

# Venous Thromboembolic Events (VTEs)

**This Infosheet explains what a VTE is, what the causes and risk factors for VTEs are, the symptoms of a VTE, how they can be treated and some tips for self-management.**

## What is a VTE?

A venous thromboembolic event (VTE) is the term used to describe the formation of a blood clot (thrombus) within a vein. The most common location for a VTE is in the veins of the legs - this is known as a deep vein thrombosis (DVT). Sometimes part of a clot can break away and travel to the lungs - this is known as a pulmonary embolism (PE).

## What causes a VTE?

During periods of inactivity, blood collects in your lower legs. Normally this is nothing to worry about as your blood flow increases when you start to move again. However, if you are unable to move, or you are less active for a long period of time (i.e. on a long haul flight, during recovery after an operation, or if you are ill or injured) your blood flow slows down significantly which

increases the chance of a blood clot developing.

If blood vessels are damaged by injury (such as broken bones, muscle damage, surgery and some medications including chemotherapy), vessels may become narrowed or blocked which can also increase the risk of a blood clot forming.

Other causes of DVT include:

- Medical and genetic conditions
- Pregnancy
- The contraceptive pill and hormone replacement therapy (HRT)
- Smoking

A VTE can cause a number of serious problems including:

- Persistent obstruction of blood flow to the lungs
- Shortness of breath
- Leg swelling and pain
- Stroke
- Skin changes and ulcers

### **Who can develop a VTE?**

A VTE occurs in approximately 2 in every 1,000 people in the UK each year. VTEs can affect anyone and can occur for

unknown reasons; however, there are a number of factors that increase the risk of a VTE including age, family history, history of previous VTEs, weight, mobility, recent injury or surgery and other comorbidities i.e. existing diseases or disorders.

Cancer patients are four times more likely to develop a VTE than a member of the general population (i.e. 8 in every 1,000 compared to 2 in every 1,000). This risk increases to 13 in every 1,000 for cancer patients who are receiving chemotherapy and radiotherapy treatment.

Cancer and anti-cancer treatments are thought to increase the risk of a VTE in a number of ways. They:

- Disrupt normal blood flow
- Increase the chance of blood clotting
- Intravenous (into the vein) catheters can damage blood vessels

Myeloma patients carry an even greater risk of developing a VTE than other cancer patients – a VTE occurs in 56 in every 1,000 myeloma patients each year.

## What increases the risk of a VTE in myeloma?

Myeloma patients are thought to be at an increased risk of developing a VTE compared to other cancers due to:

- The myeloma itself, which changes the blood causing it to thicken and disrupt normal blood flow
- The specific drugs and treatment combinations used to treat myeloma

Factors relating to the individual patient can also play a significant role. These include age, history of previous VTEs, weight, mobility, recent injury or surgery and other comorbidities i.e. existing diseases or disorders.

Of the various factors that increase the risk of developing a VTE in myeloma patients, anti-myeloma treatment carries the greatest risk, particularly the immunomodulatory (IMiD) drugs such as thalidomide, Revlimid® (lenalidomide) and Imnovid® (pomalidomide). These drugs significantly increase the rate of VTEs in patients, particularly when they are used in combination with steroids such as dexamethasone and prednisolone.

Supportive treatments used in myeloma, such as erythropoietin (EPO) which is used to treat patients who have anaemia, may also increase the risk of a VTE.

You will receive ongoing assessments for your risk of developing a VTE, which should be performed at:

- Diagnosis
- Before the start of treatment, particularly thalidomide or Revlimid
- Relapse
- Any admission for emergency care

## What are the symptoms of a VTE?

The symptoms of a deep vein thrombosis (DVT) and pulmonary embolism (PE) are different.

The most common symptoms of a DVT include:

- Leg pain
- Swelling
- Redness and/or warmth in the arms and/or legs
- Cramps
- Heaviness in the arms and/or legs

PE symptoms include:

- Sudden breathlessness
- Chest pain
- Anxiety

As myeloma patients are at an increased risk of developing a DVT, you should be vigilant in looking out for any symptoms and report them immediately to your doctor or nurse.

**PEs however are considered to be a medical emergency and require urgent treatment. If you have any of the symptoms of a PE, you should call 999 immediately.**

### How is a VTE treated?

Prophylactic (preventative) treatment is key in managing myeloma patients at risk of developing a VTE.

If you are at high risk you may be prescribed prophylactic VTE treatment for the first four to six months after diagnosis, after which treatment may be reduced or discontinued unless you have ongoing significant risk factors or signs of myeloma progression.

If you are starting treatment with thalidomide or Revlimid you will also receive prophylactic VTE treatment.

Prophylactic treatments are grouped into three categories:

### 1. Drug treatments

- Aspirin
- Warfarin
- Low molecular weight heparin e.g. enoxaparin, tinzaparin, dalteparin

### 2. Mechanical treatments

- Inflatable sleeves, gloves or boots which aim to improve circulation
- Stockings

### 3. Myeloma treatment-related

- Reduce thalidomide/Revlimid/Imnovid dose

The most appropriate prophylactic treatment for you will be given based on the risk factors specific to you, which will be identified as part of your ongoing risk assessments.

Despite best efforts, prophylactic treatment cannot completely prevent a VTE. Therefore early VTE diagnosis and management are crucial if one should occur. For myeloma patients with a suspected VTE, treatment with drugs called anticoagulants will be started. Anticoagulants help to prevent existing clots from getting bigger or new clots from forming.

The most common types of anticoagulants used to treat a VTE are heparin and warfarin. Heparin is usually prescribed first because it works immediately to prevent further clotting and it is given either as an intravenous injection or under the skin (subcutaneously). After initial treatment with heparin you may be prescribed prophylactic warfarin to prevent another blood clot or clots forming. Warfarin is given as a tablet (orally).

### **Tips for self-management**

You should be vigilant for the signs of a VTE and report them immediately to your doctor or nurse.

You should also be aware of the possible side-effects of prophylactic VTE treatment and again you should report these as soon as possible to your doctor or nurse.

These include:

- Unusual bruising
- Nosebleeds and/or bleeding from the gums
- Coughing or vomiting blood or clots
- Passing pink, red or brown urine

- Passing red or black stools
- Headaches, dizziness or weakness

You can also help to reduce or minimise your individual-related risk factors by maintaining a healthy weight, eating a well-balanced diet that is low in fat and taking regular, gentle exercise.

### **Future directions**

The ongoing assessment of risk factors and prophylactic treatment are key in reducing the risk of a VTE in myeloma patients. Research to reduce the side-effects of anti-myeloma treatments and identify the best prophylactic VTE treatment in myeloma is ongoing.

### **About this Infosheet**

The information in this Infosheet is not meant to replace the advice of your medical team. They are the people to ask if you have questions about your individual situation. All Myeloma UK publications are extensively reviewed by patients and healthcare professionals prior to publication.

## Other information available from Myeloma UK

Myeloma UK has a range of Essential Guides, Infoguides and Infosheets available covering many areas of myeloma, its treatment and management.

To order your free copies or to talk to one of our Myeloma Information Specialists about any aspect of myeloma, call the **Myeloma Infoline: 0800 980 3332** or **1800 937 773** from Ireland.

The Myeloma Infoline is open from Monday to Friday, 9am to 5pm and is free to phone from anywhere in the UK and Ireland. From outside the UK and Ireland, call **0131 557 9988** (charged at normal rate).

Information and support about myeloma is also available around the clock at **[www.myeloma.org.uk](http://www.myeloma.org.uk)**

# Notes

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Published by: Myeloma UK  
Publication date: August 2014  
Last updated: May 2016  
Review date: May 2018

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**Myeloma Awareness Week 21 - 28 June**