



EVALUATION OF RISK FACTORS IN ESTABLISHED CASES OF VENOUS THROMBOSIS IN A TERTIARY CARE TEACHING HOSPITAL

Dr Gaurav Singal

Assistant Professor Department of Surgery, World College of Medical Sciences and Research, Jhajjar, Haryana.

Dr Dharampaul Jain*

Associate professor Department of medicine, World College of Medical Sciences and Research, Jhajjar, Haryana. *Corresponding Author

Dr Shyam Sunder Nagpal

Associate professor Department of Surgery, World College of Medical Sciences and Research, Jhajjar, Haryana.

ABSTRACT

Venous thrombosis (VT) is a well known entity including superficial vein thrombosis (SVT), deep vein thrombosis (DVT), and pulmonary embolism (PE). DVT is treatable, but is also an established cause for PE, which is a potentially fatal condition leading to considerable morbidity and mortality. All patients with proven VT attending the vascular clinic during the study period were included in the study. A total of 82 patients (41.6%) had identifiable provoking risk factors, of which malignancy 20(24.4%) and post surgery status 19(23.2%) were the common causes. study population of VT revealed male predominance. Immobilization due to either medical or surgical causes, emerged as a major risk factor. The most common modifiable factor is postoperative care and the common coagulation anomaly is hyperhomocysteinemia.

KEYWORDS : Venous thrombosis (VT), Superficial Vein Thrombosis (SVT) and Risk Factors

INTRODUCTION:

Superficial Vein Thrombosis (SVT) is a common disease that most often affects the veins of the leg but can also be found in other locations. The great saphenous vein is involved in 60% to 80% of cases, and the small saphenous vein in 10% to 20%. [1] Venous thrombosis (VT) is a well-known entity including superficial vein thrombosis (SVT), deep vein thrombosis (DVT), and pulmonary embolism (PE). DVT is treatable, but is also an established cause for PE, which is a potentially fatal condition leading to considerable morbidity and mortality. [2] Most cases of DVT are silent in nature and are only identified when it has progressed for long, inside the body. Hence, it can be concluded that the incidence recorded can be compared to the tip of an iceberg. It contributes substantially to patient morbidity, mortality, and cost of management. [3] DVT is more common in western countries, [4] yet published literature mentions that it is no more than a rare entity among the Indian population. [5] Each year, about two million Americans are diagnosed with DVT as per the statistics of American Heart Association. [6] Annual morbidity due to DVT in the United States outranks even the morbidity from heart attack or stroke. DVT contributes to hospitalization of about 0.6 million people in the USA every year and in the UK the hospitalization rate is about 1 in 2000. In India and other South Asian countries, the incidence shows huge variation of around 6%–75%. [7] Worldwide proven provoking factors are advancing age, obesity, previous history of venous thromboembolism, ongoing malignancy, immobilization, long bone fracture, multiple trauma, stroke, congestive heart failure, myocardial infarction, increased use of central venous line, presence of varicose veins, estrogen treatment, pregnancy, and surgical conditions such as prolonged surgeries, abdominal, pelvic, and orthopedic surgery to lower limb. [8] Although a number of surveys have been conducted to find out the incidence of DVT, such data is still lacking among the Indian population. Aim of the study was to evaluate the risk factors in established cases of venous thrombosis in a tertiary care teaching hospital.

MATERIALS AND METHODS:

This retrospective study was conducted in the Department of Surgery, World College of Medical Sciences and Research, Jhajjar, during the period from January, 2017 to December, 2020. A total of 197 patients 61.4% were male and 38.6% female. out of which 167 (84.8%) had DVT whereas 30 (15.2%) had SVT. All patients with proven VT attending the vascular clinic during the study period were included in the study.

Patients with VT involving great saphenous vein, deep veins in both extremities, central veins, and splanchnic vein were included in the study, whereas patients admitted with PE without VT were excluded. All data regarding the patient particulars, presentation of the disease, and provoking factors were recorded. Diagnostic confirmation was by duplex ultrasonography in all patients. All patients were treated according to the standard protocol, with parenteral heparin followed by oral anticoagulants. Patients without any identifiable primary provoking cause were evaluated with hypercoagulable profile workup (antiphospholipid antibodies immunoglobulin [IgG] and IgM, Factor III activity, Protein C and S deficiency, Serum Homocysteine). Factor V (Leiden) mutation assay was not included in the initial period due to technologic constraints. Data were entered and analyzed using the SPSS software (version 22; SPSS Inc., Chicago, IL, USA). The analysis consisted of descriptive group parameters. Continuous variables were processed as mean & standard deviation. Categorical variables were analyzed as frequencies with corresponding percentages within the different categories.

RESULTS AND DISCUSSION:

This present study conducted in the Department of Surgery, World College of Medical Sciences and Research, Jhajjar. A total of 197 patients 61.4% were male and 38.6% female. Total of 197 patients, out of which 167 (84.8%) had DVT whereas 30 (15.2%) had SVT. The difference in the age group of patients with DVT and SVT was statistically significant. DVT was found to be common in males 112 (67.1%), whereas occurrence of SVT was equal in male 16 (53.3%) and female patients 14 (46.7%).

Table 1: Prevalence of venous thrombosis in study population

	Total	Male(%)	Female(%)
Prevalence of DVT	167	112(67.1%)	55(32.9%)
Prevalence of SVT	30	16(53.3%)	14(46.7%)
Left leg	112(67.1%)	68(40.7)	44(26.3)
Right leg	50(29.9%)	40(24.0)	10(6.0)
Both leg	5(3.0%)	3(1.8)	2(1.2)
Primary DVT	115	79(68.7%)	36(31.3%)
Secondary DVT	82	47(57.3)	35(42.7)

The disease distribution was more in extremities with preponderance of femoropopliteal segment 88(44.7), followed by iliofemoral segment 52(26.4). Left side involvement was common in both males 68(40.7) and females 44(26.3).

Table 2: Incidence of venous thrombosis in surgical specialties

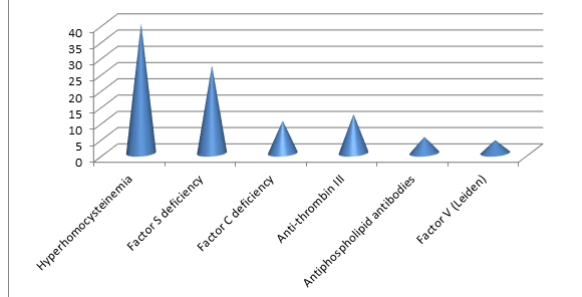
Location	Total (N=197) (%)	Primary VT (%)	Secondary VT (%)
Femoropopliteal vein	88(44.7)	51(58.0)	37(42.0)
Iliofemoral vein	52(26.4)	31(59.6)	21(40.4)
Central vein	18(9.1)	5(27.8)	13(72.2)
Splanchnic vein	11(5.6)	7(63.6)	4(36.4)
Superficial venous thrombosis	28(14.2)	20(71.4)	8(28.6)

A total of 82 patients (41.6%) had identifiable provoking risk factors, of which malignancy 20(24.4%) and post surgery status 19(23.2%) were the common causes. The common malignancies in male were those of anorectal and genitourinary system. In females, breast and cervical malignancies were common. There were four female patients, two with oral contraceptive pill use and two due to pregnancy related factors. In the post surgery patients, neurosurgery topped the list with 8 patients, followed by orthopedic surgery [Table 2]. Local causes included cellulitis and lymphangitis causing SVT, pancreatitis, and splenic abscess causing splanchnic thrombosis and huge hydronephrosis causing iliofemoral DVT.

Table 3: Coagulation abnormalities in patients with venous thrombosis

Coagulation abnormality	Total (n)	Primary VT(%)	Secondary VT(%)
Hyperhomocysteinemia	40(20.3)	34(85.0)	6(15.0)
Factor S deficiency	27(13.7)	24(88.9)	3(11.1)
Factor C deficiency	10(5.1)	8(80.0)	2(20.0)
Anti-thrombin III	12(6.09)	10(83.3)	2(16.7)
Antiphospholipid antibodies	5(2.5)	4(80.0)	1(20.0)
Factor V (Leiden) mutation	4(2.03)	3(75.0)	1(25.0)

Fig.1: Total no. of patients



Hyperhomocysteinemia was found to be the commonest coagulation anomaly 40(20.3%) followed by protein S deficiency Fig.1. Distribution of coagulation abnormalities in patients with primary and secondary VT is given in Table 3. The incidence rate of 17.5/10,000 hospital admissions is almost identical to the studies conducted at Vellore[9] and Chennai.[10] In the published literature,[2] females are commonly affected by DVT, but our study has male preponderance (61.4%), similar to the ARRIVE study of 70%[11] and Indian subgroup of ENDORSE study of 69%.[12] Male dominance is seen both in the DVT group and in the SVT group. The observation that malignancy and postoperative status are the most common provoking factors, is similar to the results of other Indian studies[13] and an American study by Caprini et al.[14] On the contrary, an African study by Hagos et al.[15] portrayed medical conditions as the most common risk factors, followed by postdelivery, and major surgery. Immobilization (including posttrauma, fracture, bedridden, and medical patients with restricted mobility) emerged as a single major factor, more than malignancy. These patients should be considered as high risk patients and managed accordingly. Our study confirms the findings of previous studies[16,17] and demonstrates that the risk of a concomitant DVT should not be underestimated in patients with SVT. The most important indicators for the development of a DVT were

SVT of the lower leg and increased D-dimer levels. In addition, the older age of patients seemed to be a minor risk factor. High SVT involvement and normal D-dimer test findings negatively correlated with the development of a DVT. The results of this study indicate that concurrent DVT is more likely when SVT affects the lower leg. In these cases, the deep veins should be assessed by color-coded duplex sonography (from the inguinal region to the ankle) to exclude or confirm acute DVT. We recommend also evaluation of the contralateral leg in cases of SVT with a substantially elevated D-dimer level and any symptoms of DVT to insure the best medical care and thus hopefully prevent pulmonary embolism or postthrombotic syndrome.

CONCLUSION:

These findings suggest that the study population of VT revealed male predominance. Immobilization due to either medical or surgical causes, emerged as a major risk factor. The most common modifiable factor is postoperative care and the common coagulation anomaly is hyperhomocysteinemia.

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