

The “Why” Behind Anticoagulation Therapy Following Joint Replacement Surgery


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It is important to know about deep vein thrombosis (DVT) and pulmonary embolism (PE) causes, treatment and prevention before you have a joint replacement surgery. Awareness is one of the best ways to prevent this possible complication and to get prompt treatment if a blood clot does develop after surgery.

Joint replacement surgery is becoming increasingly common, especially knee and hip replacements. Surgeries involving the bones are more likely than other types of surgeries to release tiny particles or chemical substances into veins. This may stimulate clot formation. Surgeons are very aware of the risk of DVT or PE development after surgery. After knee replacement surgery, clots may form in veins of the calf. After hip replacement surgery, clots may form in the veins of the thigh as well as in the calf. If a clot breaks free and travels in the veins it can go to a lung. Since clots in a vein or in a lung can be difficult to detect, it is important to know the signs and symptoms of a DVT or PE.

Classic symptoms of a DVT are increased pain, swelling, redness, and warmth in the calf or thigh. Classic symptoms of a PE are shortness of breath, chest pain, a sudden persistent cough, increased heart rate, and rapid breathing. It is important to note that symptoms of DVT or PE are not always present. That’s why preventative measures are an important part of the pre-surgery education and post-surgery treatment plan.

Preventative measures are a part of each patient’s plan of care according to his or her individual needs and assessed risks. Risks are assessed prior to surgery by a thorough evaluation of the patient’s medical history. ■



When you cut yourself, it is important that your blood is able to form blood clots to stop the bleeding. These clots are necessary to prevent the cut from bleeding uncontrollably. Sometimes clots form where they shouldn’t and do not dissolve as they should. A possible complication after any surgery is tiny blood clots that can form in veins. This is called a deep vein thrombosis (DVT). The most common area for these clots to develop is in your legs, but they can develop in your arms and groin. These clots become life-threatening when they break free and travel to a lung causing a pulmonary embolism (PE).

Risks assessed prior to surgery include:

- Age
- Obesity
- Smoking
- Use of medications containing estrogen
- Personal history of cancer, diabetes, or heart disease
- Immobility from a chronic illness or injury
- Varicose veins or chronic lymph edema
- Personal or family history of a DVT, PE or clotting disorder
- Personal or family history of a bleeding disorder

After assessing the risk factors for DVT/PE and risk factors for bleeding, the orthopaedic surgeon decides on the plan of care for each individual patient. The surgeon includes the patient in this decision-making process.

How surgery increases clot risk:

- Anesthesia and operating time can cause veins to relax and blood to pool. Whenever blood pools in veins, a clot can form.
- Surgeries can release small amounts of tissue debris, such as fats and proteins, into the blood encouraging clots to form.
- Pressure on veins from injury and swelling can increase the risk of clot formation.
- Inactivity and immobility after surgery can slow down blood flow encouraging clots to form.

Preventative measures orthopaedic surgeons use include:

- Medications: Oral anticoagulants (also called blood thinners) commonly used by orthopaedic surgeons include Coumadin/Warfarin and Aspirin. Injectable anticoagulants include Lovenox/Enoxaparin or Arixtra. If you currently take any anticoagulation medications, you should talk to your primary care doctor about appropriate dosing before and after surgery.
- Compression stockings or compression devices (such as foot pumps) used after surgery help keep blood from pooling by improving and maintaining circulation in lower extremities.
- Mobility as soon as possible after surgery is very important in helping prevent clot formation. This is why surgeons want joint replacement patients walking the day of surgery.

When you return home after surgery:

- Follow your surgeon’s anticoagulation therapy instructions carefully.
- Do your exercises and walk to increase the circulation in your legs.
- Know the warning signs of a DVT and PE.
- Call your orthopaedic surgeon if you suspect a DVT. If necessary, your surgeon will order an ultrasound of the affected limb to rule out a DVT.
- Call 911 if symptoms of a PE are present. Remember, working with your medical team to learn about and better understand the causes, symptoms, and treatment of DVTs and PEs, is the best way lower your risk and have a great surgical outcome!