Venous thromboembolism: diagnosis and anticoagulation treatment

Suspected DVT: diagnosis and initial management

- **DVT suspected**
  - Determine 2-level DVT Wells score

  - **Wells score ≥ 2 points**
    - DVT likely
    - **Proximal leg vein ultrasound scan within 4 hours**
      - **Quantitative D-dimer test if not already done**
      - **Interim therapeutic anticoagulation**
      - **Scan within 24 hours**

  - **Wells score ≤ 1 point**
    - DVT unlikely
    - **Quantitative D-dimer test with result in 4 hours**
      - or
      - **Interim therapeutic anticoagulation while awaiting test result**

- **Scan positive**
  - **D-dimer positive**
    - Diagnose DVT and offer or continue treatment
  - **D-dimer negative**
    - **Stop interim anticoagulation**
    - Repeat scan 6 to 8 days later

- **Scan negative**
  - **D-dimer positive**
    - **Quantitative D-dimer test if not already done**
  - **D-dimer negative**
    - **Stop interim anticoagulation** and think about other diagnoses

2-level DVT Wells score

<table>
<thead>
<tr>
<th>Clinical feature</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active cancer (treatment ongoing, within 6 months, or palliative)</td>
<td>1</td>
</tr>
<tr>
<td>Paralysis, paresis or recent plaster immobilisation of lower extremities</td>
<td>1</td>
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<tr>
<td>Recently bedridden for 3 days or more, or major surgery within 12 weeks requiring general or regional anaesthesia</td>
<td>1</td>
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<tr>
<td>Localised tenderness along the distribution of the deep venous system</td>
<td>1</td>
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<td>Entire leg swollen</td>
<td>1</td>
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<tr>
<td>Calf swelling at least 3 cm larger than asymptomatic side</td>
<td>1</td>
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<tr>
<td>Pitting oedema confined to the symptomatic leg</td>
<td>1</td>
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<tr>
<td>Collateral superficial veins (non-varicose)</td>
<td>1</td>
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<tr>
<td>Previously documented DVT</td>
<td>1</td>
</tr>
<tr>
<td>An alternative diagnosis is at least as likely as DVT</td>
<td>-2</td>
</tr>
</tbody>
</table>

Adapted with permission from **Wells et al. (2003)**

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1Laboratory or point-of-care test. Consider age-adjusted threshold for people over 50

2Note that only one D-dimer test is needed during diagnosis

3Measure baseline blood count, renal and hepatic function, PT and APTT but start anticoagulation before results available and review within 24 hours

4If possible, choose an anticoagulant that can be continued if DVT confirmed

5Direct-acting anticoagulants and some LMWHs are off label for use in suspected DVT. Follow **GMC guidance on prescribing unlicensed medicines**

6This refers to interim therapeutic anticoagulation only. Do not stop long-term anticoagulation for secondary prevention.

This is a summary of the recommendations on diagnosis and management from NICE's guideline on venous thromboembolic diseases. See the original guidance at [www.nice.org.uk/guidance/NG158](http://www.nice.org.uk/guidance/NG158)
1Laboratory or point-of-care test. Consider age-adjusted threshold for people over 50

CT pulmonary angiogram. Assess suitability of V/Q SPECT or V/Q planar scan for allergy, severe renal impairment (CrCl < 30 ml/min estimated using the Cockcroft and Gault formula; see the BNF) or high irradiation risk

Measure baseline blood count, renal and hepatic function, PT and APTT but start anticoagulation before results are available and review within 24 hours

If possible, choose an anticoagulant that can be continued if PE is confirmed

Direct-acting anticoagulants and some LMWHs are off label for use in suspected DVT. Follow GMC guidance on prescribing unlicensed medicines

This refers to interim therapeutic anticoagulation only. Do not stop long-term anticoagulation for secondary prevention.

Adapted with permission from Wells et al. (2000)
**DVT or PE: anticoagulation**

- **Measure baseline full blood count, renal and hepatic function, PT and APTT but start anticoagulation before results available.** Review and if necessary act on results within 24 hours
- **Offer anticoagulation for at least 3 months.** Take into account contraindications, comorbidities and the person's preferences
- **After 3 months (3 to 6 months for active cancer) assess and discuss the benefits and risks of continuing, stopping or changing the anticoagulant with the person.** See long-term anticoagulation for secondary prevention in the guideline

### No renal impairment, active cancer, antiphospholipid syndrome or haemodynamic instability

- Offer apixaban or rivaroxaban
- If neither suitable, offer one of:
  - LMWH for at least 5 days followed by dabigatran or edoxaban
  - LMWH and a VKA for at least 5 days, or until INR at least 2.0 on 2 consecutive readings, then a VKA alone

### Renal impairment (CrCl estimated using the Cockcroft and Gault formula; see the BNF)

- CrCl 15 to 50 ml/min, offer one of:
  - apixaban
  - rivaroxaban
  - LMWH for at least 5 days then
    - edoxaban or
    - dabigatran if CrCl ≥ 30 ml/min
  - LMWH or UFH and a VKA for at least 5 days, or until INR at least 2.0 on 2 consecutive readings, then a VKA alone

### Active cancer (receiving antimitotic treatment, diagnosed in past 6 months, recurrent, metastatic or inoperable)

- Consider a DOAC
- If a DOAC is not suitable, consider one of:
  - LMWH
  - LMWH and a VKA for at least 5 days or until INR at least 2.0 on 2 consecutive readings, then a VKA alone

### Antiphospholipid syndrome (triple positive, established diagnosis)

- Offer LMWH and a VKA for at least 5 days or until INR at least 2.0 on 2 consecutive readings, then a VKA alone

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**PE with haemodynamic instability**

- Offer continuous UFH infusion and consider thrombolytic therapy

**Body weight**

- If body weight <50 kg or >120 kg consider anticoagulant with monitoring of therapeutic levels.
- Note cautions and requirements for dose adjustments and monitoring in SPCs. Follow local protocols, or specialist or MDT advice

**INR monitoring**

- Do not routinely offer self-management or self-monitoring of INR

**Prescribing in renal impairment and active cancer**

- Some LMWHs are off label in renal impairment, and most anticoagulants are off label in active cancer.
- Follow GMC guidance on prescribing unlicensed medicines

**Treatment failure**

- If anticoagulation treatment fails:
  - check adherence
  - address other sources of hypercoagulability
  - increase the dose or change to an anticoagulant with a different mode of action

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