Every hospitalized patient is considered at risk for developing blood clots, which are the most common preventable cause of death among hospitalized patients.

*Definitions of Deep Vein Thrombosis (DVT), Pulmonary Embolism (PE), and Venous Thromboembolism (VTE):* DVT refers to the formation of one or more blood clots in one of the body’s large veins, most commonly in the lower limbs (e.g., lower leg or calf). The most serious complication that can arise from DVT is a PE, which occurs when a portion of the blood clot breaks loose and travels in the bloodstream—first to the heart and then to the lungs, where it can partially or completely block a pulmonary artery or one of its branches. DVT and PE are collectively referred to as VTE.
Symptoms

Venous thromboembolism (VTE) includes deep-vein thrombosis (DVT) and pulmonary embolism (PE). Almost 300,000 die from PE, most resulting from DVT. 93% of VTE-related deaths are due to sudden, fatal PE (34%) or follow undetected PE (59%). Complications from VTE kill more Americans than AIDS and breast cancer combined. DVT-related PE is the most common cause of preventable hospital death. If DVT-related PE is at least 50% of all VTE events in a hospital, the hospital’s medical services were characterized as at increased risk for VTE. Appropriate VTE prophylaxis in patients at increased risk for VTE should be considered.

Risk Factors

A large proportion of hospitalized patients are at risk for VTE, but there is a low rate of appropriate prophylaxis. Previous venous thromboembolism: Patients with prior DVT are five times more likely to develop a subsequent DVT. Increased age: The rate of DVT and PE may be twice as common in patients between the ages of 50 and 81. Surgery, Leg Fractures: Clot fragments are found in 60% of all patients with leg fractures. Immobilization—bedrest, stroke, paralysis: Without prophylaxis, one half of all patients develop acute DVT within 5 days following a stroke. Malignancy and its Rx (CTx, RTx, hormonal): In > 50% of cancer patients, DVT or PE are usually silent. PTS patients may be at increased risk for recurrent VTE. PTS is preventable if thrombosis prophylaxis is routinely employed. Other complications of DVT include chronic pulmonary hypertension (2%) and pulmonary embolism (symptomatic = 25%, asymptomatic up to 70%, death from PE = 5%–10%).

DVT recours in ~30% of patients within 8 years following the discontinuation of anticoagulant therapy. Post-thrombotic syndrome (PTS) occurs in 40%–80% of patients with DVT. PTS refers to a constellation of symptoms that may include swelling, skin discoloration, ulceration, varicosities, and pain. PTS may result in a permanent disability. Up to 15 million Americans are afflicted. 4% of the U.S. population has or will develop a venous leg ulcer. PTS patients may be at increased risk for recurrent VTE. PTS is preventable if thrombosis prophylaxis is routinely employed. Other complications of DVT include chronic pulmonary hypertension (2%) and pulmonary embolism (symptomatic = 25%, asymptomatic up to 70%, death from PE = 5%–10%).

Risk Assessment

DVT and PE are often undetected until it is too late. Approximately 80% of DVT cases are clinically silent. DVT free: The largest epidemiological study of DVT (proven by ultrasound, Oct. 2001 to March 2002), 5,451 patients with a confirmed DVT at 183 study sites in the USA. Less than 30% of patients received prophylaxis within 30 days prior to a diagnosis of DVT. Of 2,727 patients who were hospitalized when DVT was diagnosed, 42% failed to receive prophylaxis within 30 days of diagnosis. 71% (N = 3,894) of all patients, including 2,295 nonsurgical patients, received no prophylaxis within 30 days prior to diagnosis of DVT. Nonsurgical patients are less likely to receive prophylaxis than surgical patients. Approximately 75% of fatal PE’s are diagnosed as deep vein thrombosis of the lower leg or other parts of the body.

Complications

Discharge

There is a disconnect between evidence and execution as it relates to VTE prophylaxis. Every patient admitted to the hospital should be considered to be at risk for VTE, and preventive measures should be considered the standard of care. Rationale for thromboprophylaxis: High prevalence of VTE: Most hospitalized patients have risk factors for VTE. VTE is common in many hospitalized patient groups. Hospital-acquired VTEs are usually clinically silent. It is difficult to predict which at-risk patients will de-velop symptomatic thromboembolic complications. Adverse consequences of unprevented VTE: Symptomatic DVT and PE; Fatal PE: Costs of investigating symptomatic patients: Risks and costs of treating unpreventable VTE, especially long. Increased future risk of recurrent VTE: Chronic post-thrombotic syndrome: Effectiveness of thromboprophylaxis: Thromboprophylaxis is highly efficacious at preventing DVT, proximal DVT, symptomatic VTE, and fatal PE.

Resources

• Translating VTE Guidelines Into Practice: www.hsag.com/vte
• American College of Chest Physicians: www.chestnet.org
• American Medical Directors Association—DVT Clinical Corners: www.amda.com/tools/clinical/dvt.cfm
• American Venous Forum: www.venous-info.com
• Case Management Adherence Guidelines for VTE: www.cmsa.org/portals/0/pdf/CMAG_DVT.pdf
• Coalition to Prevent DVT: www.preventDVT.org
• Society of Hospital Medicine—VTE Prevention Collaborative: www.hospitalmedicine.org
• Vascular Disease Foundation: www.vdf.org
• Venous Resource Center: www.venousdiseases.com

Prophylaxis

Attachment of This Hospital’s VTE Risk-Assessment Process Here.

Process

• 2 to 4 million Americans a year suffer from venous thromboembolism (VTE), which includes deep-vein thrombosis (DVT) and pulmonary embolism (PE). Almost 300,000 die from PE, most resulting from DVT.
• 93% of VTE-related deaths are due to sudden, fatal PE (34%) or follow undetected PE (59%).
• Complications from VTE kill more Americans than AIDS and breast cancer combined.
• DVT-related PE is the most common cause of preventable hospital death.
• If DVT-related PE is at least 50% of all VTE events in a hospital, the hospital’s medical services were characterized as at increased risk for VTE.
• Appropriate VTE prophylaxis in patients at increased risk for VTE should be considered.

• According to the National Heart, Lung, and Blood Institute, DVT is a blood clot that forms in a vein deep in the body. Blood clots occur when blood thickens and clumps together.
• A blood clot in a deep vein can break off and travel through the bloodstream. The loose clot is called an embolus. When the clot travels to the lungs and blocks blood flow, the condition is called pulmonary embolism (PE), which can damage the lungs and other organs in the body and cause death.
• Blood clots in the thigh are more likely to break off and cause PE than blood clots in the lower leg or other parts of the body.
• DVTs are often asymptomatic. Symptoms that may present include leg pain, “Charl- ie Horse,” unilateral leg swelling, and/or prominence of veins in the affected leg.

• The largest epidemiological study of DVT (proven by ultrasound, Oct. 2001 to March 2002). 5,451 patients with a confirmed DVT at 183 study sites in the USA. Clot fragments are found in 60% of all patients with DVT. In 38% of concomitant cancer and DVT, the DVT is usually silent. The rate of DVT and PE may be twice as common in patients between the ages of 50 and 81. The discharge plan should include—and the patient should be informed of—specifics about where blood work should be done, where the lab is, and whether results should be faxed or called in. Prior to discharge, patients should be educated and provided with written information regarding medications and red flag events—including those side effects and symptoms for which patients should call their physician.

• Thromboprophylaxis is highly efficacious at preventing DVT, proximal DVT, symptomatic VTE, and fatal PE.

• Patients with prior DVT are five times more likely to develop a subsequent DVT.
• Less than 30% of patients received prophylaxis within 30 days prior to a diagnosis of DVT.
• Of 2,727 patients who were hospitalized when DVT was diagnosed, 42% failed to receive prophylaxis within 30 days of diagnosis.
• 71% (N = 3,894) of all patients, including 2,295 nonsurgical patients, received no prophylaxis within 30 days prior to diagnosis of DVT.
• Nonsurgical patients are less likely to receive prophylaxis than surgical patients.
• Approximately 75% of fatal PE’s are diagnosed as deep vein thrombosis of the lower leg or other parts of the body.

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