

What types of blood clots in the veins should I be concerned about?

There are two types of abnormal blood clot that form in the veins: a blood clot that forms in a vein usually in the leg or pelvis is known as *a deep vein thrombosis or DVT*; when the clot breaks off and travels from the leg up to the lungs, it is known as and a *pulmonary embolism or PE*, which is a medical emergency, for it can be life threatening if not treated immediately. Together, DVT and PE are known as a condition called venous thromboembolism or VTE, which is the third most common cause of cardiovascular death worldwide. Clots can form in other veins such as in the arms.

How common are clots in the leg and lungs?

VTE – deep vein thrombosis (DVT) and pulmonary embolism (PE) combined – occurs each year in about 1-2 per 1,000 adults. Rates increase sharply after age 45 years, and are slightly higher in men than women.

What causes these types of blood clots?

Some causes of blood clots are “provoked” – that is, triggered or caused by environmental or behavioral events (“triggers”) such as admission to hospital, the use of estrogens, pregnancy, long-haul flights – while others are “unprovoked,” meaning they are caused by unknown events or hereditary factors.

What are the warning signs and symptoms of deep vein thrombosis and pulmonary embolism?

Signs and symptoms of a blood clot in the leg, a deep vein thrombosis (DVT), or of the clot having travelled up to the lungs, a pulmonary embolism (PE), are different from one another. DVT can cause leg pain, tenderness and swelling. PE can cause shortness of breath, chest pain made worse by breathing and coughing, and sometimes bloody sputum.

How are blood clots diagnosed?

The signs and symptoms of blood clots are common with other disorders so medical tests are necessary to confirm diagnosis. These tests may include (where available), according to the clinical context:

- **Ultrasound** (duplex ultrasonography), which uses high frequency sound waves to produce images of the blood vessels
- **Venography**, in which a contrast agent is injected into a vein and the physician is able to take an X-ray of the blood vessels
- **D-dimer assay**, (*validated assay*), which measures a molecule released when blood clots dissolve; high levels of D-dimer may indicate a VTE or PE but are increased in other conditions. Therefore in conjunction with clinical probability, a D-dimer level below the cut-off value rules out the diagnosis of DVT or PE
- **CTPA, computed tomography/pulmonary angiogram** is a diagnostic test that uses tomography to view pulmonary arteries and diagnose pulmonary embolism
- **Lung scan**, a nuclear scanning technique used to diagnose pulmonary embolism

Can blood clots in the leg and lungs be prevented? How?

Yes, abnormal blood clot formation in the leg and lungs can be prevented. The majority of cases occur in or within 90 days of being discharged from hospital; in fact *blood clots are the leading cause of preventable hospital death*. Upon being admitted to the hospital, individuals should be assessed for their risk of developing blood clots and, if deemed appropriate, preventive therapy (called “thromboprophylaxis”) should be administered. While in the hospital, patients should keep mobile and walk as soon and as often as possible to help reduce risk. Also, importantly, at hospital discharge, some patients should be assessed for the need to continue prophylaxis after discharge, and continued use of antiembolic stockings. The patient should be given instructions for at-home care if needed.

How are blood clots in the leg and lungs treated?

Patients with blood clots in the leg, or deep vein thrombosis (DVT), receive treatment with blood thinners. The previous standard was to receive injectable anti-clotting (“anticoagulant”) medications such as heparin or low molecular weight heparin followed by tablets such as warfarin, for three to six months. A new generation of blood thinning tablets including apixaban, dabigatran and rivaroxaban, and edaxaban are now available.

Patients experiencing large pulmonary embolism (PE) may have the blood clot in the lungs “dissolved” with a medicine called a thrombolytic therapy, the most common of which is tissue plasminogen activator (t-PA).

Which medical specialties are concerned with blood clots in the leg and lungs?

A blood clot in the leg or lung is one of the unique medical conditions that can occur in hospital in almost every medical specialty. Every health care professional, regardless of his or her area of practice, needs to “think blood clots” while managing patients. For example:

- Surgeons and hospitalists (physicians whose primary professional focus is on the general medical care of hospitalized patients) certainly have to be mindful of blood clot risk among surgery and post-surgery patients.
- Oncologists must be aware of the dangers inherent in cancer and chemotherapy.
- OB/GYNs must be mindful of links with pregnancy.
- Pulmonologists may be called upon to treat pulmonary embolisms.
- Clinical haematologists may be running out patient clinics managing DVT and PE.
- General practitioners also play a role, as they can counsel patients about their general level of risk.

Did you know?

Thrombosis is the one disorder that causes the world’s top three cardiovascular killers and is a major contributor to non-infectious disease globally.

Worldwide cardiology organizations have set a goal of reducing cardiovascular death by 25 percent by 2025. This target will be difficult to achieve without reducing deaths caused by blood clots in the leg and lungs.

Obesity can lead to a two to three times higher risk of a blood clot in the leg or lungs.

Previously it was thought that Asians had lower rates of developing abnormal blood clots than people in Western countries. But new studies show that the rates of hospital-triggered and post-operative blood clot development are the same in Asia and the West.

Almost three-quarters of clot-related deaths in the EU are from those acquired during a hospital stay. Blood clots are the leading cause of preventable deaths in hospitals and the second leading cause of all hospital deaths.

For more information, go to WorldThrombosisDay.org.