



A COMPREHENSIVE STUDY ON INCIDENCE AND RISK FACTORS OF DEEP VEIN THROMBOSIS IN GENERAL SURGERY PATIENTS

General Surgery

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ABSTRACT

BACKGROUND: Deep vein thrombosis [DVT] is one of the most dreaded complications in post-operative patients as it is associated with considerable morbidity and mortality. The autopsy studies document that 50% of all patients dying in hospital have DVT. Around 10–30% of these patients have pulmonary embolism secondary to proximal DVT. Majority of patients with postoperative DVT are asymptomatic. Its complications like pulmonary embolism can be lethal. **METHODOLOGY:** This prospective study was conducted on post operative asymptomatic patients underwent emergency of elective surgery in the department of General surgery, LLR & Associated Hospitals GSVM Medical College, Kanpur From December 2019 TO October 2021. they were evaluated for risks of developing DVT. All the patients were examined for signs of DVT based on the Wells score. The patients' findings were then categorized as high (≥ 3) or non-high (≤ 2). The clinical examination (based on the Wells score) of the patients was done on PODs 2 and 4. If at any time the patient scored high on the Wells score, he/she immediately underwent Doppler ultrasound, and if DVT was confirmed, appropriate treatment was instituted. Patients that did not develop clinical DVT while still admitted were scheduled to undergo duplex ultrasound on PODs 7. **RESULTS:** Out of 100 patients, incidence of asymptomatic DVT was found to be 2 percent. In both the cases duration of surgery was found to be more than three hours & patient was immobilized for three days. The risk factors were found to be prolonged duration of surgery and immobilization in both the cases. Out of 100 patients, incidence of asymptomatic DVT was found to be 2 percent. In both the cases duration of surgery was found to be more than three hours & patient was immobilized for three days. The risk factors were found to be prolonged duration of surgery and immobilization in both the cases.

KEYWORDS

DVT, Prolonged Surgery

INTRODUCTION :

Deep vein thrombosis [DVT] is one of the most dreaded complications in post-operative patients as it is associated with considerable morbidity and mortality. The prevalence of Deep Vein Thrombosis (DVT) in various series involving Western population ranges from 15% to 40% among patients undergoing major general surgical procedures. The autopsy studies document that 50% of all patients dying in hospital have DVT. Around 10–30% of these patients have pulmonary embolism secondary to proximal DVT. Majority of patients with post operative DVT are asymptomatic. Its complications like pulmonary embolism can be lethal. As a sequel to DVT, venous valves become incompetent or destroyed, resulting in chronic venous hypertension and subsequent development of varicose veins, lipodermatosclerosis and venous ulcers causing considerable disability. Venous thrombosis commonly involves lower limbs, affecting most frequently Calf veins, which are involved in virtually 100% of symptomatic, spontaneous lower extremity DVT. It is believed that the DVT is less prevalent among the Indians and Asians. There have been very few studies on DVT in postoperative period in Asian patients. Hence this study intends to show incidence and risk factors of deep vein thrombosis in asymptomatic patients after prolonged surgery.

AIMS AND OBJECTIVE:

- To study about incidence of the deep vein thrombosis in previously asymptomatic patients after surgery in our institution and LPS institute of cardiology and cardiac surgery.
- To identify various risk factors of deep vein thrombosis in previously asymptomatic patients after surgery

MATERIAL AND METHOD:

The present hospital-based prospective study was conducted at Department of General Surgery, GSVM Medical College Kanpur over 100 patients after obtaining the consent from all the patients or their relatives during the study period of January 2020 to September 2021.

Inclusion Criteria:

All patients who underwent elective or emergency operations with stay in hospital more than 2 days, admitted in surgical wards and ICUs

, LLR & associate Hospital, GSVM Medical Collage, Kanpur.

Exclusion Criteria:

- Patients who have symptoms suggestive of DVT such as unilateral lower limb edema and calf muscle pain before admission.
- Patients who ever took anticoagulant during one week before hospital admission.
- Patients who suffered from pre-operation DVT
- Uncorrectable coagulopathy
- Patient is on heparin

OBSERVATION AND RESULTS:

This was a prospective study done in department of general surgery GSVM Medical collage Kanpur from January 2020 to September 2021. This study included 100 post-operative patients who were studied prospectively for detection of deep vein thrombosis.

Demographic Profile

Table 1. Showing Distribution Of Sex (n=100)

Gender	No of patient	%
Male	52	52
Female	48	48

Table 2. Showing Distribution According To Age Group (n=100)

Age group	No of patient	Percentage (%)
<20	7	7
20-40	32	32
41-60	44	44
>60	17	17

The predominant age group was 41-60 years constituting 44%. Followed by 20-40 years constituting 32%. The age distribution is summarized in below.

Table 3. Showing Comorbid Conditions (n=100)

Risk factor	No of patient	Percentage (%)
Diabetes	16	16
hypertension	12	12

CAD	01	01
COPD	01	01
MALIGNANCY	11	11

16% of patients were diabetic on insulin or anti diabetic drug and 12% were hypertensive on treatment.

Table 4. Nature Of Surgery (n=100)

Nature of surgery	No of patient	Percentage (%)
ELECTIVE	32	32
EMERGENCY	68	68

Table 5. duration of Surgery (n=100)

DURATION	NO OF PATIENT	PERCENTAGE (%)
<120	57	57
120 -180	32	32
>180	11	11

89% surgeries were finished within 3 hours. 11% surgeries prolonged more than 4 hours. In 18% surgeries intra operative blood was given.

Table 6. mobilisation Time

Mobilization time (in hours)	NO	PERCENTAGE (%)
<48	13	13
48-72	71	71
>72	16	16

RESULTS :

Two patients out of hundred developed asymptomatic DVT on POD 7.

A 27 year old male patient admitted in emergency with acute abdominal pain, on evaluation found to have ileal perforation with pyo peritoneum, underwent exploratory laparotomy with peritoneal lavage with ileostomy formation was done. Patient was on post op ventilator support for three days and gradually weaned off. Meanwhile patient improved of sepsis and recovering. On 7 th POD, Duplex ultrasound of both lower limbs done as a part of the study which revealed thrombosis of right popliteal vein. Patient was started treatment after vascular surgeon consultation. 64 year old diabetic patient underwent right side strangulated hernia. 10cm bowel was become necrosed. Resection & anastomosis with hernia site repair was done. Duration of surgery was 180 minutes and blood loss approximated to 150 ml. Patient was immobilized for 48 hours and he as not on any DVT prophylaxis. He was found to have thrombosis of right lower limb venous system upto femoral vessels. Patient was started on treatment after vascular opinion and recovered uneventfully.

DISCUSSION:

Thrombogenesis is a complex process and the incidence of deep vein thrombosis varies in different parts of the world for reasons that are not well understood. Complex pathogenesis of venous thrombosis involves the interaction of acquired risk factors with several genetic predispositions, including antithrombin III, protein C, protein S, heparin cofactor II deficiencies, all as a group known as thrombophilias. Silent deep vein thrombosis and consequent fatal pulmonary embolism is still a constant threat to post-operative patients in developed countries of the Western hemisphere. Autopsy proven pulmonary embolism has continued to be a major cause of death. In a United Kingdom study, Sandler and Martin found that 9% of patients admitted to a general hospital died and 10% of these deaths (0.9% of all admissions) were due to pulmonary embolism that originated from the deep veins of the lower limb. This study on 100 patients with two positive deep vein thrombosis (2%) shows the low incidence of post-operative deep vein thrombosis among our population. The result of the present study compared to other Asian studies is shown in table given below.

CONCLUSION

The study includes 100 post operative patients who underwent surgery (emergency/elective) in our department of General surgery, GSVM Medical College, according to the inclusion criteria. Patients were examined for signs of DVT based on the Wells score. The patients' findings were then categorized as high (≥ 3) or non-high (≤ 2). The clinical examination (based on the Wells score) of the patients was done on PODs 2 and 4. If at any time the patient scored high on the Wells score, he/she immediately underwent Doppler ultrasound, and if DVT was confirmed, appropriate treatment was instituted. Patients that did not develop clinical DVT while still admitted were scheduled to undergo duplex ultrasound on PODs 7. Out of 100 patients,

incidence of asymptomatic DVT was found to be 2 percent. In both the cases duration of surgery was found to be more than three hours & patient was immobilized for three days. The risk factors were found to be prolonged duration of surgery and immobilization in both the cases.

Recommendations:

For patients who undergo surgery for prolonged duration (especially > 3 hours) & prolonged immobilization (> 2 days), it is recommended to screen them with Doppler for incidence of DVT along with appropriate DVT prophylaxis in the post op period to avoid morbidity & mortality associated with unforeseen and asymptomatic deep vein thrombosis.

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