



## The OMFS Survival Guide

### VTE Prophylaxis

#### **Aims & Objectives:**

- To understand the indications for VTE prophylaxis
- To understand the different forms of VTE prophylaxis (mechanical and pharmacological)
- To understand the clinical signs and symptoms of DVT and PE

#### **VTE Assessment**

- Venous thromboembolism (VTE) is a disorder that includes deep vein thrombosis and pulmonary embolism.
- Risk assessment is required for all the patients older than 16 years

#### **Timing:**

- On admission, and starts prophylaxis within 14 hours of hospital admission
- Within 24 hours of admission
- Whenever the clinical situation changes
- At least once a week thereafter

#### **VTE risk factors: Surgical/trauma patients:**

- Hip/knee replacement
- Hip fracture
- GA and a surgical duration of over 90 minutes
- Surgery of the pelvis or lower limb with a general anaesthetic and a surgical duration of over 60 minutes
- Acute surgical admission with an inflammatory/intra-abdominal condition
- Surgery with a significant reduction in mobility

#### **General risk factors:**

- Active cancer/chemotherapy
- Aged over 60
- Known blood clotting disorder (e.g. thrombophilia)
- BMI over 35
- Dehydration

- One or more significant medical comorbidities (e.g. heart disease; metabolic/endocrine pathologies; respiratory disease; acute infectious disease and inflammatory conditions)
- Critical care admission
- Use of hormone replacement therapy (HRT)
- Use of the combined oral contraceptive pill
- Varicose veins
- Pregnant or less than 6 weeks post-partum

### **Contraindications for thromboprophylaxis (bleeding risks):**

#### **Patient related:**

- Active bleeding
- Acquired bleeding disorder
- Acute stroke
- Thrombocytopenia
- Untreated inherited bleeding disorders (e.g. haemophilia or von Willebrand's disease)

#### **Admission related:**

- Neurosurgery, spinal or eye surgery
- Other procedures with high bleeding risks
- LP, epidural, spinal anaesthesia expected in the next 12hr or performed in the previous 4hrs
- Concurrent use of anticoagulants
- Uncontrolled systolic hypertension

## **Types of VTE Prophylaxis**

### **Mechanical:**

- Correctly fitted anti-embolism (aka compression) stockings (thigh or knee height)
- An Intermittent pneumatic compression device

### **Pharmacological:**

- Low molecular weight heparin (LMWH) e.g. enoxaparin, dalteparin
  - Check renal function
  - Weight dependent
- DOACs- avoid in pregnancy

### **Contraindications for below knee compression stockings:**

- Peripheral vascular disease

- Infection in the limb
- Peripheral sensory neuropathy
- Leg ulcers
- Severe limb oedema
- Unusual shape/size or deformity
- Known allergy to the material
- Acute stroke patients
- Uncontrolled heart failure
- Suspected skin cancer
- Other skin conditions that may be affected by wearing stockings e.g. dermatitis

## Deep Vein Thrombosis (DVT)

- Deep vein thrombosis (DVT) is the formation of a thrombus (blood clot) in a deep vein, usually in the legs, which partially or completely obstructs blood flow.

### Typical signs and symptoms of DVT are:

- Unilateral pain (throbbing in nature) that occurs when walking or bearing weight, and calf swelling (or more rarely, swelling of the entire leg).
- Tenderness.
- Skin changes, which include oedema, redness, and warmth.
- Vein distension.

**Refer immediately for same-day assessment and management if deep vein thrombosis (DVT) is suspected in a woman who is pregnant or has given birth within the past 6 weeks.**

- For all other people with suspected DVT, use the two-level DVT Wells score to assess the probability of DVT.

### Well's Score for DVT

Clinical Characteristics	Score
Active Cancer	+1
Paralysis/ plaster immobilisation	+1
Bed rest >3d or major surgery <4 weeks	+1
Localised tenderness along the distribution of the deep venous system	+1
Entire leg swollen	+1
Calf swelling >3cm when compared to asymptomatic leg	+1
Pitting oedema	+1
<u>Collateral superficial veins</u> (non- varicose_	+1
Previously documented DVT	+1
Alternative diagnosis at least as likely as DVT	-2

### Clinical Probability

Unlikely	<2
Likely	>2

## Investigations:

- US lower limb
- D-dimer

## Treatment:

- Low molecular weight heparin (LMWH)- treatment dose
- Oral anticoagulant treatment (warfarin, apixaban, or rivaroxaban)
- Check local guidelines

## Pulmonary Embolism

One or more emboli, usually arising from a clot formed in the veins, are lodged in and obstruct the pulmonary arterial system, causing severe respiratory dysfunction.

## Signs & Symptoms:

- Dyspnoea
- Tachypnoea
- Tachycardia
- Hypoxia
- Pleuritic chest pain
- Features of deep vein thrombosis
- Chest pain
- Cough and haemoptysis
- In severe cases, dizziness and/or syncope (due to right ventricular failure)

Arrange immediate admission for people with suspected pulmonary embolism (PE) if:

- They have signs of haemodynamic instability (including pallor, tachycardia, hypotension, shock, and collapse).
- They are pregnant or have given birth within the past 6 weeks.
- For all other people, use the two-level PE Wells score to estimate the clinical probability of PE:

### Well's Score for PE

Clinical Characteristics	Score
Previous PE	+1
Heart Rate >100bpm	+1
Recent surgery/ immobilisation	+1
Clinical signs of DVT	+1
Alternative diagnosis less likely than PE	+1
Haemoptysis	+1
Active/ history of cancer	+1

Clinical Probability	
0-1	Low risk
2-6	Intermediate risk
>7	High risk

### Investigations:

- CT Pulmonary Angiogram to look for clot
- US lower limb (identify source of clot)
- D-dimer
- Arterial blood gas if hypoxic/ tachypnoeic
- ECG

### Treatment:

- Low molecular weight heparin (LMWH).
- Oral anticoagulant treatment (warfarin, apixaban, or rivaroxaban).
- LMWH followed by an oral anticoagulant (dabigatran or edoxaban).

### Special patients

#### Pregnant patients:

- Pregnancy itself puts women in a prothrombotic state, therefore the threshold for suspicion should be lower and there should be urgency of intervention in pregnant women.

#### Previous thrombotic/ embolic event:

- Previous events put patients a greater risk of developing another clot

### Further reading

#### NICE CKS guidelines:

<https://www.nice.org.uk/guidance/ng89/chapter/recommendations>

<https://cks.nice.org.uk/topics/deep-vein-thrombosis/>

<https://cks.nice.org.uk/topics/pulmonary-embolism/>

#### Geeky Medics

<https://geekymedics.com/pulmonary-embolism-pe-acute-management-abcde-approach/> <https://geekymedics.com/deep-vein-thrombosis-dvt-examination-osce-guide/>