Deep vein thrombosis (DVT) - suspected NSCCG

Medicine > General medicine > Deep vein thrombosis


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1 Background information

Quick info:

Scope:
- the diagnosis and management of deep vein thrombosis (DVT) presenting in adults (age 18 years and older) – including outpatient management
- DVT probability assessment model – Wells score
- the different imaging modalities for DVT and the use of D-dimer tests as discriminators
- anticoagulation therapy

Out of scope:
- patients under age 18 years
- patients who present with significant and/or disabling co-morbidities

Definition:
- symptomatic DVT is radiologically-confirmed partial or total thrombotic occlusion of the deep venous system of the legs and pelvis sufficient to produce symptoms of pain or swelling
- proximal DVT affects the veins from the trifurcation of the popliteal vein and above (popliteal, superficial femoral, common femoral, and iliac veins) [17]
- isolated calf DVT is confined to the deep veins below the trifurcation of the popliteal vein

Prevalence and prognosis:
- DVT has an annual incidence of about 1 in 1000 general population [15]
- proximal DVT may cause fatal or non-fatal pulmonary embolism (PE); recurrent venous thrombosis; and/or the post-thrombotic syndrome

Risk factors include [2]:
- prior history of DVT
- cancer and chemotherapy
- increasing age [17]
- obesity
- acquired or familial thrombophilia
- surgery
- prolonged travel
- immobility
- pregnancy
- hormone treatment, eg oestrogen-containing contraception or hormone replacement therapy [15]
- varicose veins with phlebitis [3]

References:

2 Information resources for patients and carers

Quick info:
http://www.patient.co.uk/health/deep-vein-thrombosis-leaflet

3 Updates to this care map

Quick info:
4 Synonyms

Quick info:
Deep vein thrombosis (DVT)
Pulmonary embolism (PE)
Venous thromboembolism (VTE)

5 Patient with suspected DVT

Quick info:
A Two level Wells score is compulsory and must be attached to referrals for ultrasound.
Deep vein thrombosis (DVT) has a highly variable presentation, and may be asymptomatic.
When present, clinical signs/symptoms of DVT are likely to be acute, and include:
• unilateral leg pain
• swelling
• tenderness
• increased temperature
• pitting oedema
• prominent superficial veins

6 RED FLAG!

Quick info:
Refer immediately for same-day assessment and management particularly if deep vein thrombosis (DVT) is suspected in:
• a woman who:
  • is pregnant; or
  • who has given birth within the previous 6 weeks
• a person who is an intravenous drug user
For all other people with a suspected DVT, if D-dimer testing is not available or practical, refer for same-day assessment.

Local administrative info:
The Two level Well’s score MUST be completed and then sent to the radiographer if the patient has a ultrasound
WAHT – Radiology
Emergency slots are at lunchtimes 12:00-13:00.
GP referral letter
Fax: 01934 647277
Depending on the time of day that the referral is made, the patient will be seen either on the same day or the next day.
X-ray direct line: 01934 647043
Open 08:00 – 17:00, Mon – Fri
09:00 – 13:00, Weekends & Bank holidays
UHB Thrombosis Clinic
Refer via;
Telephone: 0117 3424684 (follow up with GP referral letter)
Open 09:00 -17:00, Mon – Fri
09:15 – 13:00, Weekends & Bank holidays (No scanning)
OR Fax: 0117 3424323
OR Post to:
Vascular Studies Unit, Level 2 Balloon Corridor, Queens Building, Bristol Royal Infirmary, BS2 8HW.
For all tests, reporting is done immediately and patients are usually advised of the results whilst in the department.
Emersons Green
7 Consider differential diagnosis

Quick info:
Possible differential diagnoses for deep vein thrombosis (DVT) include [15]:

- physical trauma, eg:
  - calf muscle tear or strain
  - haematoma in the muscle
  - sprain or rupture of a leg tendon
  - fracture
- cardiovascular disorders, eg:
  - superficial thrombophlebitis
  - post-thrombotic syndrome
  - venous obstruction
  - congenital vascular abnormalities
  - vasculitis
  - heart failure
- other conditions include:
  - cellulitis
  - ruptured Baker's cyst
  - stasis oedema
  - obstruction of lymph drainage
  - septic arthritis
  - cirrhosis
  - nephrotic syndrome

Reference:

9 Two level Wells score

Quick info:
**The Two level Well's score MUST be completed and then sent to the radiographer if the patient has a ultrasound**

If deep vein thrombosis (DVT) is suspected, use the two-level DVT Wells score to estimate the clinical probability of DVT [2].

**Two level Wells score**

OR find it at:
NICE guidance - Venous thromboembolic diseases: the management of venous thromboembolic diseases and the role of thrombophilia testing - **Resources List**

References:
10 DVT likely; Wells score 2 or more

Quick info:
A Two level Wells score is compulsory and must be attached to referrals for ultrasound.
Offer patients with suspected deep vein thrombosis (DVT) and a 'likely' two-level DVT Wells score either [2]:
• a proximal leg vein ultrasound scan carried out within 4 hours of request and, if the result is negative, a D-dimer test; or
• an interim dose of parenteral anticoagulant, and a proximal leg vein ultrasound within 24 hours of request
Reference:

11 DVT unlikely; Wells score 1 or less

Quick info:
A Two level Wells score is compulsory and must be attached to referrals for ultrasound.
If a D-dimer test is available offer patients with suspected DVT and an 'unlikely' two-level DVT Wells score a D-dimer test.
If a DVT is thought to be unlikely, ie the patient does not meet the necessary criteria, assess urgency for scan and add timeframe to form as applicable eg. Scan within one week.

13 D-dimer test (if available)

Quick info:
A D-dimer test is optional but if available it's advised one is completed for suspected DVT patients.
D-dimer tests [2]:
• D-Dimer is produced when a blood clot is broken down
• a point-of-care or laboratory test can be performed to assess the concentration of D-dimer in a patient's blood:
  • the result of the test can be used as part of a probability assessment when deep vein thrombosis (DVT) is suspected
  • the threshold for a positive result varies with the type of D-dimer test used and should be determined locally
Exclusion criteria:
• ALL - in patients
• Patients within 1 month of surgical procedure (excluding day case procedure)
• Women in 2nd or 3rd trimester of pregnancy, and within one moth post partum
• Patients already on Dalteparin or Warfarin
• Patients with Cellulitis
• Patients with recurrent DVT within 6 months
• Patients likely clinical probability of DVT or PE
• Patients with underlying malignancy who are receiving either [active treatment or palliative care
  • Known IVDU
Reference:

14 D-dimer test positive

Quick info:
If the result of a D-dimer test is positive offer the patient either [2]:
• a proximal leg vein ultrasound scan carried out within 4 hours of request; or
• an interim 24-hour dose of a parenteral anticoagulant, and a proximal leg vein ultrasound within 24 hours of request
Reference:
15 D-dimer test negative

Quick info:
If the D-dimer test is negative [2]:
• consider differential diagnosis
• advise the patient that deep vein thrombosis (DVT) is unlikely
• discuss the signs and symptoms of DVT
• recommend when and where to seek further medical help

Reference:

16 Consider differential diagnosis

Quick info:
Advise patient they likely do not have a DVT
Possible differential diagnoses for deep vein thrombosis (DVT) include [15]:
• physical trauma, eg:
  • calf muscle tear or strain
  • haematoma in the muscle
  • sprain or rupture of a leg tendon
  • fracture
• cardiovascular disorders, eg:
  • superficial thrombophlebitis
  • post-thrombotic syndrome
  • venous obstruction
  • congenital vascular abnormalities
  • vasculitis
  • heart failure
• other conditions include:
  • cellulitis
  • ruptured Baker’s cyst
  • stasis oedema
  • obstruction of lymph drainage
  • septic arthritis
  • cirrhosis
  • nephrotic syndrome

Reference:

17 Consider taking bloods

Quick info:
Consider taking bloods to form a baseline for investigations and look for contributory factors.

Blood sample:
• Calcium
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- FBC (WCC, Hb, Plts, MCV)
- LFT (Bili, Alb, AST, ALP)
- Creatinine and electrolytes + eGFR
- Inflammatory markers (CRP/ESR)

*Note – Use Cockroft or MDRD – online to calculate

18 Full leg scan

Quick info:
If yes to any of the following, book an above knee scan only
- Any recent bleeding episodes
- Age >65
- Thrombocytopenia (platelets <75x10^9/l)
- Eye or neurosurgery within last month
- Multiple comorbidities: e.g. interacting meds/falls risk
- High alcohol intake (especially binge drinker)
- Abnormal liver function tests (if known)
- Concerns over compliance

Local administrative info:
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For all tests, reporting is done immediately and patients are usually advised of the results whilst in the department.

Emersons Green
Refer via;
Telephone: 0117 906 1861 or 0117 906 1839
Open 09:00 – 15:00 Mon – Fri
Occasionally open on Saturdays and evenings if demand requires
OR Fax referral form to: 0117 957 1351
http://www.emersonsgreentreatmentcentre.nhs.uk/information-for-referrers

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22 Prior assessment and initiation of anticoagulation treatment

Quick info:


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A person who presents a chronically swollen leg of greater than 28 days with no change in symptoms, it is appropriate to book straight to scan with no anticoagulation
BNSSG formulary 2.8
Patient needs to be given either;
• LMWH i.e.
  • Enoxaparin (Clexane) 1.5mg/kg every 24 hours until scan
  • Tinzaparin (Innohep) 175units/kg every 24 hours
• NOAC i.e.
  • Rivaroxaban 15mg twice daily for 21 days then 20mg daily for duration of treatment. Prescribe 1 week pack.

Discuss with haematology before anticoagulation is initiated in the following situations:
• Low platelets
• Known bleeding disorder
• Previous allergy to Warfarin/ LMWH
Consider Rivaroxaban for all adult (non-pregnant) patients unless there are any of the following exclusions
Exclusion criteria for Rivaroxaban:
• Liver/hepatic disease
• Kidney disease
• Renal impairment; serum creatinine > 150 micromol/L (Creatinine clearance < 15 ml/min)
• Previous severe bleeding
• Uncontrolled hypertension
• Recent GI ulcer, oesophageal varices, recent brain or spine or ophthalmic surgery
• Known active cancer
• Concomitant use with other anticoagulant
• Taking some HIV medication
• Taking systemic azole antifungotics

Drug interactions for Rivaroxaban:
• Phenytoin, Carbamazepine, Phenobarbital or St Johns Wort
• Do NOT prescribe Rivaroxaban for patients taking any of the above drugs

Contraindications for LMWH:
• Acute bacterial endocarditis
• active major bleeding and conditions with a high risk of uncontrolled haemorrhage, including recent haemorrhagic stroke,
• active gastric or duodenal ulceration
• hypersensitivity to either enoxaparin sodium, heparin or its derivatives including other Low Molecular Weight Heparins
• Previous history of HITT (heparin induced thrombocytopenia) requires discussion with a haematologist before any anticoagulation is initiated

25 Ultrasound scan (USS) positive
Quick info:
Radiographer ensures patient goes to Ambulatory Care (WAHT) or follow acute trust pathway or back to GP
If appropriate Radiographer tells the patient to go directly to the pharmacy to collect medication.
NB USS is not infallible. Sensitivity 95%, specificity 87% for proximal DVT but poor for calf DVT

26 Ultrasound scan (USS) negative
Quick info:
Radiographer faxes the result to the GP the SAME DAY
Radiographer tells the patient to STOP taking rivaroxaban (if applicable)
NB USS is not infallible. Sensitivity 95%, specificity 87% for proximal DVT but poor for calf DVT
If patient looks clinically like they have DVT, then they can be rescanned within 7-10 days
Key Dates

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Evidence summary for Deep vein thrombosis (DVT) - suspected NSCCG

This care map has been developed according to the Map of Medicine editorial methodology (http://mapofmedicine.com/whatisthemap/editorialmethodology). The content of this care map is based on:
- high-quality guidelines and policy information [1-6,9-13,15,16]
- critically appraised meta-analyses, systematic reviews, and primary literature [7]
- practice-based recommendations [8,14,17]

The evidence-based, practice-informed care map has been peer-reviewed by central committees within stakeholder groups.