GP guidelines for the management of suspected DVT

Introduction

It is now recognised that single signs such as a swollen leg or positive Homan's test are very inaccurate when it comes to predicting the presence of a DVT. Even in patients with apparently typical symptoms the prevalence is low, ranging from 10-30%. Over the past few years, new tools have allowed more accurate estimation as to the likelihood of DVT in patients.

Causes of DVT include, but are not limited to:
Prolonged immobilisation, recent surgery, CVA, myocardial infarction, recent childbirth, malignancy, nephritic syndrome, collagen vascular disease, oral contraceptive pills and inherited disorders of coagulation.

The most accurate DVT prediction models encompass a pre-test clinical prediction tool (Wells Criteria) combined with a D-dimer.

D-dimer is a breakdown product of cross-linked fibrin and is a marker of in-vivo fibrin digestion. It is not a diagnostic test for DVT but the high negative predictive value means that a negative test can be used to exclude DVT in selected low risk patients identified by a clinical scoring system (see below).

Clinical Assessment

History: Including risk factors for DVT, co-morbidities, contraindications to anticoagulation, current medication, family history of thromboembolism or hypercoagulability.

Physical exam: Ensure that other causes of a swollen leg are looked for and excluded e.g. Liver failure and cor pulmonale (both legs should be swollen), cellulitis, ruptured Baker's cyst, ischaemic leg etc.

Investigation

This consists of blood tests and ultrasound of the leg veins.

Bloods: **FBC, creatinine, INR**

Thrombophilia screen should be requested in patients < 50 years old and with no precipitating event, or in recurrent thromboembolism, or if there is a strong family history of thromboembolism.

D-dimer: only for low risk patients according to the following score table:

WELLS CRITERIA	Score
Active cancer (treatment ongoing or within previous 6 months or palliative)	1
Paralysis or recent plaster immobilisation of the lower extremity (within 6 weeks)	1
Recent immobilisation for more than 3 days or major surgery within 12 weeks requiring general or regional anaesthesia	1
Localised tenderness along the deep venous system	1
Entire leg swollen	1
Calf swelling (circumference >3cm more than normal side measured 10cm below tibial tuberosity)	1
Pitting oedema confined to the symptomatic leg	1
Collateral superficial veins (non-varicose)	1
Alternative diagnosis as likely or greater than that of DVT	-2

NB. This table is not valid for patients under 18 years of age or pregnant women.
Patients with previous DVT or pulmonary embolism should automatically be regarded as high risk

Clinical score of 0 or 1 = low probability of DVT (the prevalence of DVT in this group is 4.5%).
D-Dimer is indicated and has negative predictive value, ie. a negative result will exclude a DVT. Await result before requesting ultrasound (approx. 1/3 of low risk patients will have a positive D-dimer and require U/S).
Patients with a negative D-dimer in this group do not need further investigation unless their symptoms persist or worsen.

Clinical score of 2 or more = high probability of DVT (the prevalence of DVT in this group is 19-47%).
D-Dimer is not required. Proceed directly to ultrasound.

Ultrasound: Only indicated for patients with high clinical probability of DVT, or those with a low probability but with a positive D-dimer.

Timing of Ultrasound:

During working hours, phone NPH ultrasound dept. (546 1874) to book a time for a same-day scan.

After hours, from 5pm daily, and from 5pm Friday to 10pm Sunday, the request form should be faxed to the ultrasound department (546 1940) who will then contact the patient with a time for the scan.
During the week, the scan will be done the next day.
For requests sent Friday-Sunday the scan will be done on Monday morning (please advise the patient to keep this time free).

Management:

If a same day ultrasound has been arranged further management can wait until the result is known.

For patients with suspected DVT who do not have a same day ultrasound precautionary anticoagulation is required:

- Commence enoxaparin (Clexane) if INR <2.0
  Dose is 1.5mg/kg daily (or 1mg/kg daily if eGFR < 30ml/min)

NB. Special Authority number must be obtained prior to writing script as Clexane is very expensive without it. Seek assistance from a GP colleague if you are not registered for electronic Special Authority applications.

For patients with confirmed DVT on Ultrasound:

- Commence anticoagulation with enoxaparin if INR <2.0
- Commence warfarin at same time as per ***Warfarin Initiation Protocol*** (daily enoxaparin is continued until INR reaches 2.0)
- Organise above knee compression stocking (on prescription from community pharmacy)
- Organise follow up INR testing and further enoxaparin injections (either with nurse at 96 Waimea Rd., District Nurse during the week, or self-administered), or contact the practice nurse at the patient's own GP to hand over care
- Provide medication information and the "*Your Anticoagulant Treatment*" handbook and fill in the first two pages.

QUICK REFERENCE GUIDE

History and examination

Assess risk (Wells score chart)

Bloods (use MedLab during normal working hours but annotate request urgent. After hours blood must be drawn by GP/nurse and samples delivered by patient directly to hospital lab. Please phone ahead to hospital lab 546 1632. Yellow, purple and light blue top tubes required)

Ultrasound (if indicated)

1. MONDAY TO FRIDAY WORKING HOURS (and same day scan available)
   - await result before further management
   - make sure you are available to receive and act on the scan result

2. MONDAY TO FRIDAY WORKING HOURS (but same day scan **not** available)
   - book time for next day scan and inform patient
   - consider who will follow up the result, annotate request form accordingly and arrange for clinical notes to be sent there
   - commence anticoagulation (see A.)

3. MONDAY TO FRIDAY LATE WORKING HOURS (blood results not available until afterhours)
   - duty doctor will need to follow up, annotate lab request form accordingly and arrange for clinical notes to be sent to NRAHDD

4. AFTERHOURS Monday to Thursday
   - complete U/S request form and fax to radiology dept. (546 1940) for a next day scan
   - consider who will follow up the result, annotate request form accordingly and arrange for clinical notes to be sent there
   - commence anticoagulation (see A.)

5. AFTERHOURS 5pm Friday to 10pm Sunday
   - complete U/S request form and fax to radiology dept. (546 1940) for a Monday morning scan
   - consider who will follow up the result, annotate request form accordingly and arrange for clinical notes to be sent there
   - commence anticoagulation (see A.)

6. ULTRASOUND CONFIRMS DVT
   - commence anticoagulation (see B.)

A. COMMENCING ANTICOAGULATION WITH ENOXAPARIN ALONE (U/S result pending)

- check baseline INR result (if <2.0 anticoagulation is required)

- **doctor** writes script for enoxaparin (electronic Special Authority required). Dose is 1.5mg/kg daily (or 1mg/kg daily if eGFR < 30ml/min)

- **patient** must take script to pharmacy, if during opening hours, and pick up enoxaparin (check with pharmacy that Clexane is stocked, if not will need to go to Prices Pharmacy)

- **nurse** administers first injection from stock and arranges replacement from patient's prescribed supply

- **nurse** provides patient information booklet and schedules next injection (either with nurse at 96 Waimea Rd., District Nurse during the week, or self-administered), or contacts the practice nurse at the patient's own GP to hand over care

B. COMMENCING ANTICOAGULATION WITH ENOXAPARIN AND WARFARIN (U/S confirms DVT)

- check baseline INR result (if <2.0 anticoagulation is required)

- **doctor** writes script for 3/7 enoxaparin (electronic Special Authority required). Dose is 1.5mg/kg daily (or 1mg/kg daily if eGFR < 30ml/min)
- **doctor** writes script for warfarin (recommended initiation dosage is 5mg/5mg/5mg with INR on third day)
- **doctor** writes script for above knee compression stocking

- **patient** must take script to pharmacy, if during opening hours, and pick up enoxaparin (check with pharmacy that Clexane is stocked, if not will need to go to Prices Pharmacy)

- **nurse** administers first injection of enoxaparin from stock and arranges replacement from patient's prescribed supply

- **nurse** provides patient information booklet and schedules next injection (either with nurse at 96 Waimea Rd., District Nurse during the week, or self-administered), or contacts the practice nurse at the patient's own GP to hand over care.
Enoxaparin is continued until INR reaches 2.0

- **nurse** provides patient information on warfarin and schedules next INR test (or contacts the practice nurse at the patient's own GP to hand over care)

AFTERHOURS BLOOD TESTS

Blood must be drawn by GP or nurse and samples delivered by patient directly to hospital lab.
Please phone ahead to hospital lab 546 1632.
Yellow, purple and light blue top tubes required for initial assessment, light blue only for INR.