1)
40–49	742	49.4 (2.0)
50–59	490	46.7 (2.5)
60–69	314	57.0 (3.1)
70+	194	58.0 (3.8)
Females	3,893	58.6 (1.0)
20–29	922	43.0 (1.7)
30–39	894	55.3 (1.8)
40–49	807	63.9 (1.8)
50–59	604	68.1 (2.0)
60–69	398	70.6 (2.4)
70+	268	69.7 (3.1)
Overall	7,212	52.5 (0.9)

CVD=chronic venous disease; SE=standard error.

Among those with CVD, only 1.6% of the general population (116 of 7,212 subjects) had CVI. This includes those with typical symptoms of CVI, with or without visible venous disease, such as dependent leg edema, stasis pigmentation, and healed or active stasis ulcers.

Among those with CVD, 3% had CVI (116 of 3,788). Table 3 shows the distribution of subjects with CVD according to the presence of typical or atypical symptoms of leg pain or swelling.[12]

Maravilla et al reported that, among those with CVD in the general Filipino population surveyed by NHeS in 2008, about 45% of the overall group complained of symptoms: 47% of the female subjects and 41% of the males.[12] Among those with CVI, nearly two-thirds (60%) had typical symptoms. Eighty-nine percent had leg edema while 7.8% had stasis pigmentation and 3.4% had healed venous ulcers. Among those with CVI, the largest group was that of females who presented with typical symptoms and leg edema. Stasis pigmentation and ulcers were evenly distributed among males and females.

DISCUSSION

The NNHeS survey showed a high crude prevalence rate of CVD in the Philippines, at 52.5% among subjects ≥20 years. Our overall crude prevalence rate finding was similar to what was reported in a contemporary Asian study using functional tests.[15] Data from the Edinburgh Vein Study showed age-adjusted CVI prevalences of 9% in men and 7% in women.[5] However, if the presence of trunk varices was considered, the age-adjusted prevalences were 15% in men and 34% in women. In the SU.VI.MAX (SUpplémentation en VItamines et Minéraux Anti-oXydants) cohort, venous insufficiency was medically diagnosed in 14.6% of French men and 33.6% of French women, but varicose veins were diagnosed in 74.5% and 54.2% of the male and female subjects, respectively.[7]

Only 1.6% showed signs of CVI (C3–C6), with higher rates of leg edema among females and similar rates of stasis pigmentation/ulcer among males and females. Our prevalence data are similar to those of the Asians in the study of Criqui et al (n=273), where 45.4% had spider veins, 18.7% had varicose veins and 4.8% had trophic changes; only 12.5% had superficial vein functional disease, and 8.8% had deep vein functional disease.

On the other hand, a separate study using a Doppler ultrasound–based diagnostic method found CVI to be more common in the Asian group (62.5%) than in other ethnic groups, particularly in the common femoral vein and the saphenofemoral junction. The underlying factor may be the smaller vein diameter among Asians.[15]

There were more women with visible veins (60.1%) and also a higher percentage of females with symptomatic CVD (47.4% in women vs. 40.6% in men). The increasing prevalence of visible veins with age seems to indicate that age is a risk factor for venous insufficiency. However, this finding appears to be more consistent for visible veins than for symptomatic CVI, as was also noted in the San Diego Population Study.[4]

Epidemiologic studies have been performed in many countries, but they usually focused on varicose veins. More recently, the CEAP (clinical-etiology-anatomy-pathophysiology) classification was accepted internationally as a standardized method of classifying and reporting the different manifestations of CVD. The reported prevalence rates are now more similar, with classes C0 and C1 together being the most frequently reported in more than 60% of the population.[16] The worldwide prevalence of CVD was 83.6%, with 64% presenting with reticular veins, varicose veins, edema, stasis hyperpigmentation and ulcers. Reticular veins, varicose veins and edema appeared to be more

Table 2. Distribution of the subjects in the general population according to age, gender and clinical staging (CEAP).

Age/ Sex	No Visible/ Palpable Signs (C0)		Reticular Veins (C1)		Varicose Veins (C2)		Edema (C3)		Pigmentation (C4)		Healed Venous Ulcer (C5)	
	N	% (SE)	n	% (SE)	n	% (SE)	N	% (SE)	n	% (SE)	n	% (SE)
Males (3,319)	**1,809**	**54.8 (1.2)**	**965**	**29.2 (1.1)**	**502**	**14.8 (0.7)**	**38**	**1.0 (0.2)**	**4**	**0.1 (0.05)**	**1**	**0.02 (0.02)**
20–29 (822)	549	66.6 (2.0)	214	26.1 (1.8)	56	6.8 (1.0)	3	0.4 (0.2)	0	0 (0)	0	0 (0)
30–39 (757)	418	55.2 (2.1)	220	29.5 (1.8)	110	14.1 (1.4)	9	1.1 (0.4)	0	0 (0)	0	0 (0)
40–49 (742)	375	50.6 (2.0)	230	31.3 (1.8)	130	17.3 (1.5)	6	0.7 (0.3)	1	0.1 (0.1)	0	0 (0)
50–59 (490)	251	53.3 (2.5)	142	28.5 (2.3)	86	16.4 (1.7)	11	1.8 (0.6)	0	0 (0)	0	0 (0)
60–69 (314)	136	43.0 (3.1)	100	32.8 (2.9)	71	22.1 (2.6)	6	1.8 (0.8)	1	0.3 (0.3)	0	0 (0)
70+ (194)	80	42.0 (3.8)	59	29.7 (3.4)	49	25.6 (3.3)	3	1.3 (0.8)	2	0.8 (0.6)	1	0.4 (0.4)
Females (3,893)	**1,615**	**41.4 (1.0)**	**1603**	**41.6 (0.9)**	**602**	**15.2 (0.6)**	**65**	**1.7 (0.2)**	**5**	**0.1 (0.05)**	**3**	**0.06 (0.04)**
20–29 (922)	530	56.9 (1.7)	352	39.4 (1.7)	39	3.6 (0.6)	1	0.08 (0.08)	0	0 (0)	0	0 (0)
30–39 (894)	403	44.7 (1.8)	378	42.5 (1.8)	102	11.5 (1.2)	9	1.1 (0.4)	1	0.1 (0.1)	1	0.1 (0.1)
40–49 (807)	296	36.1 (1.8)	373	46.8 (2.0)	128	15.9 (1.4)	10	1.1 (0.4)	0	0 (0)	0	0 (0)
50–59 (604)	190	31.9 (2.1)	253	41.0 (2.2)	142	23.8 (1.8)	17	2.9 (0.7)	1	0.1 (0.1)	1	0.1 (0.1)
60–69 (398)	120	29.4 (2.4)	151	38.4 (2.6)	109	28.0 (2.5)	15	3.6 (1.0)	2	0.4 (0.3)	1	0.2 (0.2)
70+ (268)	76	30.3 (3.1)	96	36.6 (3.3)	82	27.8 (2.8)	13	5.0 (1.4)	1	0.3 (0.3)	0	0 (0)
Overall (7,212)	**3,424**	**47.5 (0.9)**	**2,568**	**36.0 (0.9)**	**1,104**	**15.0 (0.5)**	**103**	**1.4 (0.2)**	**9**	**0.1 (0.04)**	**4**	**0.05 (0.02)**

CEAP=clinical-etiology-anatomy-pathophysiology; SE=standard error.

Table 3. Distribution of clinical subgroups in the general population according to clinical staging based on CEAP classification

Clinical Subgroups	Total	No Visible Sign	Reticular Veins	Varicose Veins	Edema*	Pigmentation*	Healed Venous Ulcer*
Asymptomatic	4,172	2,391	1,241	499	39	2	0
Typical symptoms	2,784	1,033	1,170	511	59	7	4
Atypical symptoms	256	0	157	94	5	0	0
Total	7,212	3,424	2,568	1,104	103	9	4

CEAP=clinical-etiology-anatomy-pathophysiology
** Subjects with chronic venous insufficiency.*

Table 4. Distribution of subjects with CVI according to clinical stage, age and gender

Clinical Subgroups According to Gender and Age	CVD (n=3,788)	CVI		
		Edema n (%)	Pigmentation/ Eczema n (%)	Healed Venous Ulcer n (%)
Typical symptoms	1,751	55 (3.1)	7 (0.4)	4 (0.2)
Males	634	19 (3.0)	3 (0.5)	1 (0.2)
Females	1,117	36 (3.2)	3 (0.3)	2 (0.2)
Atypical symptoms	256	5 (2.0)	0	0
Males	119	2 (1.7)	0	0
Females	137	3 (2.2)	0	0
Asymptomatic with visible signs	1,781	39 (2.2)	2 (0.1)	0
Males	757	14 (1.8)	1 (0.1)	0
Females	1,024	25 (2.4) 25 (2.4)	1 (0.1)	0

frequent among women in most countries, but the rate of severe stages did not differ between males and females.[11] Based on the present study, our national prevalence of CVD was 52.5%, with 97% of these with reticular and varicose veins; only 1.6% had CVI, among which 1.4% had edema and 0.15% with stasis changes

In the Bonn Vein Study, a population-based, cross-sectional, one-year study with 3,072 participants from a single random sample out of population registers, 87% of the participants were found to have telangiectasia.[16] The most important risk factors were age (>60 years), female gender, pregnancies, and a family history of varicose veins. The most important risk factors for CVI, aside from age (>50 years), were obesity and urban residence. In the national prevalence study, age and gender appeared to be significant factors—more females had reticular veins than varicose veins, while the opposite was observed among males, and the prevalence of CVD increased with advancing age. On the other hand, a higher prevalence of CVD was not seen among those residing in urban areas.[12]

Type of occupation did not appear to affect prevalence rates. (Workers with occupations that require prolonged standing are traditionally expected have higher prevalence rates of CVD.)[12]

Because of the small number of subjects with CVI, association with other variables aside from age and gender could not be done. Among those with CVI, there were more females who were identified to have edema, while stasis pigmentation/healed ulcers were seen in only a few (0.18% of the general population).

The STVIQ was valuable for clinically screening the general population for CVD and CVI. With a calculated sensitivity of 84%, a specificity of 39%, a positive predictive value of 73% and a negative predictive value of 54%, this clinical tool can facilitate clinical screening by physicians and paramedical personnel in outpatient clinics.

Controlling the signs and symptoms of CVI with exercise, compression, and pharmacologic or mechanical intervention may prevent the onset of its most severe complications, including lipodermatosclerosis and venous ulcerations.[18] Early identification and treatment of patients with CVD, especially those with signs of CVI, may improve symptomatology and prevent the complications of advanced CVD.

CONCLUSIONS

CVD is common in the Philippines. It is reported in approximately five out of 10 Filipinos, both as a symptomatic condition and as manifested by visible veins. It is more common in women and increases in prevalence with age. Only about 1.6% of our surveyed population were identified to have CVI, the most advanced stage of CVD. Most of the victims were female. Early recognition and education may be necessary to increase awareness of CVD. Early therapy may likewise be warranted to prevent its long-term debilitating sequelae. Increasing CVD awareness among primary care physicians and healthcare providers, as well as providing them with an inexpensive clinical screening tool, can contribute towards significantly diminishing the burden of CVD.

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