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RESEARCH ARTICLE

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Clinical Profile and Risk Factors of Adult Patients with Deep Vein Thrombosis in a Tertiary Hospital

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ABSTRACT

Background: Venous thromboembolism, including deep vein thrombosis and pulmonary embolism, is a pressing problem in developing countries like the Philippines. There is a need to investigate the clinical profile of DVT patients to recognize those requiring considerate attention to prevent complications.

Objectives: To determine the Clinical Profile of Adult Patients with Deep Vein Thrombosis in University of Santo Tomas Hospital from October 2015- June 2017.

Methods: Retrospective cross sectional study was done. All adult patients who underwent venous duplex ultrasonography in the University of Santo Tomas Hospital from October 2015-June 2017 were identified and their data retrieved using the Heart Station computer database.

Results: Out of the 290 patients, 45 (15.5%; 95%CI: 11.5 – 20.2%) were positive for DVT. Age (p=0.694) and gender (p=0.494) did not differ among those with and without DVT. The highest incidence is among those in the age range of 61-80 years old. The trend increased according to age up to 80 years old, beyond which there is a noted decline. The following were identified as significant risk factors in DVT: history of DVT (p<0.001), malignancy (p<0.001), recent surgery (p 0.02), oral contraceptive use (p 0.018) and bedridden state (p<0.001). Edema was the most common presentation.

Conclusion: Among those who underwent venous duplex ultrasound of the lower extremities, 15% of the population had findings consistent with DVT, the mean age is 62.6 years old. In this study, we concluded that the most significant risk factors include malignancy, bedridden state, OCP use and recent surgery.

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Deep vein thrombosis, OVT, Thrombosis, Lower extremities, Ultrasound.

Introduction

Venous thromboembolism (VTE), which includes deep vein thrombosis (DVT and pulmonary embolism (PE), is a pressing problem in the Philippines which has not yet been extensively studied. Because the manifestations are nonspecific, it is often called "the great masquerader" [1]. As a consequence, most mortality due to its major complication- pulmonary embolism- may be left unrecognized. In the Philippines, a national data for VTE is not yet well documented. There is a need, therefore, to investigate and define the clinical profile of patients with DVT among this population, in order to recognize those who will need considerate attention to prevent complications like pulmonary embolism.

Review of Related Literature

Epidemiology of Venous Thromboembolism

Venous thromboembolism includes deep vein thrombosis (DVT) of the leg or pelvis, and its complication- pulmonary embolism (PE). It is fast becoming a worldwide health concern, mainly because of its increasing incidence, with potentially fatal complications if left untreated, and because it is preventable with adequate prophylaxis. The incidence of VTE in Caucasians is 104-183 events per 100,000 person-years [1]. In Asia, the incidence is about 14-57 per 100,000 person- years [2].

There are a few reasons why VTE is underreported in Asia. One is that its incidence is inherently lower among Asians compared with Caucasian counterparts. Another would be the relatively low awareness and perception of the Asian clinician regarding VTE [3]. Because of this, there is a lack of utilization of basic diagnostic tests for VTE (compression ultrasonography and helical chest computed tomography, thus showing a low detection rate [1]. Over the recent years, there has been an increasing trend in incidence of VTE, including Asian regions. This is due to several factors such as increasing age of the population, increased rates of major surgeries, obesity, and increased incidence of cancer with low rates of prophylaxis [2].

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Risk Factors for DVT/PE

The risk factors for thrombosis can be classified according to those associated with the clinical setting and those associated with the patient. The highest risk factors associated with clinical conditions include: elective major lower extremity arthroplasty, hip, pelvis or leg fracture, stroke, multiple trauma, and acute spinal cord injury. Other risk factors include major surgery with myocardial infarction, congestive heart failure or sepsis, immobilization >72 hours, central venous access, or major surgery more than 45 minutes in duration [4].

Risk factors associated with the patient include: age over 60 years old, history of DVT/PE, prior major surgery, pregnancy or postpartum within one month, malignancy, varicose veins, inflammatory bowel disease, obesity defined as more than 20% of ideal body weight, and use of oral contraceptive agents. Patients may have concomitant hypercoagulable states like, factor I leiden, antithrombin III deficiency, homocysteinemia, lupus anticoagulant, and myeloproliferative disorders [4].

There are some differences in risk factors among the populations across the globe. In Asia, genetic factors such as Factor V Leiden were less commonly observed in the Asian population than Caucasians. Malignancy is the most important acquired risk factor for VTE in Asians, comprising 16–40% of VTE cases [1]. According to a study conducted in Taiwan in 2010, the most common identified risk factor for venous thromboembolism includes undergoing major surgery in the past 3 months (37.8%); other risk factors include malignancy (21.6%), serious neurologic disease (17.2%), prior VTE (15.7%), and major trauma (7.5%). The presence of these risk factors may predetermine the need to investigate closely for signs of deep vein thrombosis [5].

There were also additional risk factors identified among critically ill patients admitted the ICU. According to the VOICE Asia study in 2012, Among critically ill medical patients, the most common risk factors for VTE included age age >60 years (57.1%), prolonged immobility (50.6%), respiratory diseases (41.3%), and acute infectious disease (36.2%) [6].

Diagnosis of DVT

The diagnosis of deep vein thrombosis is most often objectively assessed through compression and color flow (Doppler) ultrasound or venography. To aid in identifying high-risk groups for which these tests may be indicated, there are several clinical scoring systems available.

The Well's Score predicts the clinical probability of DVT according to risk factors. This includes several criteria: 1) active cancer with ongoing treatment within 6 months or receiving palliative care, 2) paralysis, paresis or recent immobilization of lower extremities, 3) recently bedridden for at least 3 days or major surgery within 3 months, 4) localized tenderness along the distribution of the deep venous system, 5) entire leg swelling, 6) calf swelling at least 3cm larger than asymptomatic side, 6) pitting edema confined to the symptomatic leg, 7) collateral superficial veins, 8) previously documented DVT, 9) alternative diagnosis at least as likely as DVT. With a score of 2 or less, DVT is less likely, while a score of more than 2 is associated with increased probability of DVT [7].

The Caprini score is another clinical score to predict VTE among patients undergoing surgery. It uses a scoring system based on the risk factors for VTE. Each risk factor has a corresponding point (1-5), and the total score will then be stratified according to risk. A score of 0 is associated with very low risk, with an incidence of 0.5% in the absence of pharmacologic or mechanical prophylaxis; a score of 1-2 is associated with low risk, with an incidence of 1.5%; a score of 3-4 is associated with moderate risk of VTE with an incidence of 3.0%; a score of 5 is associated with high risk, with an incidence of 6.0% [8].

In order to classify deep vein thrombosis, the Clinical-Etiologic-Anatomic-Physiologic Classification (CEAP) Classification is commonly used. Clinical findings include presence of varicose veins, edema, or presence of skin ulceration. Etiological classification includes congenital presence of DVT, or history of prior of DVT. Anatomical classification includes superficial, deep or perforating. Lastly, in pathophysiology, the veins of involvement are classified as to either reflux or obstruction. These will then be scored accordingly [9]:

CEAP O= No visible or palpable signs of venous disease
CEAP 1= Telangectasias or reticular veins
CEAP 2= Varicose veins
CEAP 3= Edema
CEAP 4= Skin changes ascribed to venous disease
CEAP 5= Skin changes with healed ulceration
CEAP 6= Skin changes with active ulceration

Treatment Options for DVT and the Role of Thromboprophylaxis

The standard of treatment is to give anticoagulants like low molecular weight heparin. The role of thromboprophylaxis may differ among different populations. For postoperative, trauma, and orthopedic patients, early mobilization is the primary form of prophylaxis, followed by use of compression stockings (mechanical prophylaxis). The use of medical prophylaxis (low molecular weight heparin or novel anticoagulants) may be considered as DVT prophylaxis when there is substantial thrombotic risk that outweighs bleeding risk. Novel anticoagulants (NOAC) which were utilized and found to have comparable efficacy without increase in bleeding risk compared to enoxaparin 40mg once a day include rivaroxaban, dabigatran, apixaban, and edoxaban. The risk of major bleeding with these medications is only <1% [2].

Among critically ill medical patients, the use of enoxaparin also showed benefit in decreasing the incidence of VTE. In the MEDENOX trial, enoxaparin 40mg daily showed significant decrease in DVT/PE incidence compared with the placebo group [10]. The use of NOACs were also as effective as enoxaparin in decreasing the risk for DVT/PE. However, it was found to have significantly higher bleeding risk compared to LMWH. In the MAGELLAN trial, rivaroxaban 10 mg was comparable to enoxaparin 40mg as thromboprophylaxis for medically ill patients, however the incidence of major bleeding was also higher (1.1% vs 0.4% P<0.001) [11]. In the Adopt study by Goldhaber et al, apixaban was also associated with same

efficacy as enoxaparin but with more major bleeding events (0.47% vs 0.19% P=0.04) [12].

Among cancer patients, the risk of DVT/PE is documented most often in liver, pancreatic, and lung cancer, according to a study conducted in Taiwan [13]. Another study conducted in Korea noted increase in risk for cancer of the pancreas, ovary and esophagus [14]. The risk increases among those undergoing major surgery and chemotherapy. Like other high-risk populations, LMWH as prophylaxis is also recommended provided there is no significant bleeding risk. Other options would include intermittent pneumatic compression for those with high bleeding risk.

Venous thromboembolism has been called the most common preventable cause of hospital death in the United States [15]. Because thromboprophylaxis for VTE has showed significant reductions in mortality, there is an increasing need for identification of high-risk populations. Many physicians are still not fully familiar with the role of early thrombophrophylaxis to prevent DVT, and this may be a contributory factor to the increasing incidence of such in Asia. According to a study conducted by Cheng, et al., after education of health care professionals on VTE prophylaxis and its consequent implementation, there was reduction in DVT incidence [16]. As such, according to the SENTRY trial, there was also greater compliance to risk stratification and implementation of DVT prophylaxis among institutions with hospital guidelines, protocols, provision of risk assessment tools in hospitals, and when there was support from the administration itself [17]. The physician and the health care team's awareness of the incidence of VTE and identification of high-risk groups is an essential first step to instituting appropriate diagnostic tests and therefore also to the treatment and prophylaxis for VTE.

Significance of the Study

The purpose of this study is to promote awareness regarding the characteristics, comorbid conditions and risk factors of patients with deep vein thrombosis. Through this study, the investigators will provide data on the clinical profile and presentation of patients who were diagnosed with DVT based on venous duplex ultrasonography. Furthermore, the study would investigate the prevalence of DVT among those who underwent venous duplex scan. Through this study, the researchers hope to increase the Filipino health care providers' awareness and promote the use of diagnostic tests for DVT among high-risk populations. Through increased awareness, there may be implementation of prophylaxis and treatment to avoid the deadly complications like PE.

Objectives

General Objective

This study aims to determine the Clinical Profile of Adult Patients with Deep Vein Thrombosis in University of Santo Tomas Hospital from October 2015- June 2017.

Specific Objectives

1. To describe the characteristics of the population with deep vein thrombosis- including their age, comorbid conditions/ risk factors.
2. To describe the most common clinical manifestations of deep vein thrombosis in the population.
3. To determine the incidence of DVT among those who underwent venous duplex ultrasonography in UST Hospital from October 2015- June 2017.

Methodology

Research Design

This is a retrospective cross sectional study that included all adult patients who underwent venous duplex ultrasonography in the University of Santo Tomas Hospital from October 2015-June 2017. The patients were identified and their data retrieved using the Heart Station computer database. All venous duplex scan results during this period of time were reviewed.

Inclusion Criteria

- Age above 18 years old
- Underwent venous duplex ultrasound of the lower extremities in the University of Santo Tomas Hospital from October 2015- June 2017

Exclusion Criteria

- Below 18 years old
- Incompletely filled up patient data information sheet

Statistical/Data Analysis

Mean was used to summarize data in quantitative form (e.g. age) while counts and percentage summarized the data in categorical form. Logistic regression with backward stepwise variable selection was performed to determine the risk factor in having DVT. Mann-Whitney U Test compared the CEAP scores of those with and without DVT. All statistical tests were performed in SPSS ver 20.0. P-values less than 0.05 are considered significant.

Data Collection

This study utilized all the venous duplex ultrasonography results from October 2015- June 2017, and the patient data information sheet that the patients/guardians completed prior to undergoing the said ancillary test (See Appendix A). In the case of hospitalized patients, the data information sheets were completed by either the medical or nursing personnel after interviewing the patient or relative.

Data in the information sheet contained the socio-demographic data (age, sex, nationality, address, occupation), a checklist of known or identified risk factors and comorbid conditions (history of malignancy, major orthopedic surgery, prolonged immobilization or paresis) as well as presenting manifestations that may be associated with deep vein thrombosis (unilateral leg swelling, calf pain). Those with incomplete data were excluded from the study. Once data has been collected, these were tabulated and analyzed as to baseline characteristics, risk factors, CEAP score, and whether the test was positive or negative for DVT.

Because the study entailed a review of previous records, no consent was obtained from the patients. The identities of the patients, however, were kept confidential and were not utilized in the study.

Results

Out of the 437 initial records, 303 had complete information based on their attributes (age, gender and comorbid conditions) and CEAP. Out of the 303 records, 12 patients appeared twice, one appeared three times (See Appendix B). Those with duplicate records were removed which lead to 290 patients, each with a single record.

The reason for imposing one record per patient is to avoid over/underestimation of the prevalence. If one patient with DVT were recorded twice, then it will lead to overestimation of the prevalence, thinking that "another" patient had DVT when in fact, it is not.

Out of the 290 included patients in the study, 45 (15.5%; 95%CI: 11.5 – 20.2%) were positive for DVT. Baseline characteristics are in Table 1. The mean age of the study sample at the time of DVT diagnosis was 62.6. Females comprised 60% of the population. Age (p=0.694) and gender (p=0.494) did not differ among those with and without DVT. Furthermore, 64.4% of those who were positive for DVT were diagnosed as inpatient or during hospitalization compared to only 35.6% among those who were diagnosed as outpatient.

Table 1: Baseline Characteristics.

	Positive for DVT	Negative for DVT
Number of Patients	45	245
Age		
Mean (SD)	62.6 (13.9)	61.6 (15.3)
Median (IQR)	64.0 (56.0 – 72.5)	62.0 (53.0 – 71.5)
Gender		
Male (n/%)	18 (40.0%)	85 (34.7%)
Female (n/%)	27 (60.0%)	160 (65.3%)
Hospitalized (n/%)	29 (64.4%)	105 (42.9%)
Outpatient (n/%)	16 (35.6%)	140 (57.1%)

Table 2: Incidence of DVT by Age Group.

Age Group	Positive for DVT	% of total
20-40	3	6.66%
41-60	15	33.33%
61-80	23	51%
81-100	4	8.88%

Among 45 patients who were positive for DVT via venous duplex ultrasonography, the highest incidence is among those in the age range of 61-80 years old. The incidence of DVT increases according to age up to 80 years old; beyond which there is a noted decline.

Table 3: Risk Factors/ Comorbid Conditions of Patients with DVT.

Comorbid Conditions/Risk Factors	Positive for DVT (N=45)	Negative for DVT (N=245)
Atrial fibrillation (n/%)	3 (6.7%)	10 (4.1%)
Bedridden	11 (24.4%)	15 (6.1%)
Coronary artery disease (n/%)	5 (11.1%)	31 (12.7%)
Diabetes / Impaired fasting glucose (n/%)	14 (31.1%)	82 (33.5%)
Dyslipidemia (n/%)	9 (20.0%)	71 (29.0%)
Heart failure (n/%)	2 (4.4%)	3 (1.2%)
History of DVT	7 (15.6%)	0 (0%)
History of long-haul air travel	1 (2.2%)	7 (2.9%)
History of OCP use	3 (6.7%)	5 (2%)
Hypertension (n/%)	23 (51.1%)	158 (64.5%)
Malignancy (n/%)	20 (44.4%)	27 (11.1%)
Peripheral Artery Disease (n/%)	1 (2.2%)	13 (5.3%)
Recent surgery	6 (13.3%)	12 (4.9%)
Smoker (n/%)	9 (20.0%)	40 (16.3%)
Stroke/ TIA (n/%)	4 (8.9%)	26 (10.6%)

Data was analyzed through logistic regression (with backward stepwise procedure). Among the risk factors, the following were found to be significant risk factors in DVT: history of DVT (p<0.001), malignancy (p<0.001), recent surgery (p 0.02), OCP use (p 0.018) and bedridden state (p<0.001). The odds of having DVT is 6.9 higher [95% CI: 3.4 – 14.2] for those who have malignancy compared to those who do not. The odds that patients with recent surgery will develop DVT is 3.7 times higher [95% CI: 1.2 to 11.1] compared to patients who have not undergone recent surgery. Additionally, the odds that bedridden patients will develop DVT is 5.8 times higher [95% CI: 2.3 to 14.4] versus non-bedridden patients. And the odds of having DVT of those who use OCP is 6.1 times [95% CI: 1.4 to 27.2] higher than those who do not use OCP. Other risk factors such as pregnancy and history of chronic venous insufficiency were also investigated- there was only 1 patient each, and both negative for DVT. Although hypertension and/ or diabetes were the most frequent comorbid conditions noted in the population who underwent venous duplex scan, both were not found to be associated as a risk factor for patients to develop DVT.

Table 4: Clinical Manifestations (CEAP Classification).

CEAP Score	Positive for DVT	Negative for DVT
0=No visible or palpable signs of venous disease (n/%)	3 (6.7%)	63 (25.7%)
1= Telangectasias or reticular veins (n/%)	0 (0.0%)	21 (8.6%)
2= Varicose veins (n/%)	1 (2.2%)	37 (15.1%)
3= Edema (n/%)	35 (77.8%)	89 (36.3%)
4= Skin changes ascribed to venous disease (n/%)	5 (11.1%)	27 (11.0%)
5= Skin changes with healed ulceration (n/%)	0 (0.0%)	1 (0.4%)
6= Skin changes with active ulceration (n/%)	1 (2.2%)	7 (2.9%)

Using the Mann-Whitney-U test, those who are positive for DVT had significantly higher CEAP classification score compared to those who had none (p<0.001). Edema was the most common presentation noted for those with and without DVT.

Table 5: Deep Veins Involved.

Deep Veins Involved	TOTAL
Unilateral	32 (71.12%)
Bilateral	13 (28.88%)
Common Iliac vein	0 (0%)
Internal Iliac vein	0 (0%)
External Iliac vein	24 (53.3%)
Pelvic vein	0 (0%)
Common femoral vein	22 (48.9%)
Deep femoral vein	14 (31.1%)
Popliteal vein	28 (62.2%)
Crural veins	0 (0%)
Muscular veins	0 (0%)
Posterior tibialis veins	16 (35.6%)
Peroneal veins	18 (40%)

The results showed that unilateral DVT was more common than bilateral DVT (71.12% vs 28.88%). Among the deep veins involved, the most common was the popliteal vein (62.2%) followed by the external iliac vein (53.3%) and the common femoral veins (48.9%). The results showed that the proximal deep veins (femoral, iliac, pelvic and poplitieal veins) occurred at a higher frequency (N=88) compared to the distal deep veins (peroneal, posterior tibialis, muscular, crural veins) (N=34).

Discussion

Age and Gender among those with DVT

There are conflicting studies on the rates of DVT across several populations particularly in age and gender. In the Worcester VTE Study in 2009 conducted in Massachusetts, USA, the incidence rates of DVT was constantly higher in women, with rates increasing in younger patients <65 years of age but remained stable or declined in patients >65 years old [1]. This is in contrast to the study conduced by M.J. Jang et al in 2010 among the Korean population, which showed that the population with DVT was predominantly male, with the risk for DVT steadily increasing with age, even up to >80 years of age [14]. Lastly, in a meta-analysis by J. Heit in 2015 primarily conducted among the European population, the rates of DVT increased with age, with incidence rates higher among women during childbearing years, whereas in those >45 years of age, it was more predominant in males [1].

In this study, there is no significant difference in age and gender between those with DVT and those who had none. The mean age of DVT occurrence is at 62 years old. The overall prevalence of DVT steadily increased with age up to 80 years old, after which there is a noted decline among those beyond 80 years old. This difference between those with and without DVT among age, however, was not significant. Gender was likewise not found to be a significant risk factor in the occurrence of DVT. When compared to the previous studies conducted, this study is consistent in that DVT increases with age.

Hospitalization and the Risk of DVT

This study also showed that about two- thirds of those who were positive for DVT were diagnosed as inpatient or while hospitalized. This is congruent with a study conducted by J.A. Heit [18]. Which showed that hospitalized patients have an increased incidence of VTE by up to 100-fold when compared with residents in the community. This may be because those with DVT are also those who are admitted due to other reasons such as critical illness, surgery, and/or necessitating prolonged immobilization- factors that are also associated with DVT.

Risk factors and Comorbid Conditions Associated with DVT

Among the risk factors or comorbid conditions associated with DVT, the following were identified to have statistical significance, in decreasing order: malignancy, recent surgery, OCP use, and bedridden state. This is consistent with other studies done among different populations worldwide. In the study conducted by Heit, most common independent risk factors identified include: major surgery, active cancer, neurological disease with leg paresis, and hospitalization for acute illness [1]. The Worcester study, also identifies 5 most prevalent preexisting characteristics for VTE: recent hospitalization, surgical procedure, malignancy, infection and receipt of central venous catheter. OCP use, however, was given more emphasis as a significant risk factor in this study compared to the other studies [19].

In a study by Pantep et al. in 2011, similar risk factors have been identified both for Western and Asian populations. Of particular importance is malignancy which was the most common and which accounted for 16-40% of VTE [3]. This is similar to this study, which shows that malignancy comprises 44% of the population with DVT. This entertains the possible need for earlier screening for DVT in these high-risk populations.

As in the study conducted by K. Wattanakit et al. in 2012 [20], diabetes and hypertension were not associated with risk for DVT/PE. In the study by Heit et al., other risk factors such as smoking and myocardial infarction were also not independent risk factors for VTE. Thus, the etiology of venous thrombotic disease may differ from that of atherosclerosis. This study confirms such findings.

Clinical Manifestations of DVT

Among the clinical manifestations for DVT, edema was the most common presentation noted among who underwent venous duplex ultrasonography. This reflects current practices of health care practitioners, that where edema exists, there is a need to rule out the presence of DVT.

The results of this study indicate that the higher the Clinical score in CEAP classification, the higher is the risk for DVT. This shows that CEAP classification is a useful tool in identifying those at risk for DVT.

Veins Involved

The most common vein involvement of DVT was unilateral (71%), often the popliteal vein. This study is consistent with DVT Risk Scoring systems like Wells Score that identify unilateral leg edema as a positive component in computing for DVT probability. Likewise, the results are also congruent with current epidemiologic studies stating that proximal DVT is more common than distal DVT.

Conclusion

Among those who underwent venous duplex ultrasound of the lower extremities, 15% of the population had findings consistent with DVT, with the mean age of 62.6 years old. Age and gender were not statistically different between those with DVT and those who do not, however the occurrence of DVT was higher with increasing age up to 80 years old. The most significant risk factors identified include malignancy, bedridden state, OCP use and recent surgery. The higher Clinical CEAP Classification scores were significantly associated with a higher incidence of DVT. Lastly, DVT was more commonly unilateral than bilateral, with the popliteal vein as the most common vein involved.

Limitations of the Study

This study is limited only to investigation of the characteristics of patients with DVT in comparison to those without DVT. Because this was a retrospective study, the data collected was limited only to the available patient information sheet provided by the Heart Station in University of Santo Tomas Hospital. Thus, certain risk factors not asked in the patient data sheet, such as obesity or genetics, were not explored in this study.

Recommendations

Further studies need to be done to know the treatment regimen received by with DVT, and whether these were effective or had any adverse effects to the patient. Further studies are also needed to investigate whether there is a need to screen high-risk populations (malignancy, recent surgery, OCP use, or bedridden state) in the absence of any symptoms of DVT. Lastly, continuation of this study over a few years would greatly increase the study population and thus may increase the identification of other risk factors for DVT aside from those mentioned in this study.

Ethical Considerations

This study was reviewed and approved by the Institutional Review Board of the University of Santo Tomas Hospital. It was conducted in accordance with the applicable International Conference on Harmonization (ICH) Guidelines on Good Clinical Practice Guidelines (GCP).

Privacy and Confidentiality

Ethical considerations were of primary importance in this study. Confidentiality and protection of the identity of the subjects were implemented. No personal identifying information was published by the researcher.

Vulnerability

None of the patients included in the study belong to a vulnerable population.

Benefits

Data gathered and analyzed from this study would benefit the population and the researchers; it could identify populations at risk for deep vein thrombosis and thus improve case-detection in the community.

Risk

There were no physical, psychological, social, or economic risks involved in the study.

Compensation and Expenses

The researchers personally spent for the total resources used like paper, printing fees, and other study-related expenses.

Appendix A: Sample Patient Data Information Sheet.

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Department of Medicine - ECHO-Heart Station Laboratory

Venous Duplex Study of the Lower Extremity Report				
Patient Name	Last Name:			Hospital No.:
	First Name:			Admission No.:
	Middle Name:			Room/Bed No.:
Date Of Birth	Age:		Gender:	Ward:
Attending Physician:	Out-Patient:		In-Patient:	DVD:
Address:				
Height:	Weight:	BP:	BSA:	Study Date
Indication(s):				

Pertinent Data			
Factors	**Y/N**	**CEAP Classification**	
Smoker		**Class** **Clinical Signs**	
HTN		0 No visible or palpable signs of venous disease	
Dyslipidemia		1 Telangiectasis or reticular veins	
Diabetes/IFG		2 Varicose veins	
PAD		3 Edema	
Stroke/TIA		4 Skin changes ascribed to venous disease	
CAD		(e.g., pigmentation, venous eczema, lipodermatosclerosis)	
HF/LVD		5 Skin changes as defined above with healed ulceration	
AF		6 Skin changes as defined above with active ulceration	
Malignancy/ Hypercoagulable states			
Recent surgery		Weight (kg)	
Pregnancy		Height (in)	
OCP		BMI (kg/m^2)	
Bedridden			
Long-haul air travel			
Others:			

Appendix B: List of Patient Data Excluded from the Study.

The following patient data occurred at least twice:

1. Patient A -> one record was removed since all results were the same (except that the first record was inpatient and the other was outpatient). Inpatient record was retained, outpatient record was removed.
2. Patient B -> latest (2016) record was retained. Data were the same. Other was removed.
3. Patient C -> exactly the same 2 records. Only one was retained.
4. Patient D ->2 records, one retained (age: 59).
5. Patient E -> had 3 records (all were the same except on the remarks). One was retained.
6. Patient F -> had 2 records. Latest was retained.
7. Patient G -> had 2 records. Latest (age: 80) was retained.
8. Patient H -> had 2 records. Latest was retained.
9. Patient I -> had 2 records. Latest (2017) was retained.
10. Patient J-> had 2 records (differs only in remarks). One was retained.
11. Patient K -> had 2 records, latest was retained.
12. Patient L -> had 2 records, one with remark was retained. Other was removed.

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