Venous thromboembolic diseases

Definition of terms
- VTE: venous thromboembolism
- DVT: deep vein thrombosis
- PE: pulmonary embolism
- APTT: activated partial thromboplastin time
- eGFR: estimated glomerular filtration rate
- INR: international normalised ratio
- LMWH: low molecular weight heparin
- UFH: unfractionated heparin
- VKA: vitamin K antagonist e.g. warfarin

VTE
- Venous thromboembolic diseases cover a spectrum ranging from asymptomatic calf vein thrombosis to symptomatic DVT. They can be fatal if they lead to PE, in which the blood supply to the lungs is blocked by a blood clot. Non-fatal VTE can cause serious long-term conditions such as post-thrombotic syndrome.

Diagnosis
- Patients presenting with signs and symptoms of:
  - DVT - carry out an assessment of their general medical history and a physical examination to exclude other causes.
  - PE - carry out an assessment of their general medical history, a physical examination and a chest X-ray to exclude other causes.
- For further details on diagnosis see: NICE Pathway: Venous thromboembolism

Treatment and management

Anticoagulants
- Give LMWH to patients with active cancer. Continue for at least 6 months then re-assess need for continued anticoagulation.
- Give a VKA e.g. warfarin, within 24 hours of diagnosis and continue for 3 months then re-assess need for continued treatment.
- Taking into account the risk of VTE recurrence and bleeding, give a VKA for >3 months to patients with:
  - an unprovoked PE,
  - unprovoked proximal DVT if risk of recurrence is high and no additional risk of major bleeding.

Thrombolytic therapy
- Thrombolytic agents include streptokinase, urokinase and recombinant tissue-type plasminogen activator (r-tPA).
- Thrombolytic therapy aims to achieve clot lysis by the following methods:
  - catheter-directed administration of the drug inserted directly into the affected vein,
  - systemic administration of the drug into an unaffected peripheral vein.

Thrombolytic therapy
- Use catheter-directed thrombolytic therapy for patients with symptomatic iliofemoral DVT who have:
  - symptoms of <14 days duration, AND
  - good functional status, AND
  - a life expectancy of ≥1 year, AND
  - low risk of bleeding.

PE
- Give systemic thrombolytic therapy to patients with haemodynamic instability.
- Do NOT use in patients with haemodynamic stability.

Mechanical interventions

Stockings
- Give below-knee graduated compression stockings*** with an ankle pressure >23mmHg to patients with proximal DVT a week after diagnosis or when swelling is reduced, if there are none of following contraindications:
  - suspected or proven peripheral arterial disease,
  - peripheral neuropathy or other causes of sensory impairment,
  - any local conditions in which stockings may cause damage, e.g. fragile ‘tissue paper’ skin, dermatitis, gangrene or recent skin graft,
  - known allergy to material of manufacture,
  - cardiac failure,
  - severe leg oedema or pulmonary oedema from congestive heart failure,
  - unusual leg size or shape,
  - major limb deformity preventing correct fit.
- * See Summary of Product Characteristics for full prescribing information.
- ** Unlicensed indication. Obtain and document informed consent.
- *** Refer to specific product information and contraindications.
Venous thromboembolic diseases continued…..

NICE CG144, 2012

♦ Ensure the stockings are replaced two or three times per year or according to the manufacturer’s instructions.
♦ Advise patients:
  ➢ to continue wearing the stocking for at least two years,
  ➢ that the stockings should be worn only on the affected leg(s).

Inferior Vena Cava Filters
♦ Use temporary inferior vena cava filters for patients with proximal DVT or PE who cannot have anticoagulant treatment. Remove the filter once the patient becomes eligible for anticoagulation treatment.
♦ Consider inferior vena cava filters for patients with recurrent proximal DVT or PE despite adequate anticoagulation treatment only after considering alternative treatments such as:
  ➢ increasing target INR to 3-4 for long-term high-intensity oral anticoagulant therapy OR
  ➢ switching to a LMWH.
♦ When the filter is placed, ensure a strategy for removal of the filter is planned and reviewed regularly.

Monitoring
♦ Do NOT routinely offer self-management or self-monitoring of INR.

Thrombophilia testing
♦ Do NOT offer thrombophilia testing to:
  ➢ patients continuing anticoagulation treatment,
  ➢ patients who have provoked DVT or PE,
  ➢ first-degree relatives of people with a history of DVT or PE and thrombophilia.
♦ Consider testing for antiphospholipid antibodies in patients who have had unprovoked DVT or PE if it is planned to stop anticoagulation treatment.
♦ Consider testing for hereditary thrombophilia in patients who have had unprovoked DVT or PE and who have a first-degree relative who has had DVT or PE if it is planned to stop anticoagulation treatment.

Investigations for cancer
♦ Offer all patients diagnosed with unprovoked DVT or PE who are not already known to have cancer the following investigations:
  ➢ a physical examination, AND
  ➢ chest X-ray, AND
  ➢ full blood count, serum calcium, liver function tests, AND
  ➢ urinalysis.
♦ Consider an abdomino-pelvic CT scan (and a mammogram for women) in all patients aged >40 years with a first unprovoked DVT or PE who do not have signs or symptoms of cancer based on initial investigation.

Counselling
Anticoagulants
♦ Give verbal and written information to patients on anticoagulant treatment. Include the following:
  ➢ how to use anticoagulants,
  ➢ duration of treatment,
  ➢ possible adverse effects and what to do if these occur,
  ➢ potential interactions with other medicines, food and alcohol,
  ➢ how anticoagulant treatment is monitored,
  ➢ how anticoagulants may affect dental treatment,
  ➢ taking anticoagulants if they are planning pregnancy or become pregnant,
  ➢ how anticoagulants may affect activities such as sports and travel,
  ➢ when and how to seek medical help.
♦ Give patients an anticoagulant information booklet and anticoagulant alert card to carry with them at all times.
♦ Further details about anticoagulation booklets can be found in the NPSA resources via: www.nrls.npsa.nhs.uk/resources/?entryid45=61777&q=0%c3%acanticoagulant%c2%ac

Heparins
♦ Some heparins are of animal origin and may be of concern to some patients.
♦ Offer synthetic alternatives based on clinical judgement and after discussing their suitability, advantages and disadvantages with the patient.

Compression stockings
♦ Give advice about the correct application and use of below-knee graduated compression stockings, how long they should be worn and when they should be replaced.

Supporting documents
NICE has developed implementation tools and resources to support this guidance: http://guidance.nice.org.uk/CG144
Visit the NICE Pathway: Venous thromboembolism
Related NICE guidance: CG92 Venous thromboembolism: reducing the risk

Venous thromboembolism - Rivaroxaban
NICE TA261, 2012

♦ Rivaroxaban is an oral anticoagulant recommended as an option for treatment of DVT and prevention of recurrent DVT and PE following an acute DVT in adults.
♦ For initial treatment of acute DVT give:
  ➢ 15mg twice daily for the first 21 days followed by 20mg once daily for continued treatment and prevention of recurrence.
♦ Duration of treatment depends on bleeding risk and other clinical criteria:
  ➢ short-term treatment (3 months) is recommended for those with transient risk factors such as recent surgery and trauma,
  ➢ longer treatment for permanent risk factors or idiopathic (unprovoked) DVT. Experience is limited beyond 12 months use.
♦ For individuals with moderate or severe renal impairment give:
  ➢ 15mg twice daily for 21 days followed by 15mg once daily.
NICE has developed a costing template: http://guidance.nice.org.uk/TA261/CostingTemplate/xls/English

* See Summary of Product Characteristics for full prescribing information.