Patient information

Deep vein thrombosis and pulmonary embolism advice for surgical patients

What is a deep vein thrombosis (DVT)?

A DVT is a blood clot that forms within a vein deep in the leg but can occur elsewhere. This blocks the normal flow of blood through the leg veins either partially or completely and so causes leg swelling and tenderness. If a clot breaks off it travels to the lung and causes a pulmonary embolus (PE) which can be serious and occasionally fatal.

What is a pulmonary embolism (PE)?

A pulmonary embolism is caused by a blood clot from the leg passing up the vein to the lung and blocking a blood vessel in the lung. This can have serious and acute effects. It can occur without any symptoms or signs of a DVT.

Why does a blood clot form in leg veins?

Three factors may trigger a clot to form in a vein:

1. A reduced blood flow allows the blood to clot in the vein (e.g. immobility, surgery, or long-distance travel over three hours)

2. Changes to the clotting mechanism which may be inherited, caused by some drugs or conditions such as pregnancy

3. Damage to the lining of the vein allows the blood to clot (e.g. trauma, surgery, or inflammation)

Is DVT a serious condition?

A DVT in itself is not a serious condition if the clot remains stuck to the vein wall, however, it can give you two problems:

1. **Pulmonary embolism:** The blood clot can dislodge from the vein wall and travel to the lung causing a pulmonary embolism (PE). This can be a serious problem depending on the size of the clot. It can present with shortness of breath, rapid heartbeat, chest pain and if severe, coughing up blood or collapse. PE is not common but can be life threatening and requires urgent medical attention.

2. **Post-thrombotic syndrome:** DVT can cause inflammation and permanent obstruction in the deep vein system of the leg. This complication can produce pain, swelling, discolouration and ulceration in the lower leg. This is called post-thrombotic syndrome which is a long-term problem.

Who is most at risk?

There are several factors which increase your chance of developing a DVT / PE, these include:

- Previous DVT or PE
- Major surgery, particularly orthopaedic operations such as joint replacement
- Major trauma / lower limb injury
- Paralysis or immobility of lower limbs including prolonged bed rest
- Family history of DVT or PE
- Faulty blood clotting, which is usually an inherited tendency to blood clots, i.e. thrombophilia
- Active cancer and cancer chemotherapy
- Recent medical illness (e.g. heart or lung disease, kidney disease/failure, recent heart attack, inflammation such as inflammatory bowel disease)
- Smoking
- Obesity e.g. Body Mass Index (BMI) over 30
- Pregnancy and recent delivery
- Age over 60 years
- The contraceptive pill or HRT which contain oestrogen or a 3rd generation progesterone.

The overall risk of a thrombosis being present after surgery ranges from 10% – 40%, depending on the type of surgery with orthopaedic surgery carrying the highest risk. However, only 1% of orthopaedic cases and 0.5% of general surgical cases, present with a full-blown thrombosis as small undetected clots dissolve on their own.

Is travelling a risk?

If you travel for more than three hours at one time in the four-week period before or after surgery, your risk for DVT is higher because of the immobility of your legs.

After major joint replacement surgery, the risk is present for up to 90 days and particularly for long haul flights over four hours.

How will DVT / PE be prevented when I am in hospital?

Not all DVTs can be prevented but the risks can be significantly reduced. You will be assessed to see what preventative treatment you will need depending on your risk factors.

Treatments include:

- Compression stockings for most patients
- A low dose of a blood thinning medicine (heparin, given as a small injection or tablet once a day and prescribed after discharge)
- Early mobilisation after surgery
- Bed exercises to keep the blood flow going in your legs
- Maintaining good fluid intake

How effective is the preventative treatment?

Compression stockings reduce the risk of deep vein thrombosis and of pulmonary embolism and so are used on all surgical patients except those who have poor circulation in their legs.

The use of a blood thinning agent such as a low molecular weight heparin (LMWH) injection reduces the thrombosis risk by up to 50% and risk of pulmonary embolus by up to 65%. It is used for most orthopaedic patients and some other patient groups according to the type of surgery. In some patients it will be advised

that the LMWH injection is continued on discharge from hospital for up to four weeks after surgery.

What can I do at home?

After you are discharged you should continue to be as mobile as possible, as this speeds up the blood flow in the calf veins and helps prevent a thrombosis.

If you have been asked to use the compression stockings make sure they are put on evenly and without wrinkles.

Stop smoking, drink plenty of water.

If you do not take the precautions that have been mentioned to you then your risk of thrombosis and its complications will be higher.

What are the symptoms of DVT?

Typical symptoms in the leg include swelling associated with pain, calf tenderness and occasionally heat and redness compared to the other leg.

There may be no leg symptoms and the DVT is only diagnosed if a complication occurs in the form of a PE.

There are other causes of a painful and swollen calf especially after injury or surgery so you need to ask your GP to assess you and he may ask you to be seen urgently at the hospital if he suspects a DVT.

If I get a DVT can it be treated?

DVT is a treatable condition. The aim of treatment is to prevent the clot spreading up the vein and allow it to slowly dissolve and to prevent the serious complication of PE.

Once a DVT has been diagnosed you will be given an oral medication called a Direct Oral Anticoagulant (DOAC) – either Apixaban or Rivaroxaban. If you are not deemed suitable for this medication, then you will be given injections (short term) and commenced on warfarin to treat your blood clot.

You will remain on the medication for at least three months and reviewed at this time to see if are required to stay on the medication or if it can be stopped.

If you have had more than one DVT you may be advised to continue anticoagulation for the rest of your life with monitoring from your GP if you are

commenced on a DOAC or the Anticoagulation Monitoring Service if you are commenced on Warfarin.

Clinical research

West Suffolk NHS Foundation Trust is actively involved in clinical research. Your doctor, clinical team or the research and development department may contact you regarding specific clinical research studies that you might be interested in participating in. If you do not wish to be contacted for these purposes, please email info.gov@wsh.nsh.uk. This will in no way affect the care or treatment you receive.

If you would like any information regarding access to the West Suffolk Hospital and its facilities, please visit the website for AccessAble (previously known as DisabledGo) https://www.accessable.co.uk/organisations/west-suffolk-nhs-foundation-trust

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