

Information for Patients

Preventing Blood Clots in Adult Patients

This leaflet will give you information on how to reduce the risk of developing blood clots during and after your stay in hospital. If you need more information please ask a member of the medical or nursing team. Most patients who come into hospital for treatment have a straightforward stay and leave hospital after treatment feeling better. However, a small number of people will develop a blood clot.

What is venous thromboembolism (VTE)?

Venous thrombosis is a condition in which a blood clot forms, often in the deep veins in the calf, thigh or pelvis. This is also known as deep vein thrombosis (DVT). Veins are blood vessels that return blood to the heart. When you have a DVT the blood flow is partially or completely blocked.

An embolism is created if a part or all of the blood clot in the deep vein breaks off from the site where it is created and travels through the venous system. This is called Venous Thromboembolism (VTE). The clot can lodge in the lung giving rise to a very serious condition called pulmonary embolism (PE).

Venous thromboembolism can be a very serious condition and the information in this leaflet will help avoid it from happening.

What causes VTE?

VTE can be an inherited problem (inherited thrombophilias) that allows the blood to clot easily. Some medical conditions will increase the risk of blood clots. When you are inactive your blood tends to collect in the lower parts of your body, often in your lower legs. This is usually nothing to worry about because when you start to move, your blood flow increases and moves evenly around your body.

However, if you are immobile (unable to move) for a long period of time, such as after an operation, because of an illness or injury, or during a long journey,

your blood flow can slow down considerably. A slow blood flow increases the chances of a blood clot forming.

A DVT sometimes occurs for no apparent reason. However, the risk of developing a DVT is increased in certain circumstances. This is discussed further on.

What are the symptoms of a VTE (DVT) and PE?

In some cases of DVT there may be no symptoms, but possible symptoms can include:

- Pain, swelling and tenderness in one of your legs (usually calf).
- A heavy ache in the affected area.
- Warm skin in the area of the clot.
- Redness of your skin, particularly at the back of your leg below the knee.

DVT usually affects one leg, but this is not always the case. The pain may be made worse by bending your foot upward towards your knee.

Sometimes there are no symptoms and a DVT only becomes apparent when pulmonary embolism (PE) develops. Symptoms of a PE include breathlessness, chest pain and in severe cases, collapse. Both DVT and PE are serious conditions and require urgent investigation and treatment.

How serious is VTE?

When a blood clot forms in a leg vein it usually remains stuck to the vein wall. The symptoms tend to settle gradually, but there are two main possible complications.

- **Pulmonary embolus** - This is a break-away part of a blood clot that travels in the blood stream, up the larger veins in the legs and body, through the heart chambers to lodge in a blood vessel in the lungs. It occurs in a small number of people who have a DVT. Pulmonary embolus is serious, and can sometimes be fatal.
- **Post-thrombotic syndrome** - Without treatment, up to 6 in 10 people who have a DVT develop long term symptoms in the calf. Symptoms occur because the increased flow and pressure of the diverted blood in other veins can affect the tissues of the calf. Symptoms can range from mild to severe and include: calf pain, discomfort, swelling and rashes. An ulcer on the skin of the calf may develop in severe cases. Post-thrombotic syndrome is more likely to occur if the DVT occurs in a thigh vein, or extends up into a thigh vein

from a calf vein. It is also more common in people who are overweight, and in those who have had more than one DVT in the same leg.

Who is at risk?

Anyone may develop a VTE, but the following increase the risk:

- **Immobility** causes blood flowing in your veins to slow down. Slow flowing blood is more likely to clot than normal flowing blood.
- **A surgical operation which lasts more than 60 minutes.** Under anaesthetic, your legs are still, and the blood flow in your veins slows down.
- **Any illness or injury** that causes immobility increases the risk of a VTE.
- **Long journeys by plane, train, and car** may increase the risk of VTE slightly. This is most likely due to sitting in a cramped position for long periods.
- Damage to the inside lining of the vein increases the risk of a blood clot forming. For example, a DVT may damage the lining of the vein. So, if you have a DVT, then you have a higher risk of having another one sometime in the future.
- Some conditions such as vasculitis (**inflammation of the vein wall**) and some drugs (for example, some chemotherapy drugs) can damage the vein and increase the risk of having a VTE.
- Conditions that cause the blood to clot more easily than normal (**thrombophilia**) can increase the risk of having a VTE.
- Some **medical conditions** can cause the blood to clot more easily than usual. For example, nephrotic syndrome (a kidney problem) and antiphospholipid syndrome (a disorder of the immune system).
- Some **rare inherited conditions** can also cause the blood to clot more easily than normal.
- If you are taking an oestrogen containing contraceptive (the 'combined pill', transdermal patch or vaginal ring) or hormone replacement therapy (HRT) and you are having an operation you may be at increased risk of VTE. This is because oestrogen, a female hormone, can cause your blood to clot more easily.
- You are advised to consider stopping these drugs temporarily 4 weeks before you have your operation. You should seek advice from your GP or a family planning clinic about changing to another type of contraception before you stop using your current contraceptive.
- People with **cancer or heart failure** have an increased risk of having a VTE.

- **Older people (above 60 years)** are more likely to have a VTE, particularly if they have poor mobility or have a serious illness such as cancer.
- **Pregnancy** increases the risk. About 1 in 1000 pregnant women has a VTE.
- **Obesity** also increases the risk of having a VTE.

Will my risk of VTE be assessed?

Your individual risk for VTE will be assessed by a doctor, a midwife (if you are pregnant) or an advanced nurse practitioner. They will discuss your risk with you including, what can be done to reduce your risk. Your doctor will follow national guidelines and if needed offer you protection against VTE. This must be done within 24 hours of coming into hospital preferably within 6 hours. If this has not been done please tell a member of the nursing or medical staff.

Do I need any tests?

No, not in order to complete the risk assessment. However, if you have symptoms of a VTE you may be asked to undergo some tests. It is difficult for a doctor, midwife or advanced nurse practitioner to be sure of the diagnosis from just the symptoms as there are other causes for a painful and swollen calf such as a muscle strain or an infection. If you have suspected VTE, you will normally be advised to have tests done urgently to confirm or rule out the diagnosis.

The most used test is:

- **An ultrasound scan** of the leg which can often detect a clot in a vein. A special type of ultrasound, known as Doppler ultrasound is sometimes used to find out how fast the blood is flowing through a blood vessel.

What can I do to reduce my risk?

If possible before you come into hospital:

- Talk to your doctor about contraceptives and hormone replacement therapy if you are on any of these.
- Keep a healthy weight and
- Try and take regular exercise, even just gentle movements.

When in hospital:

- **Avoid long periods of immobility such** as sitting in a chair for many hours. If you are able, get up and walk around. A daily brisk walk for 30-60 minutes is even better if you can do this. The aim is to stop the blood 'pooling', and to get the circulation in the legs moving.
- **Regular exercise of the calf and foot muscles.** You can do some calf exercises even when you are sitting.
- **Drink plenty of water** to avoid dehydration.
- If advised by the ward staff to wear **elastic compression stockings** it is important that you do so. They will assist in fitting these for you.

What will be done in hospital to reduce my risk of VTE?

- If considered appropriate by your doctor you will be measured and fitted with knee or thigh length stockings. The slight pressure from the stocking helps to prevent blood 'pooling' in the calf. You should still continue with your regular exercise as stockings do not replace the need for exercise.
- For those at moderate to high risk, you may be given a blood thinner (**anticoagulant**) such as a heparin type injection.
- An **inflatable sleeve** connected to a pump to compress the legs during a long operation may also be used.
- It is also common practice to get you up and walking as soon as possible after an operation. Major operations are known to be a risk of VTE for example operations to the hip, lower abdomen and leg.

Anticoagulant medication

If you are at moderate or high risk of VTE, your doctor may advise you to take blood thinning medication (e.g. heparin). While in hospital discuss this option with your doctor if you:

- Have had a previous DVT or PE.
- Have a family history of clotting conditions.
- Have cancer, or had treatment for cancer in the past.
- Had major surgery in the last 3 months. In particular if you had a hip or knee replacement within the last 3 months.
- Have had a stroke.
- Have had a recent long flight or journey greater than 3 hours.

How long will I need to be on any anticoagulant medication?

How long you need to take your anticoagulant medication depends on your individual condition. Your doctor will discuss this with you and agree with you how long you need to continue your treatment.

What happens when I go home?

If you have been advised to wear anti embolism stockings you should wear them until you return to your normal level of mobility. If you have been given anticoagulation medicine to take home and you need help with administration of injections or tablets please ask your nurse or doctor before your discharge. If you develop any signs or symptoms of DVT or PE at home, you must seek medical advice immediately either from your GP or your nearest hospital emergency department.

Can I have dental treatment if I am on anticoagulation?

You must tell your dentist if you are on any anticoagulant medication as there is an increased risk of bleeding with any dental treatment. Your dentist will assess your individual need and advise you accordingly.

Should I stop sports/exercise if I am on anticoagulants?

You do not have to stop exercising. You just need to avoid certain sports or exercise that may hurt you. Think of ways that you can do your normal activities without increasing the risk of hurting yourself for example, wear gloves while gardening.

What should I do if I am planning a pregnancy or find out I am pregnant?

If you plan to become pregnant or find out that you are pregnant talk to your family doctor (GP) who will advise you on what to do.

What kind of anticoagulant medicine will I be given?

Your doctor will advise you on what medicine you need depending on your individual condition. You could be given one of the following: Heparin, Clexane® (enoxaparin) Innohep® (tinzaparin), Fragmin® (dalteparin), Rivaroxaban, Fondaparinux. Further information is detailed below.

Drug	Some benefits	Some disadvantages	Some side effects	Effects on other medicine, foods and alcohol.
Heparin Clexane® (enoxaparin) Innohep® (tinzaparin) Fragmin® (dalteparin)	No blood tests required		-Bruising on injection site -Irritation at injection site -Bleeding	
Rivaroxaban	Fewer blood tests	Increased risk of bleeding Effects are not currently reversible but wear off in 24 hours.	-Dizziness -Headaches -Nausea (sickness) -Bleeding	Some drugs can affect how it works– ask your pharmacist or doctor.
Fondaparinux			-Bleeding -Anaemia -Nausea (sickness) - Vomiting	Some drugs can affect how it works/increase your risk of bleeding – ask your pharmacist or doctor.

In summary

- The main cause of VTE is immobility.
- The most serious complication of VTE is PE where part of the blood clot breaks off and travels to the lung.
- Persistent calf symptoms may occur after a DVT.
- With treatment, the risk of complications is much reduced.
- Prevention includes anticoagulation, compression stockings, leg elevation, and keeping active.
- Prevention is important if you have an increased risk of VTE.
- You may be at increased risk of DVT and VTE for 6 weeks after your surgery.
- If you develop any signs or symptoms of DVT or PE at home, you must seek medical advice immediately either from your GP or your nearest hospital emergency department. Accident and Emergency Department

at Manchester Royal Infirmary is available on (0161) 276 4147, 24 hours a day and for Trafford Urgent Care (0161) 746 2699 from 8.00 am – 12.00 midnight every day.

Pharmacy medicine helpline

If you have any questions about your medication when you are discharged from the hospital, you can phone the number below:

Pharmacy medicines helpline (0161) 276 6270
Monday – Friday 9.00 am – 5.00 pm.

We can only provide information on medicines prescribed for you by the hospital. We cannot answer questions on medicines that belong to someone else. We cannot take calls regarding your medication while you are still an in-patient. Please discuss any issues with your clinical team on the ward.

Further advice

www.nhs.uk/conditions/deep-vein-thrombosis/pages/introduction.aspx

www.patient.co.uk/showdoc/23068982

Department of health advice regarding travel related DVT:

<http://webarchive.nationalarchives.gov.uk>

www.dh.gov.uk/en/publichealth/healthprotection/bloodsafety/DVT/index.htm

