ORIGINAL ARTICLES

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Incidence of peripheral trophic disorders determined by vein thrombosis of the lower limbs correlated with risk factors by age

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Abstract: *Introduction: Venous thromboembolism (VTE), in its clinical spectrum, includes both deep venous thrombosis (DVT) and pulmonary embolism (PE). It is a disease with high incidence and morbidity in hospital and community settings. Venous thromboembolism has various risk factors and there are studies proving that the risk of increasing the incidence of the disease is proportional to the risk factors.*

Diagnosis, treatment and complications of lower limb deep vein thrombosis (DVT) depend on the anatomical location and extent of the process. The post-thrombotic syndrome (PTS) is the most common complication of deep vein thrombosis (DVT) and clinically it is characterized by chronic pain, edema, enlarged veins, skin induration and other signs of the affected limb, while, in severe cases, it can develop venous ulcers. The incidence of peripheral trophic disorders by age and the prevalence of risk factors for deep vein thrombosis of the lower limbs were examined in this regard.

Materials and method: A retrospective study (January 2013 - December 2015) was conducted by collecting data from medical documents available in "Floreasca" Emergency Hospital Bucharest, Romania.

The patients diagnosed with deep vein thrombosis, on the basis of Doppler ultrasound, were divided into two groups, according to age: group A (59 patients aged ≤50 years) and group B (130 patients aged> 50 years). A number of data from the medical anamnesis, along with clinical and paraclinical data were collected by us and we were interested in the incidence of peripheral trophic disorders caused by deep vein thrombosis of the lower limbs correlated with the risk factors.

The study showed the incidence of deep venous thrombosis in a certain age and a certain environment of origin. The incidence of patients who have had a VTE history is half the patients with deep vein thrombosis who have had prophylactic anticoagulant therapy before hospitalization. The incidence of patients who have had prophylactic anticoagulant therapy before hospitalization is 61.1% of the patients with deep vein thrombosis and a VTE history. The incidence of trophic disorders caused by deep vein thrombosis of the lower limbs in patients who have had prophylactic anticoagulant therapy before hospitalization and in patients who also had a history of VTE is higher in those over 50 years old. The study showed the association of some risk factors for venous thrombosis with an age-related factor.

Conclusions: Improving preventive strategies and an optimally efficient utilization of these strategies for patients at risk of venous thrombosis can lead to improved clinical outcomes in practice and also to the post-thrombotic syndrome prevention. Taking into consideration the risk factors by age group and a better understanding of epidemiology and the risk factors for the first or recurrent venous thrombosis can lead to optimal use of prophylactic strategies and improved quality of life. DVT affects all age groups and the incidence associated with PTS is high, therefore the prevalence of PTS in general population is considerable.

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Thrombosis is also associated with impaired quality of life, especially when post-thrombotic syndrome develops. To assess the overall risk of VTE in every patient, individual risk factors or combinations of these should be carefully analyzed, an aspect that may have important implications for the type and duration of appropriate prophylaxis.

Keywords: *peripheral trophic disorders, post-thrombotic syndrome, venous thrombosis, risk factors, age groups*

INTRODUCTION

Deep vein thrombosis (DVT) is characterized by the formation of blood clots (thrombi) in the deep veins and usually affects the deep veins of the legs or the deep veins of the pelvis [1]. Venous thromboembolism (VTE) is manifested as deep venous thrombosis (DVT) or pulmonary embolism (PE) and occurs at an incidence of approximately 1 per 1,000 annually in adult populations [2].

About two-thirds of the episodes manifest themselves as DVT and a third as PE, with or without DVT. [3]. VTE is a very common medical problem that occurs either in isolation or as a complication of other diseases or procedures [4]. It is predominantly a disease of older adults and has a slight preponderance of males [1]. To prevent potentially fatal acute complications of pulmonary embolism (PE) and long-term complications of post-thrombotic syndrome and pulmonary hypertension, an accurate diagnosis of DVT is extremely important.

It is also important to avoid unjustified anticoagulant therapy in patients diagnosed with high risk of bleeding [5]. DVT prevention through prophylaxis, recognition in due time and DVT treatment and prevention of recurrent DVT will continue to have the greatest impact on reducing the global burden of post-thrombotic syndrome. Despite considerable progress in the diagnosis and treatment of deep vein thrombosis (DVT) of the lower extremities, one in every 2-3 patients will develop post-thrombotic sequelae within two years, which are severe in about 10% of cases and produce considerable socio-economic consequences [6].

DVT affects all age groups and the incidence associated with PTS is high, therefore the population prevalence of PTS is considerable [7]. Thrombosis is also associated with impaired quality of life, especially when the post-thrombotic syndrome develops [8.9].

MATERIALS AND METHOD

The study was retrospective (January 2013 - December 2015) and the data were collected from medical documents available in "Floreasca" Emergency Hospital Bucharest, Romania. The method used in this paper is the observational, non-experimental, descriptive study. In the study group there were included patients diagnosed with deep vein thrombosis of the lower limbs, based on the Doppler ultrasound, hospitalized in various wards of the Emergency Hospital, such as, internal medicine, orthopedics, cardiology and general surgery wards. The Doppler ultrasound determined the presence of chronic venous insufficiency, the type of venous thrombosis - deep or superficial and its location - proximal and distal.

The group of patients with deep vein thrombosis (DVT) comprises 189 patients, of which 54 have superficial vein thrombosis (SVT). According to their age, we divided the patients into two groups: group A (59 patients aged ≤50 years) and group B (130 patients aged> 50 years). For each patient we collected general data (age, gender, origin), and clinical and paraclinical data. The clinical data have identified the presence of unilateral leg edema or the entire leg edema and the presence of peripheral trophic disorders (erythema, infiltration, skin induration, cellulitis and venous ulcers).

From the anamnesis data we identified the presence of comorbidities and risk factors, namely immobilization before hospitalization, a history of venous thromboembolism (VTE) and pulmonary thromboembolism (PE), anticoagulation prior to hospitalization, various medical conditions, a history

of surgical conditions (orthopedic, gynecological, urological, abdominal), neoplasm and antineoplastic treatment, cerebrovascular accident associated with motor deficiency, congestive heart failure, renal disease (renal lithiasis, nephrotic syndrome, hydronephrosis, chronic kidney disease, enlarged prostate), obesity, diabetes, hypertension, a history of heart attack, fractures before admission, alcohol consumption, smoking.

We used SPSS, version 15.0, to statistically analyze the data. For some additions to the statistical analysis we used the MedCalc program. Some of the graphics were done with Excel 2007 and other graphics with SPSS. The vast majority of the data were nominal (Yes, No); for these we did the analysis using the Chi square test. For the type of numeric data we did an ANOVA analysis. An OR (Odds Ratio) risk assessment was calculated for risk factors with the Mantel-Haenszel test. We also used binary logistic regression. The statistical differences and dependencies were statistically significant for Sig <0.05.

RESULTS

The group of patients with deep vein thrombosis (DVT) comprises 189 patients, of which 54 (28.6%) have superficial vein thrombosis (SVT). We divided patients into two groups: patients aged ≤50 years (31.22%) and patients aged> 50 years (68.78%). Applying ANOVA with a variable depending on age and an independent variable belonging to one of the two groups, we obtained as a result the average age of the patients of the first group as 37.71 years old with SD = 8,445, and for those of the second group as 68.50 with SD = 11,133. The difference between the two means is statistically significant (Sig <0.001). In the first group we have 23 (38.98%) women and 36 (61.02%) men and in the second 62 (47.69%) women and 68 (52.31%) men.

In the first group we have 9 (15.25%) patients in rural areas and 50 (84.75%) patients in urban areas, and in the second we have 30 (23.08%) patients in rural areas and 100 (76 92%) patients in urban areas. Therefore, the prevalence of patients in urban areas is very high, about 80%. By using Chi square analysis and an OR estimation performed with SPSS and MedCalc, we analyzed the relationship between variables and there are 72 patients taking anticoagulants before admission, namely 24 (40.68%) in the first group and 48 (36, 92%) in the second group. According to the test, there is no statistically significant link (Sig = 0.622) between the presence in one of the two groups and the existence of anticoagulant prior to admission. The OR estimation is not statistically significant because Sig = 0.622. From the group of patients with deep vein thrombosis the incidence of patients who had prophylactic treatment with anticoagulants before admission is 38.09% and among those the incidence of the patients who had a history of VTE is 50%.

The incidence rates of a history of VTE, of PE at admission and in the personal history for these 72 patients are presented in Table 1.

Table 1. The incidence rates of a history of VTE, of PE at admission and in the personal history

Sex	≤ 50		> 50		Total	
	N	%	N	%	N	%
History of VTE	12	50.0%	24	50.0%	36	50.0%
PE at admission	2	8.3%	1	2.1%	3	4.2%
History of PE	2	8.3%	2	4.2%	4	5.6%

From the group of patients with deep vein thrombosis, the incidence of VTE in patients who had a history of VTE (58 patients) is 30.68% and were distributed as follows: 19 (32.2%) in the first group and 39 (30.0%) in the second group. Among those patients who had a history of VTE, 38.9% had a history of VTE without Prophylactic anticoagulation treatment and 61.1% had a history of VTE with prophylactic anticoagulant treatment. The incidence rate of PE at admission and in the personal history among these 58 patients are presented in Table 2.

Table 2. The incidence rates of PE at admission and in the personal history

History of VTE	≤ 50		> 50		Total	
	N	%	N	%	N	%
PE at admission	2	10.5%	2	5.1%	4	6.9%
History of PE	3	15.8%	3	7.7%	6	10.3%

Taking this aspect into consideration enables us to optimally use the prophylactic strategies against venous thromboembolism. A better understanding of epidemiology and the risk factors for the first and the recurrent venous thrombosis can lead to improved clinical outcomes in practice. To assess the overall risk of VTE in every patient, individual risk factors or combinations of these should be carefully analyzed, an aspect that may have important implications for the type and duration of appropriate prophylaxis.

The incidence of trophic disorders caused by venous thrombosis of the lower limbs in patients who had prophylactic anticoagulant therapy before hospitalize-tion is 23.6% venous ulcers, 93% edemas, 83.3% different trophic disorders (reddish–brown cutaneous depigmentation, indurated fibrous skin, redness, irritation or dermatitis) and 12.5% cellulitis. Statistical analysis by age group reveals that the incidence is higher in patients over 50 years old, namely 24.5% venous ulcers, 93.9% swelling, 91.83% different trophic disorders and 14.28% cellulitis. In patients who are under 50 years old there was an incidence of21.73% venous ulcers, 91.30% edemas, 65.21% various trophic disorders and 8.7% cellulitis.

The incidence of trophic disorders caused by venous thrombosis of the lower limbs in patients who had prophylactic anticoagulant therapy before hospitalize-tion and history of VTE by age group reveals that the incidence is higher in patients over 50 years old, namely 45.83 % venous ulcers, 100% swelling, 91.66% various trophic disorders and 25% cellulitis. In patients under 50 years old there was an incidence of 41.6% venous ulcers, 100% swelling, 66.7% various trophic disorders and 16.7% cellulitis.

According to the data provided by Chi square analysis and OR estimation performed with SPSS and MedCalc test, there is a statistically significant link (Sig = 0.003) between the presence in one of the two groups and the presence of chronic venous insufficiency. There are 78 patients with chronic venous insufficiency: 15 (25.42%) in the first group and 63 (48.46%) in the second group. Cont. Coef. = 0.212 is the strength of that link. Sig = 2.758 and OR = 0.003, therefore it is statistically significant. Chronic venous insufficiency is more present in the second group.

By using Chi square analysis and OR estimation performed with SPSS and MedCalc, we analyzed the relationship between variables, specifically the risk factors present in the database, considered to be risk factors for DVT, for each group separately (Table 3).

We obtained statistically significant values:

- For Varicose veins, there is a statistically significant link (Sig = 0.016) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.173 is the strength of that link. OR = 2.471 and Sig = 0.018, therefore it is statistically significant. Varicose veins are more common in the second group.

- For Congestive heart failure, there is a statistically significant link (Sig <0.001) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.352 is the strength of that link. OR = 63.328 and Sig = 0.004, therefore it is statistically significant. Congestive heart failure is present only in the second group.

- For Fractures before admission, there is a statistically significant link (Sig = 0.006) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.197 is the strength of that link. OR = 0.326 and Sig = 0.007, therefore it is statistically significant. Fractures before admission are more common in the first group.

- For Smoking, there is a statistically significant link (Sig = 0.027) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.159 is the strength of that link. OR = 0.494 and Sig = 0.028, therefore it is statistically significant. Smokers are more present in the first group.

- For HTN (hypertension), there is a statistically significant link (Sig <0.001) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.499 is the strength of that link. OR = 53.833 and Sig <0.001, therefore it is statistically significant. HTN is present almost entirely in the second group.

Table 3. Analysis of risk factors by age group.

Risk factors	≤ 50 years		> 50 years		Chi square analysis		Odds ratio	
	No N (%)	Yes N (%)	No N (%)	Yes N (%)	Cont coef	Sig	OR	Sig
Immobilization before admission/hospitalization	47 (79.66%)	12 (20.34%)	88 (67.69%)	54 (41.54%)	0.122	0.091	1.869	0.094
Varices	48 (81.36%)	11 (18.64%)	83 (63.85%)	47 (36.15%)	0.173	0.016	2.471	0.018
History of VTE	40 (67.80%)	19 (32.20%)	91 (70.00%)	39 (30.00%)	0.022	0.761	0.902	0.761
PE at admission	53 (89.83%)	6 (10.17%)	124 (95.38%)	6 (4.62%)	0.105	0.147	0.427	0.157
History of PE	55 (93.22%)	4 (6.78%)	125 (96.15%)	5 (3.85%)	0.064	0.380	0.550	0.386
Obesity	35 (59.32%)	24 (40.68%)	84 (64.62%)	46 (35.38%)	0.051	0.485	0.799	0.485
Congestive heart failure	59 (100.00%)	0 (0.00%)	85 (65.38%)	45 (34.62%)	0.352	<0.001	63.328	0.004
COPD or pulmonary cond.	49 (83.05%)	10 (16.95%)	111 (85.38%)	19 (14.62%)	0.030	0.680	0.839	0.680
Anemia	44 (74.58%)	15 (25.42%)	81 (62.31%)	49 (37.69%)	0.119	0.099	1.774	0.101
Fractures prior to admission	44 (74.58%)	15 (25.42%)	117 (90.00%)	13 (10.00%)	0.197	0.006	0.326	0.007
Smoking	30 (50.85%)	29 (49.15%)	88 (67.69%)	42 (32.31%)	0.159	0.027	0.494	0.028
HTN	57 (96.61%)	2 (3.39%)	45 (34.62%)	85 (65.38%)	0.499	<0.001	53.833	<0.001
Peripheral artery disease	59 (100.00%)	0 (0.00%)	113 (86.92%)	17 (13.08%)	0.207	0.004	18.348	0.044
Type 2 diabetes	56 (94.92%)	3 (5.08%)	85 (65.38%)	45 (34.62%)	0.300	<0.001	9.882	<0.001
Lipid alterations	39 (66.10%)	20 (33.90%)	67 (51.54%)	63 (48.46%)	0.135	0.062	1.834	0.063
Alcohol consumption	45 (76.27%)	14 (23.73%)	114 (87.69%)	16 (12.31%)	0.143	0.046	0.451	0.050
Extensive distal localization (calf)	11 (18.64%)	48 (81.36%)	9 (6.92%)	121 (93.08%)	0.174	0.015	3.081	0.019
Extensive proximal DVT localization	25 (42.37%)	34 (57.63%)	36 (27.69%)	94 (72.31%)	0.144	0.045	1.920	0.047
Patients with medical conditions	47 (79.66%)	12 (20.34%)	25 (19.23%)	105 (80.77%)	0.500	<0.001	16.450	<0.001
Patients with a history of surgical conditions	51 (86.44%)	8 (13.56%)	76 (58.46%)	54 (41.54%)	0.266	<0.001	4.530	<0.001
History of major gynecological surgical interventions	58 (98.31%)	1 (1.69%)	115 (88.46%)	15 (11.54%)	0.162	0.024	7.565	0.053
History of major urological surgical interventions	50 (84.75%)	0 (0.00%)	114 (87.69%)	16 (12.31%)	0.201	0.005	17.149	0.049
Hip or knee arthroplasty. Hip surgery	48 (81.36%)	11 (18.64%)	112 (86.15%)	18 (13.85%)	0.062	0.396	0.701	0.398
History of heart attacks	59 (100.00%)	0 (0.00%)	120 (92.31%)	10 (7.69%)	0.157	0.029	10.369	0.108
Renal conditions (CKD. Hydronephrosis renal lithiasis)	55 (93.22%)	4 (6.78%)	109 (83.85%)	21 (16.15%)	0.127	0.078	2.649	0.087
Neoplasia	57 (96.61%)	2 (3.39%)	95 (73.08%)	35 (26.92%)	0.265	<0.001	10.500	0.002
CVA (mainly associated with motor deficiency)	59 (100.00%)	0 (0.00%)	121 (93.08%)	9 (6.92%)	0.149	0.038	9.305	0.127

○ For Peripheral arterial disease, there is a statistically significant link (Sig = 0.004) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.207 is the strength of that link. OR = 18.348 and Sig = 0.044,

therefore it is statistically significant. Peripheral artery disease is present only in the second group.

o For Type 2 diabetes, there is a statistically significant link (Sig <0.001) between the presence in one of the two groups and risk factors analyzed. Account. Coef. = 0.300 is the strength of that link. OR = 9.882 and Sig <0.001, therefore it is statistically significant. Type 2 diabetes is now almost entirely present in the second group.

o For Alcohol consumption, there is a statistically significant link (Sig = 0.046) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.143 is the strength of that link. OR = 0.451 and Sig = 0.050, therefore it is statistically significant. Alcohol consumption is more present in the first group.

o For Extensive distal location (calf), there is a statistically significant link (Sig = 0.015) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.174 is the strength of that link. OR = 3.081 and Sig = 0.019, therefore it is statistically significant. Extensive distal location (calf), is more present in the second group.

o For Extensive proximal DVT localization, there is a statistically significant link (Sig = 0.045) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.1144 is the strength of that link. OR = 1.920 and Sig = 0.047, therefore it is statistically significant. Extensive proximal DVT localization is more present in the second group.

o For Patients with medical conditions, there is a statistically significant link (Sig <0.001) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.500 is the strength of that link. OR = 16.450 and Sig <0.001, therefore it is statistically significant. Medical conditions are highly present in the second group.

o For Patients with a history of surgical conditions, there is a statistically significant link (Sig <0.001) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.266 is the strength of that link. OR = 4.530 and Sig <0.001, therefore it is statistically significant. Surgical conditions are more present in the second group.

o For History of major gynecological surgical interventions, there is a statistically significant link (Sig=0.024) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.162 is the strength of that link. OR = 7.567 and Sig=0.053, therefore it is statistically significant. The major gynecological surgical interventions are more present in the second group.

o For History of major urological surgical interventions, there is a statistically significant link (Sig=0.005) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.201 is the strength of that link. OR = 17.149 and Sig=0.049, therefore it is statistically significant. The major urological surgical interventions are present only in the second group.

o For History of heart attacks (myocardial infarctions), there is a statistically significant link (Sig=0.029) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.157 is the strength of that link. OR = 10.369 and Sig=0.108, therefore it is statistically significant. The heart attack is present only in the second group.

o For Neoplasms, there is a statistically significant link (Sig<0.001) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.265 is the strength of that link. OR = 10.500 and Sig=0.002, therefore it is statistically significant. Neoplasms are more present in the second group.

o For CVA (mainly associated with motor deficiency), there is a statistically significant link (Sig=0.038) between the presence in one of the two groups and the presence of the analyzed risk factors. Cont. Coef. = 0.149 is the strength of that link. OR = 9.305 and Sig=0.127, therefore it is statistically significant. CVA is present only in the second group.

A logistic regression for age was performed with all these factors as covariates and the following result present in table 4 was obtained.

Table 4. Logistic regression for age

	B	S.E.	Wald	df	Sig.	OR
Immobilization before admission	1.020	0.997	1.047	1	0.306	2.774
Varices	0.179	0.678	0.070	1	0.791	1.197
History of VTE	-0.401	0.644	0.387	1	0.534	0.670
PE at admission	-0.186	1.098	0.029	1	0.865	0.830
History of PE	-1.460	2.001	0.532	1	0.466	0.232
Obesity	-0.602	0.647	0.867	1	0.352	0.548
Congestive heart failure	17.980	4725.744	0.000	1	0.997	6E+007
COPD or pulmonary conditions	***-2.264***	***1.010***	***5.024***	***1***	***0.025***	***0.104***
Anemia	-0.286	0.686	0.174	1	0.677	0.751
Fractures before admission	***-4.041***	***1.886***	***4.591***	***1***	***0.032***	***0.018***
Smoking	0.037	0.558	0.004	1	0.947	1.038
HTN	***4.046***	***1.528***	***7.011***	***1***	***0.008***	***57.163***
Peripheral artery disease	20.165	7631.510	0.000	1	0.998	6E+008
Type 2 diabetes	0.917	1.050	0.763	1	0.382	2.502
Lipid alterations	-0.479	0.730	0.430	1	0.512	0.620
Alcohol consumption	-0.635	0.739	0.738	1	0.390	0.530
Extensive distal location (calf)	0.021	0.496	0.002	1	0.965	1.022
Extensive proximal DVT location	0.088	0.544	0.026	1	0.872	1.092
Patients with medical conditions	1.028	0.832	1.527	1	0.217	2.797
Patients with a history of surgical conditions	1.953	1.083	3.250	1	0.071	7.048
History of major gynecological surgical interventions	-0.482	2.100	0.053	1	0.819	0.618
History of major urological surgical interventions	16.465	8232.574	0.000	1	0.998	1E+007
Hip or knee arthroplasty; hip surgery	-0.753	1.615	0.217	1	0.641	0.471
History of heart attacks	17.258	8314.948	0.000	1	0.998	3E+007
Renal conditions (CKD, hydronephrosis, renal lithiasis)	-0.120	0.882	0.019	1	0.892	0.887
Neoplasia	0.720	1.482	0.236	1	0.627	2.055
CVA (mainly associated with motor deficiency)	-2.435	12313.405	0.000	1	1.000	0.088

The Cox-Snell's multiple coefficient of determination R2 was 0.587 and Nagelkerke's was 0.782, which signifies that the model explains 78% of the variation in covariates distribution by age. The Hosmer and Lemeshow's test showed the significance Sig = 0.910, which means that the calculated model fits the included variables.

COPD (Sig = 0.025, OR = 0.104) and fractures before admission (Sig = 0.031, OR = 0.018) occur mainly in patients under 50 years old, while hypertension (Sig = 0.008, OR = 57.163) manifests especially in patients over 50 years old.

A logistic regression for SVT was performed by age, gender, origin, venous ulcers, edemas, various peripheral trophic disorders (brown or reddish skin depigmentation, fibrous and indurated skin, redness, irritation or dermatitis), diffuse cellulitis and chronic

venous insufficiency as covariates and the following result was obtained and are presented in Table 5.

Table 5. A logistic regression for SVT was performed by age, gender, origin, venous ulcers, edemas, various peripheral trophic disorders

	B	S.E.	Wald	df	Sig.	OR
Age	***-0.800***	***0.339***	***5.580***	***1***	***0.018***	***0.449***
Sex	-0.275	0.355	0.601	1	0.438	0.760
Origin	0.459	0.426	1.161	1	0.281	1.582
VU	0.738	0.491	2.256	1	0.133	2.091
Edemas	-1.059	0.682	2.413	1	0.120	0.347
Various trophic disorders	0.221	0.522	0.180	1	0.672	1.247
Cellulitis	0.854	0.705	1.469	1	0.225	2.349
CVI	***1.781***	***0.434***	***16.827***	***1***	***0.000***	***5.938***

The Cox-Snell's multiple coefficient of determination R2 was 0.316 and Nagelkerke's was 0.422, which means that the model explains 42% of the variation in covariates distribution by SVT. Hosmer and Lemeshow's test showed the significance Sig = 0.464 which means that the calculated model fits the included variables. The age (Sig = 0.018, OR = 0.449) shows that SVT is manifested especially in patients under 50 years old. CVI (Sig <0.001, OR = 5.938) occurs predominantly in patients with SVT.

DISCUSSION

Thrombosis, as described by Virchow's triad, occurs as a result of hypercoagulability, endothelial damage or stasis, or a combination of these all. The risk of VTE for each patient should be individually assessed when prophylaxis is needed. Universal preventive guidelines were made with difficulty due to differences between individuals, such as age, medical history and social history [10]. DVT prevention by using thrombo-prophylaxis, effective in patients with high risk of recurrence and the minimization of the risk of DVT reduce the frequency of post-thrombotic syndrome (PTS). The identification of the patients at high risk for PTS, the assessment of the role of thrombolysis in preventing PTS and the optimal evaluation of compression stockings in preventing and treating PTS are issues that should be the concern for future research, as well as researching and evaluating the new therapies for treating PTS. The post-thrombotic syndrome (PTS) is the most common complication of deep vein thrombosis (DVT), it is cumbersome and expensive for patients and for the community, because of its high prevalence, severity and chronicity and has received little attention from clinicians and researchers [11].

Initially, venous thromboembolism (VTE) was perceived as a complication of hospitalization for major surgery or was associated with late-stage terminal illness, but studies have shown a risk of VTE in hospitalized patients with medical conditions comparable to those seen after major general surgery. The epidemiological studies have shown that between one quarter and one half of all symptomatic VTE, clinically recognized, occur in people who are not either hospitalized or recovering from a major illness, which involves expanding the populations at risk that could benefit from prophylaxis and challenges doctors to carefully examine the risk factors for VTE [12].

Clinical evaluation for the diagnosis of venous thrombosis in itself cannot be invoked for patient management but remains useful in determining the need for further testing, namely impedance plethysmography, which is particularly useful in excluding DVT in patients with suspicious signs and symptoms. The medical history for identifying risk

factors for VTE is as important as physical examination [13]. When clinical probability is estimated before the diagnostic tests, the diagnostic accuracy for DVT is improved. The patients who experience low clinical probability of DVT have a prevalence of less than 5% and the diagnosis of DVT can be excluded without using ultrasound, while for the patients with clinical suspicion of DVT the results should not affect clinical decisions [14].

Patients with symptomatic DVT may present an increase in volume of the affected limb, spontaneous pain or on palpation in the calf or thigh muscles, increased pain on the flexion of the foot (the Homans sign), high temperature and purplish coloration of the affected lower limbs. Less than 10% develop severe symptoms including thrombophlebitis, pain, swelling, leg ulcers or skin induration [15].

The present study has shown that DVT is more common in patients over 50 years old and it is more frequent in men and in patients who have the urban environment as origin.

Despite the anticoagulation treatment, VTE recurs frequently in the first few months after the initial event, with a recurrence rate of ≈7% at 6 months. Death occurs in ≈6% of DVT cases and 12% of PE cases within 1 month of diagnosis. The seasons of the year may affect the occurrence of VTE, with a higher incidence in winter than in summer. Early mortality after VTE is strongly associated with the presentation as PE, advanced age, cancer and underlying cardiovascular disease [2]. Despite universal thromboprophylaxis, patients with critically severe surgical or medical conditions remain at risk for deep vein thrombosis of the lower limbs [1].

VTE is rare in adolescents and it is predominantly a disease of old age. The incidence of deep vein thrombosis and pulmonary embolism increases exponentially with age [16]. Venous thrombo-embolism is a major national health problem, especially among the elderly. While the incidence of DVT remains the same for men and increases for older women, the incidence of pulmonary embolism has decreased over time [17]. The incidence rates after the age of 45 years old are generally higher in males, while the incidence rates in women are somewhat higher during the reproductive years. For both sexes, with increasing age, PE represents a growing proportion of VTE [17]. The annual rate of venous thromboembolism events has increased despite the progress made in the identification, prevention and treatment. These increases may be due to the increased sensitivity of diagnostic methods, especially for PE. This fact implies that the current prevention and treatment strategies are less than optimal [18].

Currently, the prophylaxis is both mechanical and pharmacological. The goals of the treatment are to prevent the spread of thrombosis, pulmonary embolism, thrombosis recurrence and the development of complications such as post-thrombotic syndrome and pulmonary hypertension.

CONCLUSIONS

Thromboprophylaxis could have a tremendous potential if it was efficiently and optimally administered to patients at risk of venous thrombosis. Understanding the risk factors and epidemiology of the first and recurrent venous thrombosis enables the optimal and efficient use of prophylactic strategies against VTE and would prevent post-thrombotic syndrome and improve clinical outcomes in practice.

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