



What is Pulmonary Embolism (PE)?

Pulmonary embolism (PE) is a blood clot that lodges in the lung arteries. The blood clot forms in the leg, pelvic, or arm veins, then breaks off from the vein wall and travels through the heart into the lung arteries. Most PEs are due to pelvic and upper leg blood clots that first grow to a large size in the vein before detaching and traveling to the

lungs. PE can cause death or chronic shortness of breath from high lung artery pressures (“pulmonary hypertension”). PE can impair heart muscle function, especially the right ventricle, which pumps blood into the lung arteries.

Symptoms of Pulmonary Embolism

The most common symptom is otherwise unexplained shortness of breath. Chest pain with breathing is also common. However, PE can be difficult to diagnose and has been called “the Great Masquerader.” It can mimic pneumonia, congestive heart failure, and a viral illness known as pleurisy.

Common Signs and Symptoms of PE:

- Shortness of breath
- Chest pain, often worse when taking a breath
- A feeling of apprehension
- Sudden collapse
- Coughing
- Sweating
- Bloody phlegm (coughing up blood)

The signs and symptoms of these disorders can vary by individual and event. Some individuals may also experience uncommon symptoms such as dizziness, back pain or wheezing. Because PE can be fatal, if you experience these signs or symptoms seek medical attention right away.

Risk factors for Pulmonary Embolism

Risk factors include being overweight, smoking cigarettes, being immobile, and having high blood pressure—all of which can be potentially controlled with a heart healthy lifestyle. A study earlier this year showed that eating fruits and vegetables can be protective against developing PE. However, frequent red meat eaters had double the risk of developing PE. Other risk factors for PE include cancer, long-haul air flights, surgery, and trauma. PE is also a women’s health issue and is associated with birth control pills, pregnancy, and hormone replacement therapy. Certain inborn genetic mutations predispose to PE, such as “factor V Leiden” and the “prothrombin gene mutation.”

How is Pulmonary Embolism Diagnosed?

The definitive diagnosis of PE must be made in a hospital or clinic with radiology facilities. A chest CT scan (“CAT scan”) or a nuclear medicine scan are the most common tests to establish the diagnosis of PE. The most crucial point is for patients and their health care providers to consider the possibility of PE. Prior to chest CT scanning or a nuclear medicine scan, doctors may determine the likelihood of PE by doing screening tests such as a chest X-ray, electrocardiogram, and blood test called a “D-dimer.” Low D-dimer levels virtually exclude PE.

How is Pulmonary Embolism Treated?

The foundation of treatment is thinning the blood with anticoagulants such as immediately-acting heparin, low molecular weight heparin, fondaparinux, or direct thrombin inhibitors (argatroban, lepirudin, or bivalirudin) and the slow-onset oral blood thinner, warfarin. An immediately acting intravenous or injected blood thinner must be administered right away. The oral blood thinner, warfarin, takes about 5 days to become effective to prevent the development of a recurrent PE. In addition to blood thinners, more aggressive therapy includes “clot buster” drugs such as TPA or catheter-based or surgical embolectomy to remove the PE.

The duration of treatment with the oral blood thinner will vary from a 6 month minimum to lifelong, depending upon the circumstances of the PE and other individual risk factors.

Prevention

Many people are affected by PAD yet they do not have- Prevention of PE is a lot easier than diagnosis or treatment. Therefore, when hospitalized, it is important to ask your health care providers what measures are being taken to prevent PE. These can include mechanical preventive efforts such as use of graduated compression stockings or prescription of low doses of blood thinners such as unfractionated heparin, low molecular weight heparin, or fondaparinux.

Resources

The Venous Disease Coalition:
www.VenousDiseaseCoalition.org