VENOUS DISEASE IN THAILAND

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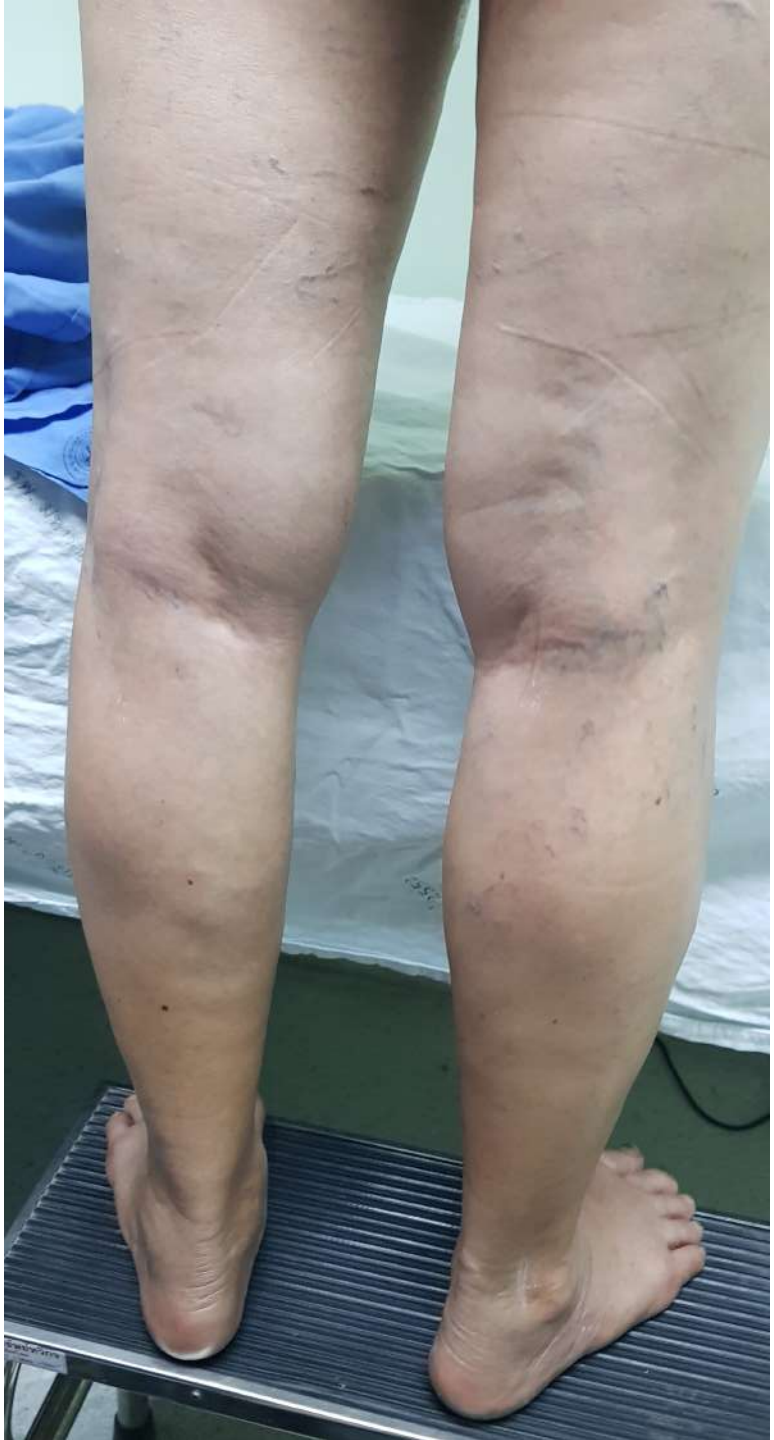

TABLE 1. Sex-stratified estimates of prevalence of varicose veins

Year of publication	Reference	Country	Sample size	Prevalence (%) Males	Females
1942	Lake et al. (63)	United States	536	40.7	73.2
1958	Arnoldi (22)	Denmark	1,684	18.4	38.0
1966	Bobek et al. (99)	Bohemia	15,060	6.6	14.1
1969	Mekky et al. (37)	England	504		32.1
		Egypt	467		5.8
1970	Prior et al. (100)	New Zealand	232	25.0	42.0
1972	Malhotra (82)	N. India	354	6.8	
		S. India	323	25.1	
			356°	19.6	37.8
1977	Richardson and Dixon (95)	Tanzania	1,259	6.1	5.0
1978	Widmer (20)	Switzerland	4,529	56.0	55.0
1981	Ducimetiere et al. (83)	France	7,425	26.2	
1981	Stvrtinova et al. (101)	Czechoslovakia	696		60.5
1981	Abramson et al. (58)	Israel	4,802	10.4	29.5
1986	Maffei et al. (53)	Brazil	1,755	37.9	50.9
1988	Novo et al. (102)	Sicily	1,122	19.3	46.2
1989	Leipnitz et al. (103)	Germany	2,821	14.5	29.0
1990	Hirai et al. (45)	Japan	541		45.0
1992	Franks et al. (60)	England	1,338	17.4	31.6
1993	Laurikka et al. (97)	Finland	5,568	18.0	42.0
1994	Komsuoglu et al. (42)	Turkey	856	34.5	38.3
1995	Sisto et al. (59)	Finland	8,000	6.8	24.6
1998	Canonico et al. (64)	Italy	1,319	17.0	35.2
1999	Evans et al. (21)	Scotland	1,566	39.7	32.2
2000	Kontosic et al. (41)	Croatia	1,324	18.9	34.6
2003	Criqui et al. (40)	United States	2,211	15.0	27.7

†Pukapuka.
‡Rarotonga.
*Maori.
°Pakeha.

Estimated prevalence ; Male 2-56%, Female 1-73%

Beebe-Dimmer, AEP, 2005; 15:3

TABLE 2. Sex-stratified estimates of the clinical manifestations of chronic venous insufficiency (CVI)*

Year of publication	Reference	CVI manifestation	Prevalence (%) Males	Females
1958	Arnoldi (23)	Active or healed ulcer	1.9	5.5
1966	Bobek et al. (99)	Active or healed ulcer	0.9	1.1
1969	Mekky et al. (37)	Hyperpigmentation, ulcer, edema, and eczema		10.0
1973	Coon et al. (54)	Stasis skin change**	3.0	3.7
		Hyperpigmentation	7.6	5.2
		Eczema	2.5	1.1
		Fibrosis	1.3	0.5
		Active or healed ulcer	2.5	4.1
1992	Franks et al. (60)	Active or healed ulcer	4.7	4.0
1994	Komsuoglu et al. (42)	Hyperpigmentation	0.3	2.8
		Eczema	0.5	1.8
		Active or healed ulcer	0.6	1.4
1999	Evans et al. (21)	Dilated subcutaneous veins	6.9	5.3
2002	Ruckley et al.† (32)	Hyperpigmentation	1.3	1.1
		Active or healed ulcer	1.0	0.2
2003	Criqui et al. (40)	Trophic changes‡	7.8	5.3
		Edema	7.4	4.9

*Excluding varicose veins.
**Hyperpigmentation, fibrosis, induration, atrophy.
†Edinburgh Vein Study (results published in two manuscripts).
‡Hyperpigmentation, lipodermatosclerosis, ulcer.

Estimated prevalence ; Male <1-17%, Female <1-40%

Beebe-Dimmer, AEP, 2005; 15:3

TABLE 3. Established and potential risk factors for varicose veins (VV) and chronic venous insufficiency (CVI)

	VV	CVI
✔ Older age	+	+
✔ Family history	+	+
Female gender	+	−/+/0
✔ Standing occupation	+	+
Constipation/Low fiber intake	+/0	0
Obesity	+	+/0
Smoking	+/0	+/0
Oral contraceptives/HRT	−/0	−/0
Hypertension	+/0	+/0
Physical activity	−/0	−
Injury	+/0	+
✔ History of phlebitis/clot	+	+

−: Negative association.

+: Positive association.

0: No association.

Beebe-Dimmer, AEP, 2005; 15:3

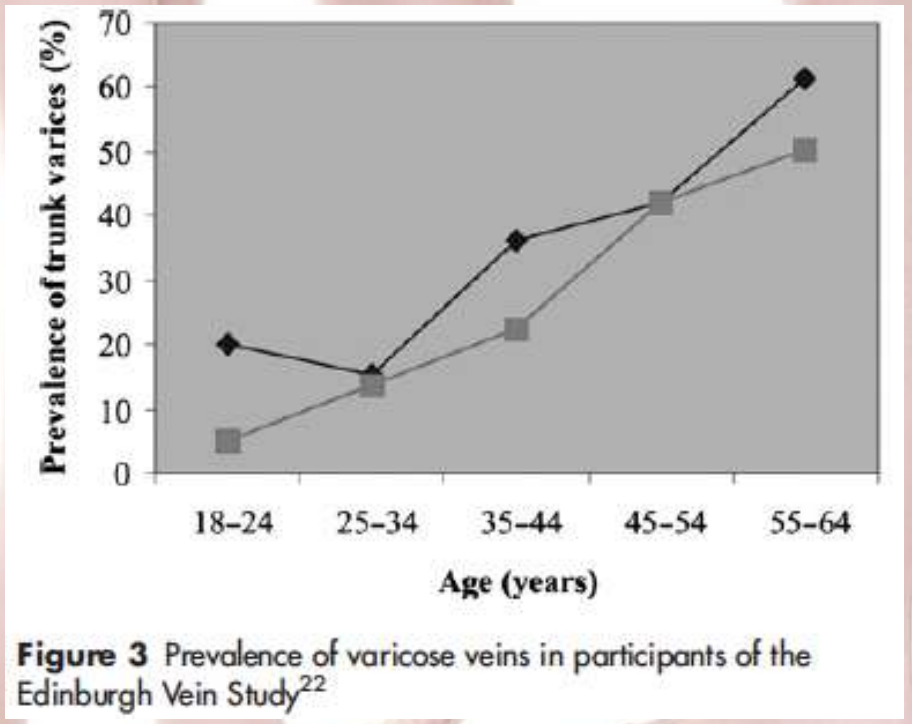

Figure 3 Prevalence of varicose veins in participants of the Edinburgh Vein Study[22]

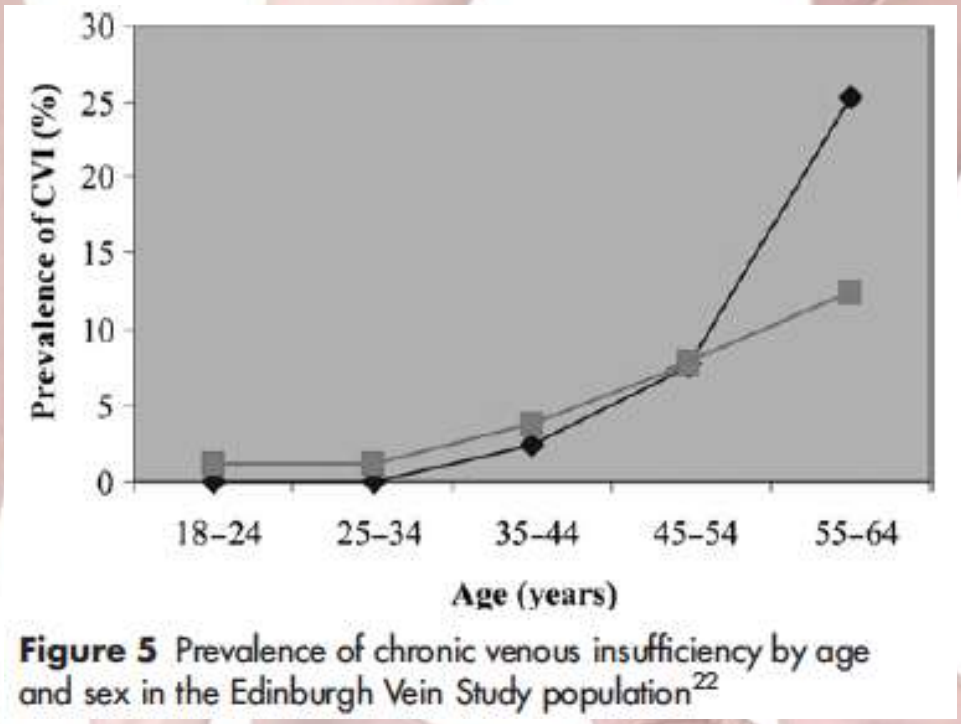

Figure 5 Prevalence of chronic venous insufficiency by age and sex in the Edinburgh Vein Study population[22]

Lobertson, Phlebology, 2008

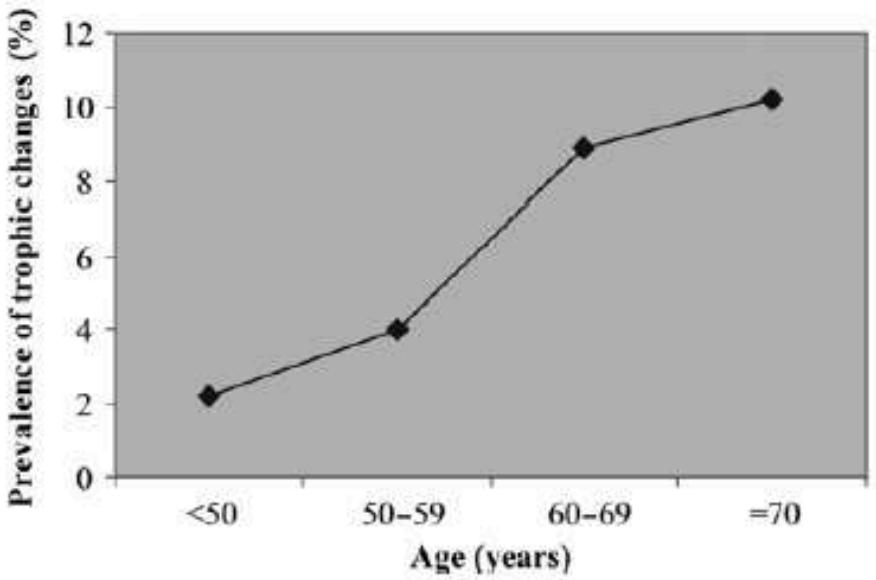

Figure 6 Prevalence of trophic changes by age in the San Diego Population Study[26]

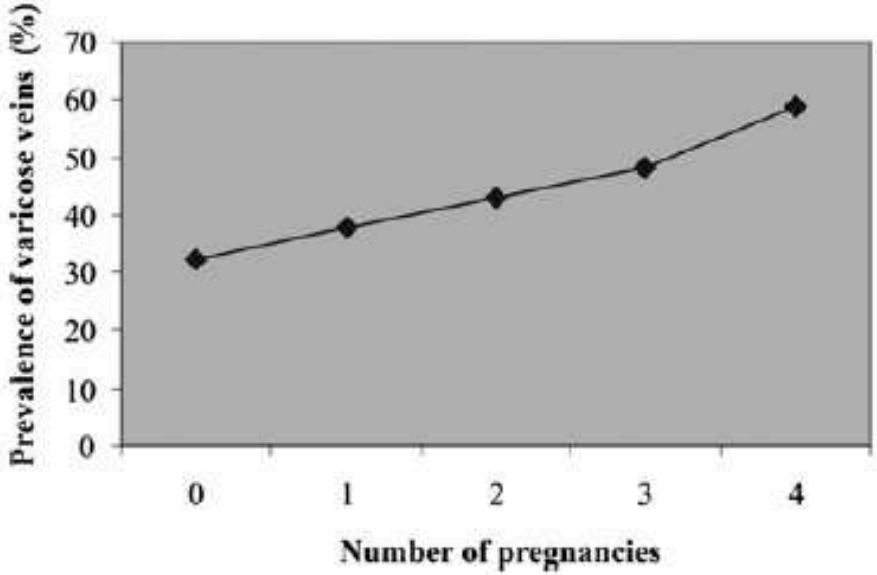

Figure 7 Prevalence of varicose veins by number of previous pregnancies in woman subjects of the Tampere study[19]

Lobertson, Phlebology, 2008

Table 1 Prevalence of varicose veins by sex in studies from different countries

First Author	Year	Country	Study sample size	Prevalence of varicose veins (%)	
				Men	Women
Bobek[3]	1966	Bohemia	15,060	6.6	14.1
Mekky[4]	1969	Egypt	467	–	5.8
Mekky[4]	1969	England	504	–	32.1
Malhotra[5]	1972	India (south)	323	25.1	–
Malhotra[5]	1972	India (north)	354	6.8	–
Stanhope[9]	1975	New Guinea	1457	5.1	0.1
Richardson[10]	1977	Tanzania	1000	6.1	5.0
Widmer[1]	1978	Switzerland	4529	56.0	55.0
Ducimetiere[11]	1981	France	7425	26.2	–
Stvrtinova[12]	1981	Czechoslovakia	696	–	60.5
Abramson[13]	1981	Israel	4802	10.4	29.5
Maffei[14]	1986	Brazil	1755	37.9	50.9
Novo[15]	1988	Sicily	1122	19.3	46.2
Leipnitz[16]	1989	Germany	2821	14.5	29.0
Hirai[17]	1990	Japan	541	–	45.0
Franks[18]	1992	England	1338	17.4	31.6
Laurikka[19]	1993	Finland	5568	18.4	41.7
Komsuoglu[20]	1994	Turkey	850	34.5	38.3
Sisto[21]	1995	Finland	8000	6.8	24.6
Evans[22]	1999	Scotland	1566	39.7	32.2
Kontosic[23]	2000	Croatia	1324	18.9	34.6
Criqui[24]	2003	San Diego	2211	15.0	27.7

Highest in Western Country

Lobertson, Phlebology, 2008

TABLE 1. Visible and functional chronic venous disease by strata of sex, age, and ethnicity, San Diego, California, 1994–1998*

	Study group		Visible disease (%)				Functional disease (%)		
	No.	%	Normal	Spider veins	Varicose veins	Trophic changes	Normal	Superficial functional disease	Deep functional disease
All subjects	2,211	100	19.0	51.6	23.3	6.2	72.1	19.0	9.0
Men	780	35.3	33.6	43.6	15.0	7.8	75.6	13.1	11.3
Women	1,431	64.7	11.0	55.9	27.7	5.3	70.1	22.2	7.8
Age (years)									
<50	534	24.2	33.0	47.9	16.9	2.3	81.8	11.2	6.9
50–59	608	27.5	22.5	52.8	20.7	4.0	78.0	14.5	7.6
60–69	557	25.2	12.4	52.8	26.0	8.8	66.1	23.5	10.4
≥70	512	23.2	7.4	52.5	29.9	10.2	61.3	27.3	11.3
Ethnicity									
Non-Hispanic White	1,282	58.0	14.3	54.8	24.0	6.9	69.7	20.0	10.3
Hispanic	338	15.3	18.9	50.0	26.3	4.7	71.0	22.8	6.2
African American	318	14.4	27.7	45.3	20.8	6.3	76.7	16.4	6.9
Asian	273	12.4	31.1	45.4	18.7	4.8	78.8	12.5	8.8

Criqui, Am J Epidemiol, 2003

TABLE 3. Multivariate odds ratios for age, sex, and ethnicity† in categories of chronic venous disease, edema, and thrombotic events, San Diego, California, 1994–1998

	Data adjusted from table 1					Data adjusted from table 2		
	Spider veins‡	Varicose veins§	Trophic changes¶	Superficial functional disease#	Deep functional disease††	Edema‡‡	Superficial events§§	Deep events¶¶
Sex								
Men	1.00##	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Women	5.36*	2.18*	0.65*	1.85*	0.69*	0.70	1.89	0.77
Age (years)								
<50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
50–59	1.71*	1.37*	1.75	1.39	1.02	1.36	1.23	0.84
60–69	3.42*	1.96*	4.16*	2.59*	1.52	2.19*	1.07	1.39
≥70	4.91*	2.42*	4.85*	3.23*	1.54	3.42*	1.28	1.22
Ethnicity								
Non-Hispanic White	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hispanic	0.66*	1.15	0.93	1.24	0.66	0.29*	1.31	0.35*
African American	0.33*	0.81	1.16	0.77	0.72	0.64	0.34	0.43
Asian	0.36*	0.79	0.93	0.65*	0.94	0.53	0.55	0.25*

* $p < 0.05$.

Criqui, Am J Epidemiol, 2003

Chronic Venous Disease

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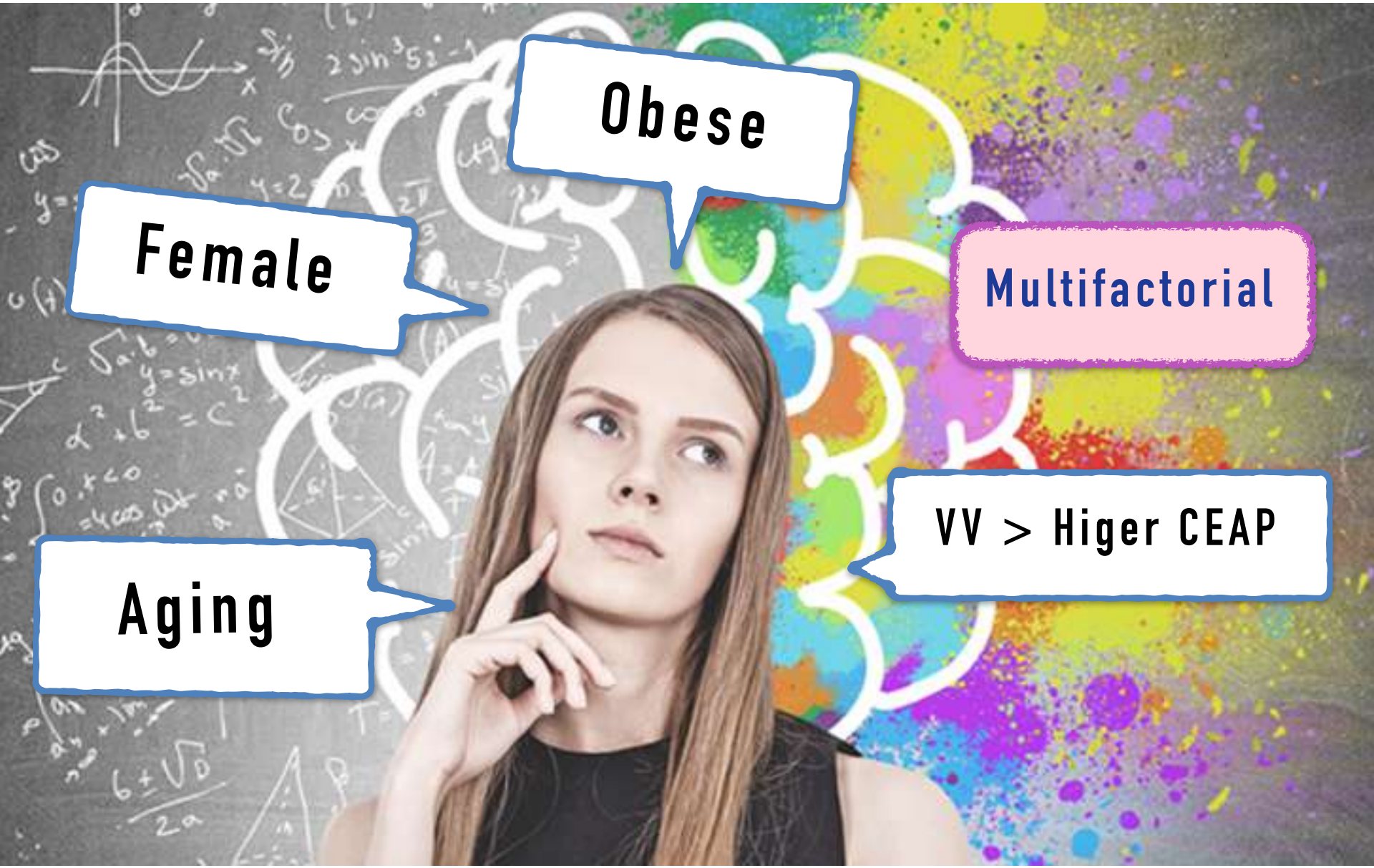
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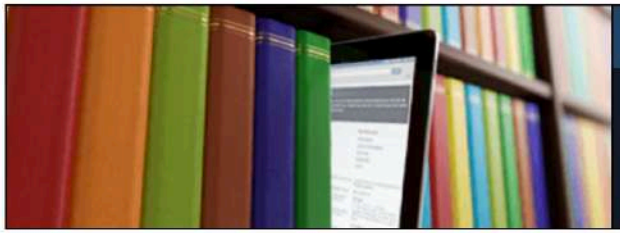

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Clinical Presentation and Patterns of Venous Reflux in Thai Patients with Chronic Venous Insufficiency (CVI)

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Submitted 18 July 2009; accepted 17 April 2010
Available online 18 June 2010

KEYWORDS
Asian;
CVI;
Venous reflux;

Abstract *Objective:* To study the extent of chronic venous insufficiency (CVI) in Thai patients by assessing venous clinical severity scores (VCSSs), venous disability scores (VDSs) and prevalence of lower limb venous reflux in a cohort of patients attending a vascular surgery clinic. *Design:* Prospective comparative cohort study.

Clinical Characteristics of Thai Chronic Venous Insufficiency (CVI) Patients

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* *Faculty of Medicine Vajira Hospital, Navamindradhiraj University, Thailand*
** *Faculty of Medicine Siriraj Hospital, Mahidol University, Thailand*

Objective: *To study the demographic and clinical presentations as assessed by Clinical Severity Score (VCSS) and Venous Disability Score (VDS) in Thai Chronic Venous Insufficiency (CVI) patients.*

Material and Method: *Retrospective review of prospectively collected data.*

Results: *There were 78 CVI patients (102 legs) with the mean age of 59.6 years and 42% spending more than 75% of working hours upright. The proportional of C4, 5 and 6 were 24.4%, 9.0% and 66.7%. The mean BMI was 26.9. Seven legs (6.9%) had prior history of DVT. In 90 legs with no previous operation, the mean VCSS and VDS were 9.8 and 0.9 respectively. The mean VCSS for C4, C5 and C5 were 7.1,7.0 and 12.1. Pain was perceived in 50% and associated with venous eczema. The combined superficial and deep vein reflux were found in 57.8%. Overall, the prevalence of superficial and deep vein reflux was 80.0% and 63.3%. The venous pulsatile arterial wave was found in 3.3%. The visible varicose veins were found in only 50.0% and tended to be mild.*

Conclusion: *The symptoms are mild. Despite low prior DVT rate, the prevalence of deep vein reflux is high and commonly combined with superficial vein reflux. Reflux commonly located below the knee, adjacent to the ulcers. Visible varicose are infrequent but most of those veins are associated with reflux.*

Keywords: *chronic venous insufficiency, venous clinical severity score (VCSS), venous disability score (VDS), clinical manifestation, venous reflux*

J Med Assoc Thai 2017; 100 (1): 17-23
Full text. e-Journal : *http://www.jmatonline.com*

Original Article

Singapore Med J 2018; 59(3): 155-158
https://doi.org/10.11622/smedj.2017043

Venous ultrasonography findings and clinical correlations in 104 Thai patients with chronic venous insufficiency of the legs

Burapa Kanchanabat[1], MD, *Waigoon Stapanavatr*[1], MD

INTRODUCTION The pattern of venous reflux in Thai patients with chronic venous insufficiency (CVI) was studied in correlation with clinical manifestations.

METHODS Ultrasonography findings and clinical data were prospectively collected and retrospectively reviewed.

RESULTS CVI was found in 104 legs of 79 patients (mean age 59.8 ± 12.5 years; C4: 24.1%, C5: 8.9%, C6: 67.1%). 6.7% of the legs had a history of deep vein thrombosis (DVT). The prevalence of superficial vein reflux (SVR), deep vein reflux (DVR), and combined SVR and DVR in 90 legs without previous venous surgery was 82.2%, 63.3% and 57.8%, respectively. In legs with SVR, the prevalence of great saphenous vein reflux (GSVR), small saphenous vein reflux (SSVR), and combined GSVR and SSVR was 91.9%, 33.8% and 25.7%, respectively. 77.0% of SVR involved the calf segment. For medial ulceration, 79.6% had GSVR and 35.2% had SSVR. For lateral ulceration, 46.7% had SSVR and 33.3% had isolated GSVR. Pulsatile venous signal was found in 3.3% of legs. In 17 legs with ulceration after previous surgical treatment, calf vein reflux (residual calf great saphenous vein or small saphenous vein) was found in 13 (76.5%) legs.

CONCLUSION Calf vein reflux plays an important role in CVI and in patients with recurrent ulceration after previous superficial venous surgery. Although GSVR was present in most patients with CVI in the legs, SSVR may present in one-third of patients, especially those with lateral ulceration. The high prevalence of DVR in the absence of DVT and the presence of a pulsatile venous signal in some patients highlight the incomplete understanding of CVI aetiology.

Keywords: Asian, chronic venous insufficiency, venous reflux

Duplex ultrasound findings and clinical classification of lower extremity chronic venous insufficiency in a Thai population

Tanapong Panpikoon, MD, Banjongsak Wedsart, MD, Tharintorn Treesit, MD, Orapin Chansanti, MD, *and* Chinnarat Bua-ngam, MD, *Bangkok, Thailand*

ABSTRACT

Background: The objective of this study was to evaluate the association between the clinical classification of chronic venous insufficiency and duplex ultrasound findings.

Methods: A total of 1010 limbs with clinically suspected chronic venous insufficiency were stratified according to the Clinical, Etiology, Anatomy, and Pathophysiology (CEAP) classification and underwent duplex ultrasound evaluation consecutively between January 2012 and June 2015. Venous thrombosis, venous reflux, and anatomic distribution of the deep and superficial venous systems were investigated across the CEAP clinical classes.

Results: There were 259 male limbs (25.6%) and 751 female limbs (74.4%) in clinical class C0 (24 limbs [2.4%]), C1 (130 limbs [13.1%]), C2 (452 limbs [44.8%]), C3 (183 limbs [18.1%]), C4 (163 limbs [16.1%]), C5 (31 limbs [3.1%]), and C6 (27 limbs [2.7%]). The mean age in clinical class C4-C6 (60.77 ± 14.67 years) was statistically significantly higher than in C0-C3 (55.73 ± 18.85 years; $P < .001$). Male limbs were shown to have a predilection for presenting with clinical class C4-C6 over female limbs (36.3% vs 16.9%; odds ratio, 2.8; 95% confidence interval, 2.0-3.8). Positive findings were predominantly displayed in clinical class C4-C6 compared with C0-C3 (deep venous thrombosis, 3.2% vs 1.3%; deep venous reflux, 30.8% vs 26.9%; superficial vein thrombosis, 2.7% vs 2.0%; superficial venous reflux, 56.6% vs 47.6%; perforator vein reflux, 12.7% vs 8.2% [$P = .049$]). A low prevalence of small saphenous vein and perforator vein reflux in C1 limbs (0.3% and 4.6%) and C3 limbs (3.8 and 6.6%) was discovered.

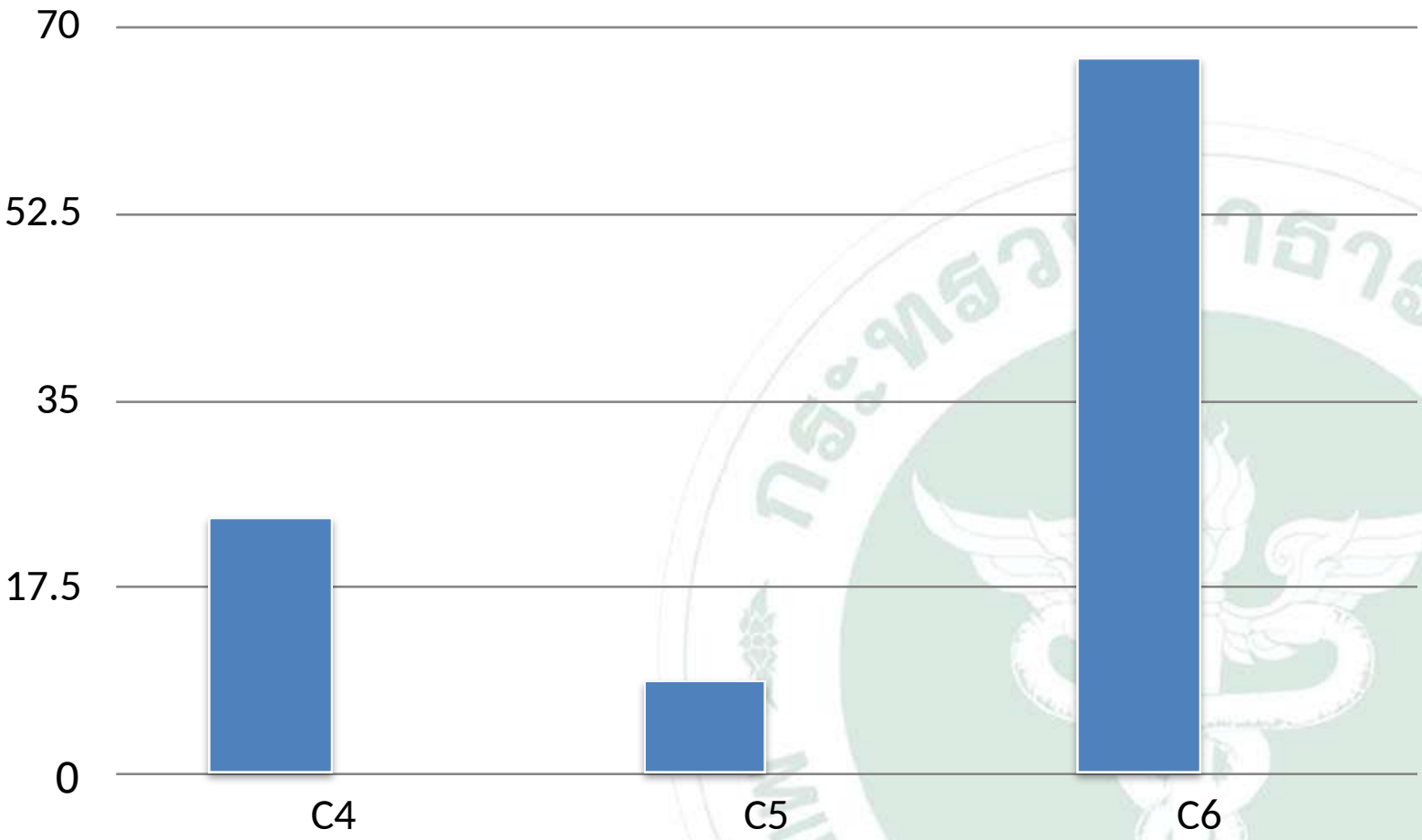
Conclusions: The prevalence of CEAP class C0-C3 was found to be higher than C4-C6. However, men were shown to have a predilection for presenting in clinical class C4-C6 over women. The mean age of patients with clinical class C4-C6 limbs was statistically significantly higher than of those with clinical class C0-C3 limbs. The prevalence of deep venous reflux, superficial venous reflux, and coincident deep and superficial venous reflux in clinical class C4-C6 limbs was higher than in clinical class C0-C3 limbs. Detection of incompetent perforator veins was shown to have a statistically significant correlation with clinical class C4-C6 limbs. (J Vasc Surg: Venous and Lym Dis 2018;■:1-7.)

Keywords: Chronic venous insufficiency; Duplex ultrasound; CEAP clinical classification

Characteristic

	Kanchanabat	Panpikoon	Rerkasem
Mean Age	59.6±12.5 (27-84)	56.8 6 14.2(20-95)	49.3±12.8
Female	55.1%	74.4%	78.8%
BMI	26.9±5.4(16.8-40.3)	NA	23.55
Fm Hx	17.9%	NA	21%
Pregnancy	1.8	NA	2.19
Previous DVT	7%	NA	NA

Prevalence by CEAP Classification



Kanchanabat, Singapore Med J, 2018

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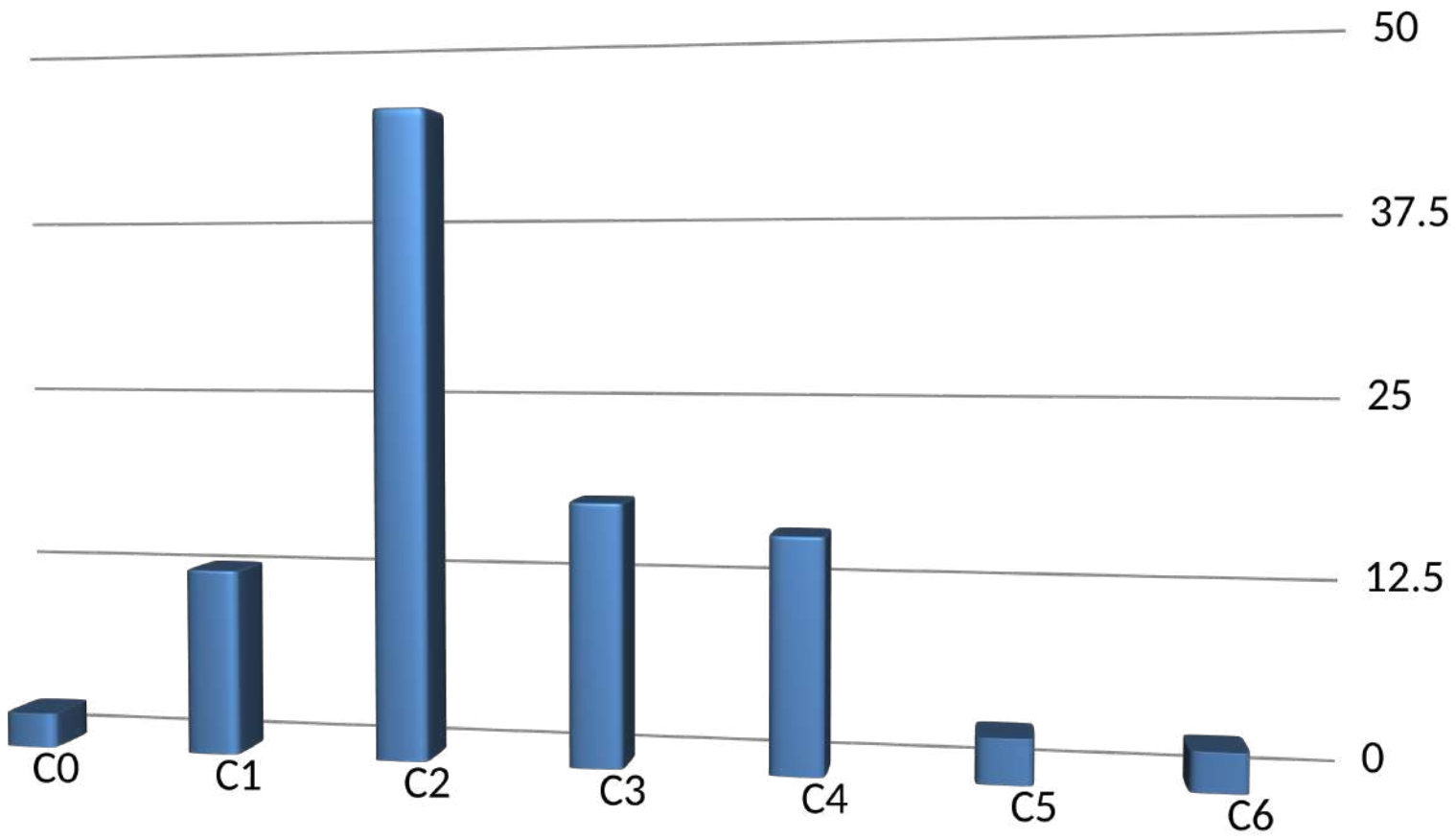

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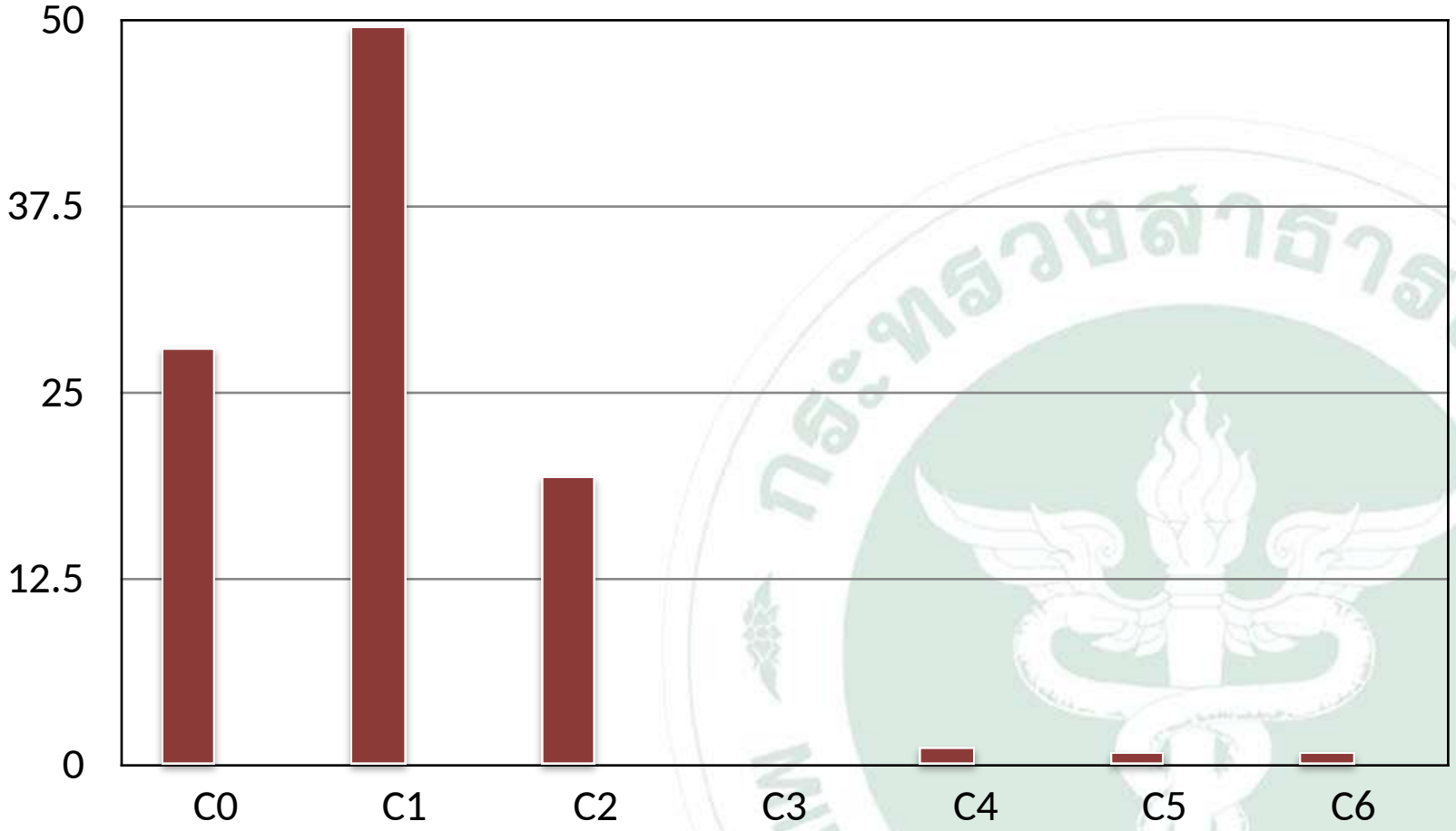


Rerkasem, 2020

Table III. Age and sex distribution in C0-C3 and C4-C6 symptom groups

	CEAP class		
	C0-C3	C4-C6	*P* value
Male limbs	165 (20.9)	94 (42.5)	<.001 (OR, 2.799; 95% CI, 2.0-3.8)
Female limbs	624 (79.1)	127 (57.5)	
Age, years	55.73 ± 13.849	60.77 ± 14.671	<.001

CEAP, Clinical, Etiology, Anatomy, and Pathophysiology; *CI*, confidence interval; *OR*, odds ratio.
Categorical variables are presented as number (%). Continuous variables are presented as mean ± standard deviation.

Panpikoon et al, J Vasc Surg, 2018

Reflux in Venous System

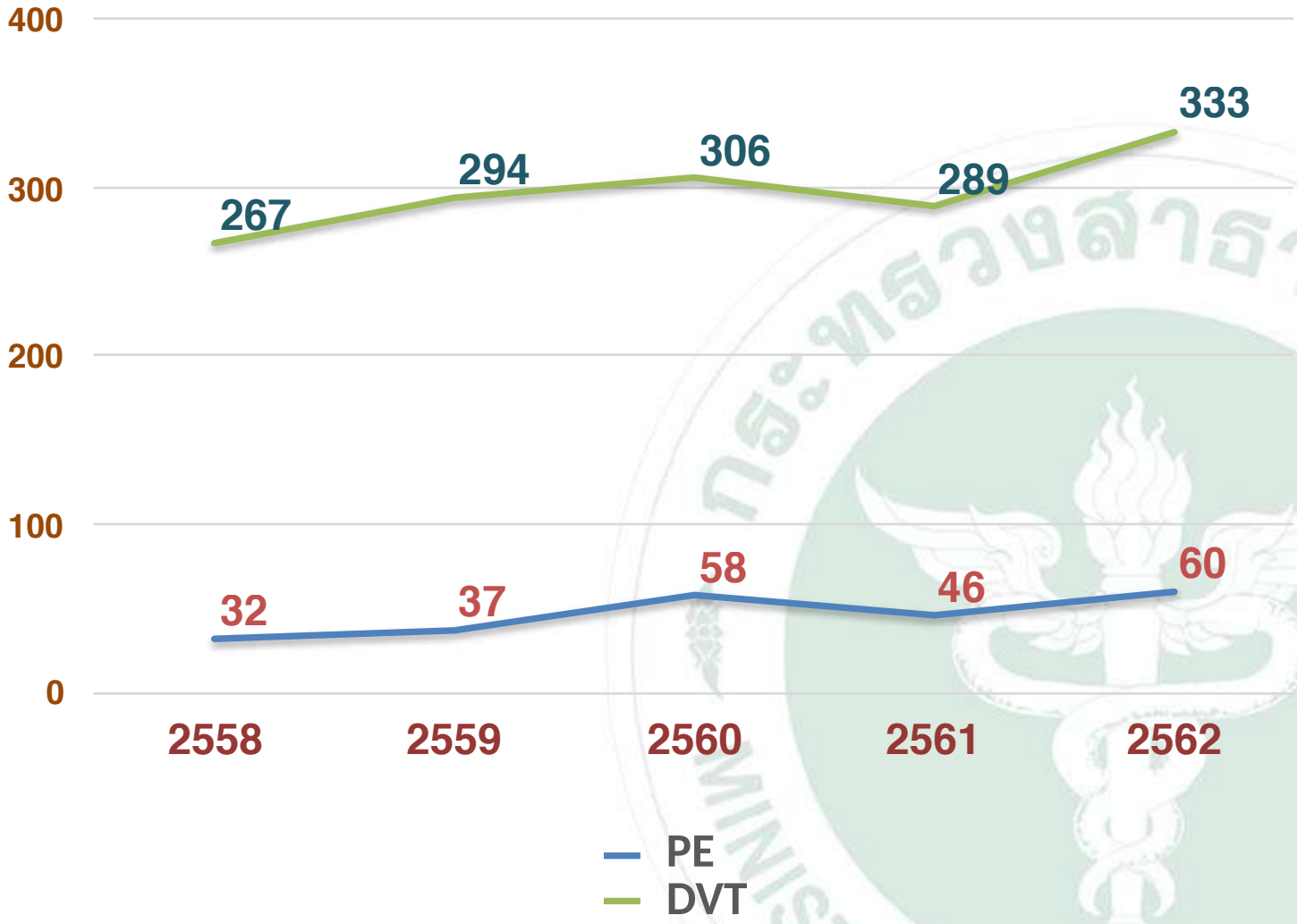
	Kanchanabat	Panpikoon	Rerkasem
SVR	82.2%	49.6%	96.2%
DVR	63.3%	27.7%	1.3%
Combine SVR + DVR	57.8%	22.8%	-
PVR	-	9.2%	2.5%
Occlusion	-	1.7%	0.5%

Location of Reflux

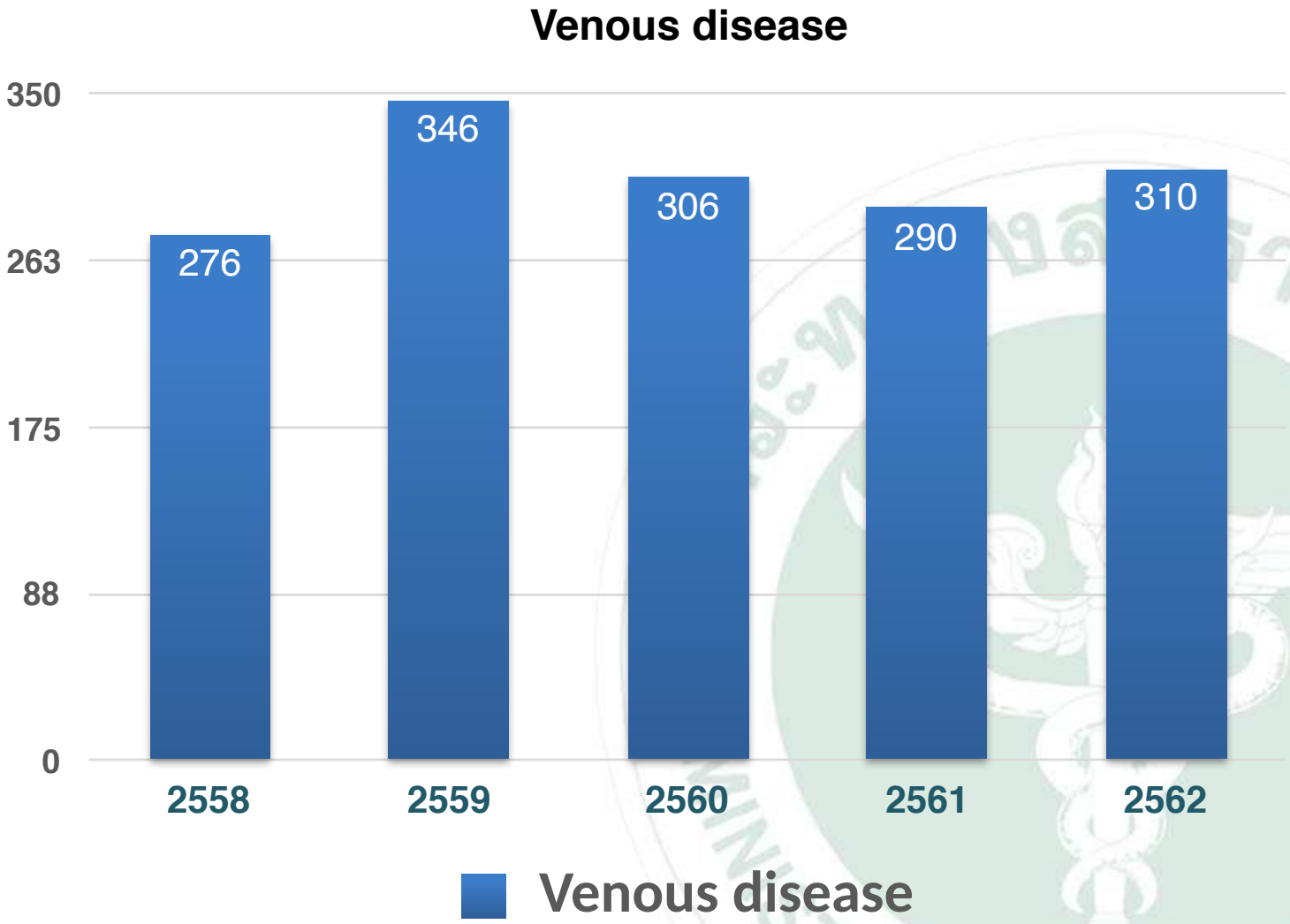
	Kanchanabat	Panpikoon
GSV Above knee	13%	11.8%
GSV Below knee	7.5%	14.7%
GSV Above & Below knee	24.6%	58.8%
SSV	4.5%	8.1%

OPD data CRH

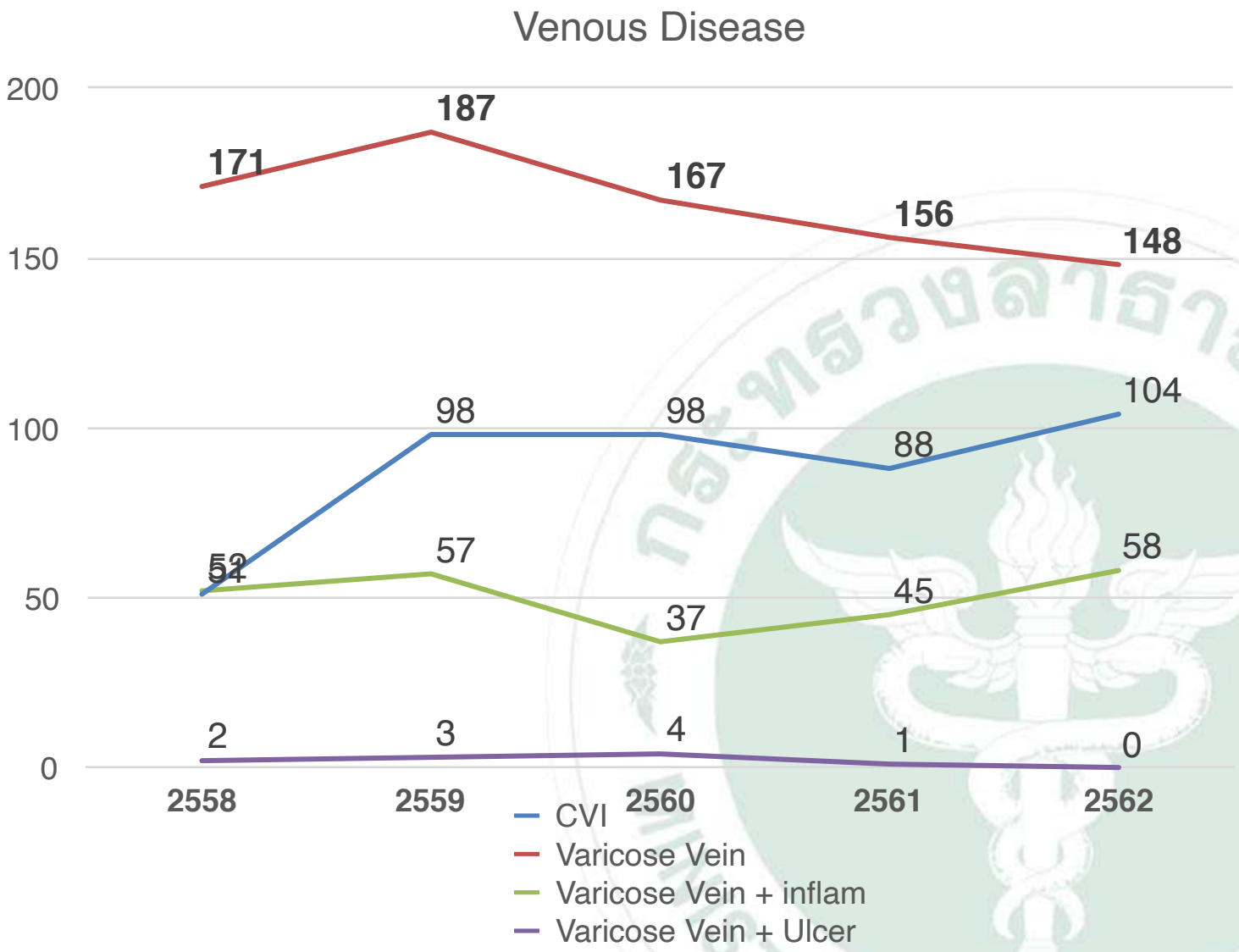
DVT & PE



OPD data CRH


Venous disease
350
263
175
88
0
276
346
306
290
310
2558
2559
2560
2561
2562
Venous disease

OPD data CRH


Venous Disease
200
150
100
50
0
171
187
167
156
148
52
98
98
88
104
54
57
37
45
58
2
3
4
1
0
2558
2559
2560
2561
2562
CVI
Varicose Vein
Varicose Vein + inflam
Varicose Vein + Ulcer


โรงพยาบาลเชียงรายประชานุเคราะห์
สำนักงานปลัดกระทรวง กระทรวงสาธารณสุข
CHIANGRAI PRACHANUKROH HOSPITAL

Thank You