A BEST PRACTICE MODEL FOR ASSESSING DVT IN PRIMARY CARE

The Figure shows a model pathway for DVT assessment, with action dependent on the pre-test probability score and, if appropriate, D-dimer test result. A negative D-dimer test can safely rule out DVT in patients in whom pretest probability scoring (based on clinical examination and history) shows DVT to be “unlikely”.

It is important that patients discharged without evidence of DVT know to return if symptoms persist or worsen. Three-month telephone follow-up of these patients is advisable as an outcome measure of the effectiveness of the screening and diagnostic algorithm for DVT, especially in primary care.

Pregnant women, in whom the diagnosis of DVT is more likely, should be referred directly for diagnostic imaging.

<table>
<thead>
<tr>
<th>CLINICAL CHARACTERISTIC</th>
<th>POINTS</th>
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</thead>
<tbody>
<tr>
<td>Active cancer (treatment ongoing, within previous 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 more than 3 days, or major surgery within past 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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<tr>
<td>Entire leg swollen</td>
<td>1</td>
</tr>
<tr>
<td>Calf swelling by more than 3cm compared with the asymptomatic leg</td>
<td>1</td>
</tr>
<tr>
<td>Pitting oedema confined to the symptomatic leg</td>
<td>1</td>
</tr>
<tr>
<td>Collateral superficial veins (non-varicose)</td>
<td>1</td>
</tr>
<tr>
<td>Previously documented DVT</td>
<td>1</td>
</tr>
<tr>
<td>Alternative diagnosis at least as likely as DVT</td>
<td>-2</td>
</tr>
</tbody>
</table>

Score: less than 2 points, DVT “unlikely”; 2 points or more, DVT “likely”

MEMBERS OF THE CONSENSUS PANEL

Professor Martin R. Cowie, Professor of Cardiology, Imperial College London (Royal Brompton Hospital) (chair)
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ASSESSING DVT: MOVING TO A PRIMARY CARE MODEL

Only around 15% of patients presenting with suspected deep vein thrombosis (DVT) will actually have scan-confirmed DVT. The annual incidence of DVT is around 1 per 1000. This means that a Clinical Commissioning Group covering 250,000 people could expect 1600 suspected DVTs each year and around 250 confirmed cases.

DIAGNOSING DVT

DVT is difficult to diagnose clinically because the signs and symptoms are non-specific. The initial step is to use a structured clinical decision rule to assess the probability of DVT, followed by a D-dimer screening test where appropriate to help rule out a diagnosis of DVT. Ultrasound imaging is required for definitive diagnosis in patients in whom DVT cannot be excluded. Patients assessed as likely to have DVT should go directly to ultrasound without D-dimer testing.

D-dimer is a fibrin degradation product. Thrombus formation is normally followed by an immediate fibrinolytic response, leading to release of D-dimer into the circulation. A negative D-dimer blood test therefore indicates that thrombosis is very unlikely. The assay has been shown to have a high negative predictive value – making it a good ‘rule out’ test.

TRADITIONAL AND NEW MODELS

In most areas, GPs refer patients with suspected DVT to the acute Trust for assessment with a laboratory D-dimer test and, if needed, diagnostic imaging. This leads to many unnecessary (and expensive) referrals for patients who do not have DVT.

With the availability of point-of-care (POC) D-dimer testing, there has been increasing interest in setting up primary care services for DVT assessment, with hospital referral for diagnostic ultrasound reserved for patients in whom DVT cannot be safely ruled out.

Several different primary care models have been established. These include nurse-run DVT assessment at a community hospital, assessment in GP practices, and ‘hub and spoke’ models where large GP practices carry out DVT assessment for colleagues in smaller practices, sending the results back to the referring GP for clinical decision-making. Where GPs undertake DVT assessment, some services have been funded as a local enhanced service.

ADVANTAGES OF A PRIMARY CARE SERVICE

Experience with primary care services has been positive, with clear advantages over the traditional model.

DVT assessment in primary care is associated with significant reductions in hospital referrals: using pre-test probability scoring and D-dimer testing, DVT can be safely excluded in 25-50% of patients. In one GP scheme using POC testing, monthly referrals across 21 practices dropped from 20 to 5.

By preventing unnecessary visits to the acute Trust, the new service is more convenient to patients. It also helps GPs, who are being encouraged to reduce “avoidable” hospital referrals.

Ability to exclude DVT quickly also avoids use of anticoagulants in patients who do not need them. With the traditional secondary care model, GPs may start all patients on anticoagulants pending hospital assessment, which will result in unnecessary treatment in many patients.

DVT assessment in hospital is expensive as this may be charged as an acute admission, with a tariff price of around £500. A pathway utilising a D-dimer POC test in primary care costs around one-tenth of that. By reducing referrals, a primary care service therefore provides significant cost savings.

SUGGESTED MODEL PATHWAY

The Figure (on reverse) shows a suggested model pathway for DVT assessment that could be applied in primary care.

Decisions are needed on choice of clinical decision rule for pre-test probability scoring and choice of D-dimer test. The Consensus Panel recommends the well-validated 2-level DVT Wells’ score (shown in Table) which stratifies patients as “likely” or “unlikely” to have DVT. This scoring system is straightforward to use.

D-dimer tests are available as both quantitative (carried out on a whole blood sample) and qualitative (fingerprick sample). For primary care, a quantitative test is preferred as these have greater sensitivity: they are more reliable in terms of negative predictive value, which is important to avoid missing a diagnosis. Another advantage is that quantitative tests save the result which can be referred to later if required for clinical questioning or audit.

HOW MUCH EXTRA WORK WILL BE INVOLVED?

Primary care assessment of DVT need not require a large amount of extra work for GPs. Much of the assessment can be undertaken by nurses. Training will be needed on the use of the clinical decision rule and D-dimer testing. All assessments need to be clearly documented. It is important to participate in the National External Quality Assessment Service (NEQAS) to ensure reliability of testing. This scheme is currently free for D-dimer testing.

KEY REFERENCES


KEY POINTS

- Traditional DVT assessment can lead to delay in diagnosis and unnecessary referrals. It is an expensive service that can be provided more cheaply and more conveniently for patients in primary care.
- Assessing suspected DVT in the community using a clinical decision rule and a POC D-dimer test can safely rule out DVT in a proportion of patients without the need for diagnostic imaging.
- A quantitative D-dimer test is preferred because of greater sensitivity.
- Referrals for ultrasound scanning can be reduced by 25-50%, with advantages for patients and associated cost savings.