

Analysis of Related Risk Factors for Deep Vein Thrombosis after Urology Surgery

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Abstract: Eighty patients undergoing urological surgery were chosen for the study, and the risk variables for deep vein thrombosis (DVT) were evaluated. The univariate analysis revealed no significant difference between the two groups in terms of gender, age, hypertension, diabetes, smoking, or drinking; operation time, postoperative hospital stay, lithotomy position, postoperative urinary tract infection, or high blood pressure. Blood lipids and coagulation function indices (prothrombin time (PT) and activated partial thrombin time (aPTT)) showed statistically significant differences. In patients undergoing urological surgery, logistic multivariate analysis revealed that operation time, postoperative hospital stay, lithotomy position, postoperative urinary tract infection, PT, aPTT, and hyperlipidemia were all independent risk factors for postoperative DVT. Thus, the primary risk factors for DVT after urological surgery include the duration of the operation, the length of the postoperative hospital stay, the location of the lithotomy, the presence of a postoperative urinary tract infection, hyperlipidemia, and abnormal coagulation function indicators.

Keywords: Postoperative Urology; Deep Vein Thrombosis; Risk Factors

1. Introduction

Deep venous thrombosis, or DVT, is a frequent consequence of surgical trauma. Urological patients are often older and more complex, with co-morbid conditions such as diabetes, hypertension, and hyperlipidemia, all of which enhance the risk of DVT (Kyrle, 2005). Understanding the variables that contribute to DVT during urological surgery is critical for clinical prevention and treatment of DVT. Clinical agreement has developed on the use of DVT to induce deep vein thrombosis after surgical trauma. However, risk factors for each illness vary. The majority of urological patients are middle-aged or older. These individuals are often compounded by a variety of underlying conditions, such as diabetes and hypertension, which all contribute to an increased risk of DVT (Weinmann, 1994). Surgical incisions in urological surgery, intraoperative blood loss, postoperative fasting, and prolonged bed rest, among other factors, might alter blood concentration and stasis, hence increasing the risk of DVT. This essay analyzes and researches it.

Deep vein thrombosis is mostly caused by abnormal blood coagulation in the deep veins, obstructing venous blood return to the lower extremities, particularly the lower limbs. Formation of deep vein thrombosis in the lower limb after surgery increases nursing care workload, prolongs patients' postoperative prognostic time, and worsens patients' course and discomfort. If a lower extremity deep vein thrombosis is not treated promptly, it might appear as lower extremity edema, secondary varicose veins, and pulmonary embolism. Endourology technological advancements have altered the conventional manner of urology diagnosis and therapy (Lensing, 1999). It is based on the humanistic care philosophy, which prioritizes the patient and strives to get the greatest diagnostic and treatment outcome with the least amount of harm. It reflects and transmits humanistic caring. The incidence of DVT after surgery adds to the patient's discomfort, lengthens the hospital stay, and negates the benefits of minimally invasive procedures.

2. Methodology

2.1 Overarching information

80 patients with postoperative deep venous thrombosis were studied in the hospital's Urology Department; 40 were male and 40 were female, ranging in age from 39 to 68 years, with an average age

of (48.695.47) years. Criteria for inclusion and exclusion: (1) By imaging and blood testing, all patients satisfied the diagnostic criteria for lower extremity deep vein thrombosis. (2) The research was authorized by the Medical Ethics Committee, and informed consent was provided. (3) Allergy-prone patients were omitted. (4) Patients with liver or renal malfunction, as well as those with other major organ problems, were excluded from the study.

2.2 Techniques

Collect data on the patient's gender, age, BMI, smoking status, and other factors; document the patient's underlying diseases (hypertension, dyslipidemia, urinary tract infection), operation time, bed rest time, and lithotomy position; and activated partial prothrombin time, aPTT, and prothrombin time, PT (automatic blood coagulation analyzer).

Following the procedure, all 80 patients received a subcutaneous injection of low molecular weight heparin sodium at a rate of 50,000 U/time, once day. 250mL 5% glucose solution + 0.4g Xueshuantong were infused intravenously. Provide comprehensive perioperative care to patients, including the introduction of responsible nurses and attending physicians, the introduction of surgical procedures and postoperative precautions, the reinforcement of the oath to patients following surgery, the prompt reporting of any abnormal conditions to the physician, and various other measures. Preventative measures to avoid problems.

2.3 Statistical analysis

SPSS 21.0 was used to analyze the data. N (percent) is utilized to represent the enumeration data, and the "2" test is employed. The data for measurement are denoted by "xs," and a t-test is utilized. P0.05 was judged significant statistically.

2.4 Observations

Through inspection and research, as shown in table 1, the primary variables contributing to deep venous thrombosis in 80 individuals were venous blood flow stagnation, venous wall damage, blood hypercoagulability, and local congestion of lower limb veins. DVT is mostly caused by sluggish blood circulation, venous damage, and blood hypercoagulability. According to surveys, over 200,000 individuals die each year as a result of pulmonary embolism caused by DVT. The risk of developing DVT after urological surgery without thromboprophylaxis is between 15% and 40%. To investigate the risk variables associated with DVT development after urological surgery, logistic regression analysis was done to examine the factors associated with DVT formation following surgery. Risk factors that are unrelated.

Table 1: Causes of deep vein thrombosis in 80 patients

Deep vein thrombosis	Number of cases	Proportion (%)
Stagnation of venous blood flow	15	18.75
Damage to the vein wall	20	25
Hypercoagulable state	22	27.5
Local hyperemia of lower extremity veins	20	25
Other	3	3.75

Urinary tract infection may result in vascular endothelial damage, the release of inflammatory mediators, the activation of extrinsic coagulation and inhibition of the production of activated protein C (Angelo, 2004), the induction of a coagulation-fibrinolysis system imbalance, and the development of thrombosis. Additionally, infection and DVT are mutually beneficial and impact one another. Throughout the surgery, the patient is in the lithotomy posture for an extended period of time. The patient's lower limb is flexed and fixed by gravity (Irvin, 2004), which might injure the popliteal venous nerve, impair the lower extremity's venous blood return, raise intravascular pressure, destroy the vascular intima, and result in the development of DVT. Prolonging the surgery lengthens the patients' anesthetic duration, increases intraoperative blood loss, lowers the body's blood perfusion, causes hypoxia and water and electrolyte imbalances in the tissue, which destroys the vascular endothelial cells and impairs hemodynamic indicators. Prolonged anesthesia results in a long-term relaxation of the patient's muscles, which lessens the compressive impact on the blood vessel wall, resulting in decreased blood flow and an increased risk of DVT (Cysyk, 1996). In conclusion, lithotomy posture,

urinary tract infection, operation duration more than 45 minutes, and bed rest duration greater than 72 hours are all associated with an increased risk of postoperative DVT in urological patients. To avoid the development of DVT.

3. Discussion

3.1 Causes of lower extremity deep vein thrombosis

Patients with venous wall injury are often treated surgically, which damages the vascular tissue around the incision and in other areas. Venous blood flow stagnation, blood hypercoagulability, and localized deep venous congestion in the lower extremities all necessitate bed rest following surgery, resulting in decreased blood flow and obstruction of venous return in the lower extremities, resulting in high-level agglutination of coagulation factors that cannot be diluted in the blood, resulting in increased blood coagulation (Bagot, 2008). Simultaneously, due to the action of low molecular weight heparin sodium, the blood in a hypercoagulated condition results in an aberrant platelet count. Antithrombin BI levels are abnormal, resulting in irregular blood circulation and an increased risk of thrombosis (Carr, 2001). Nowadays, laparoscopic and other minimally invasive surgical techniques are often utilized in urological surgery due to their high level of safety, reduced trauma, and fast operating cycle. Reasonable safeguards. The risk of deep vein thrombosis in the lower extremities is assessed in two major sections:

One, at the age of 40, the procedure is straightforward.

The danger is negligible.

The danger is negligible.

Second, individuals aged 40-60 years with a low surgical risk and no history of high-risk medical conditions were classified as moderate-risk. However, urology nursing procedures do not closely oversee patients to ensure that they get acceptable, effective, and timely counsel about regular exercise. Certain patients are placed on extended bed rest owing to a lack of physical strength or discomfort, hence increasing their risk of deep vein thrombosis either intentionally or passively (Winkelman, 2009).

3.2 Preventive measures against DVT

Hypothesized that early exercise may be the sole method to avoid DVT in those under the age of 40 who are not at high risk for DVT. Numerous venous sinuses have been discovered in the veins of the lower limbs, and the majority of the blood in the venous sinuses promotes blood flow to the heart through muscle activity and muscular pumps. However, because of the patients' diminished physical strength, mental stress, and unwillingness to participate in postoperative lower extremity activities, their families are unable to comprehend the necessity and importance of postoperative lower extremity activities, reducing the effectiveness of postoperative health education. Explain the importance of postoperative lower extremity activities to patients based on their specific conditions; develop quantitative standards for activities, stimulate patient initiative, and participate in the formulation of activity plans; conduct publicity and education using oral explanations, written materials, video clips, and so on. Patients will engage in passive and active activities after surgery.

Assist the patient in passively exercising the lower extremities throughout the anesthetic recovery period: 1 Elevate the patient's heels enough to hang the patient's lower limbs in the air and maintain a certain angle with the bed plane. 2 Assist the patient with passive dorsiflexion and plantar flexion of the ankle joint. Inversion and inversion have a "circular rotation" frequency of 15/min-20/min, and each movement is repeated 20 times. 3 Massage the gastrocnemius, biceps femoris, quadriceps, and other muscles from distal to proximal to improve blood circulation. 4 Repeat the exercise 20-30 times, extending and flexing the knee joint at a rate of 15/min-20/min. ⑤ Assist the patient in turning over once every two hours if the anesthetic is compromised. Active dorsiflexion and plantar flexion of the ankle joint, active varus and valgus movement of the ankle joint, and passive isometric movement of the gastrocnemius, biceps femoris, quadriceps femoris, and gluteus maximus (Arnold, 2010), with a primary focus on gastrocnemius massage. Patient's physical recovery following that, patients are urged to engage in physical exercise, with ankle pump exercise serving as the primary strategy. Ankle pump exercise is defined as the active, forceful extension and flexion of the ankle joint four times a day, separated into early, noon, and night. Prior to bedtime, 3-5 minutes/time is recommended to accomplish

more. The ankle pump workout approach is straightforward and easy to perform; it causes no discomfort and requires no further human input. When the patient is in bed, he may do it alone. 3.4 Appropriate evaluation of workout execution in accordance with The National Health and Family Planning Commission demands that health education for high-quality nursing services be provided to 100% of the population. However, in China, the number of nurses is regulated by the "Trial Draft of General Hospital Organization and Compilation Principles" published in 1978, which is proportional to the number of beds; that is, the ratio of beds to nurses is 1:0.4. When this guideline was developed, the nursing paradigm was disease-centered, with a corresponding lack of emphasis on health education.

The risk of developing DVT after urological surgery is as high as 40%. Due to the difficulties and duration of urinary system surgery, it is common to cause damage to the intima of the patient's blood vessels, resulting in a lengthy recovery period. Infections and underlying disorders raise the patient's venous pressure, increasing the likelihood of DVT development, lowering the patient's quality of life, and impairing the patient's mental health. According to the findings of this research, age 45 years, BMI 24 kg/m², underlying disorders, operation duration > 50 minutes, bed rest time 3 days, lithotomy posture, and urinary tract infection are all risk factors for the development of DVT in patients undergoing urological surgery. Factors that influence. Age is associated with an increased risk of developing cardiovascular and cerebrovascular disorders. Increased random age, decreased blood vessel flexibility, deterioration in physical ability, prolonged recovery time after urological surgery, and sluggish blood flow following prolonged bed rest all contribute to an increased risk of DVT. Patients with a BMI of less than 24 kg/m² are more likely to have underlying illnesses, particularly hyperlipidemia, which is associated with blood hypercoagulation. Excess body fat obstructs blood flow and increases the risk of DVT development. Operation times more than 50 minutes are also associated with the development of DVT. Due to the prolonged operation duration, the body is in a condition of hypoxia for an extended period of time, and the anesthetic medicines readily block the patient's blood circulation, increasing the risk of DVT development. 3 days of bed rest is also associated with the establishment of DVT. Maintaining the lithotomy posture for an extended period of time compresses nerves and muscles, impairs venous return, elevates local vascular pressure, damages the vascular intima, and increases the risk of DVT development (Hirshberg, 2004). Urinary tract infection is strongly associated with the development of DVT, as it may damage the vascular intima, raise the body's inflammatory response, disturb the coagulation system's equilibrium, and so increase the likelihood of DVT formation. Therefore, special care should be made to patients aged 45 years, with a BMI of less than 24 kg/m², who have underlying disorders, need an operation lasting more than 50 minutes, require three days of bed rest, have a lithotomy posture, or have a urinary tract infection.

3.3 Nursing interventions for lower extremity deep vein thrombosis

Strict preoperative assessment: Effectively examine the risk factors for deep vein thrombosis, as well as the patient's general information, such as age, body weight, and occupation, with an emphasis on patients over the age of 70 and obese, as well as checking the patient's profession at the same time. Whether it results in deep vein thrombosis in the lower extremities, whether the patient has additional diseases such as high blood pressure, diabetes, or heart disease, whether the patient is bedridden for an extended period of time, whether he has unhealthy habits such as smoking or drug use, or whether he has a tumor disease, all of these factors can increase his risk. Prevalence, treatment based on evaluated risk factors, including a low-salt, low-fat, high-vitamin, high-protein diet, blood sugar and blood pressure management, anemia correction, patient tolerance for surgery, and prevention of lower extremities amputation Deep vein thrombosis formation.

Keep a tight eye on the patient's vital signs and coagulation function; monitor for symptoms such as dyspnea, chest discomfort, hemoptysis, and hypotension; avoid pulmonary embolism; and carefully examine the pulse of the afflicted limb's dorsal artery. Swelling, soreness, bruising or cyanotic skin color, and a weak pulse in the dorsal artery of the foot all indicate the need to be very attentive for the formation of lower extremity deep vein thrombosis.

Conduct basic nursing care: tell patients to do some simple movements on their bed after surgery, to get out of bed as soon as possible, and to pick suitable exercise techniques based on their tolerance. Every day, massage both lower extremities and educate family members to assist patients in getting out of bed. When infusing the lower leg, use the indwelling needle and avoid puncturing the same location repeatedly. Flush with normal saline before and after each infusion to avoid the medication from stimulating the vein.

After the patient's vital signs have stabilized after surgery, maintain the lower limbs elevated to

stimulate venous return and assist the patient in doing 15 to 20 minute foot and ankle exercises, each action done 20 times; massage the gastrocnemius and second femoral muscles in turn. Head and quadriceps encourage the patient to undertake 15 to 20 minutes of knee extension and flexion exercises, with each action repeated 20 times. Instruct the patient's family to assist with physical activity while the patient's body progressively improves. Lower extremity deep vein thrombosis is a frequent complication of surgical procedures. If the illness is not treated promptly and properly, it may result in lower extremity dysfunction, a decrease in patients' quality of life, and in extreme instances, pulmonary embolism, putting patients' lives at risk.

4. Conclusion

Lower extremity deep vein thrombosis (DVT) is a frequent complication during and after surgery. If not treated promptly, lower extremity dysfunction and even pulmonary embolism may result. Patients in specialized roles and those undergoing lengthy operations are particularly cognizant of the possibility of postoperative deep vein thrombosis. Active steps will be attempted to avoid deep vein thrombosis in patients with high-risk variables and prolonged operation times, Preventing postoperative deep vein thrombosis will be disregarded in patients who have no visible abnormalities on preoperative physical examination, a straightforward surgery, and no demand for postoperative immobilization. The causes for postoperative deep vein thrombosis are outlined, and nurse care measures are developed to successfully avoid its recurrence.

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