The Ambulatory DVT Pathway

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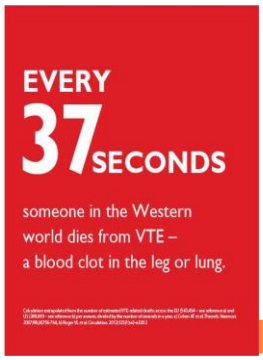
The Facts!

- **10% of hospital deaths**
  - Cohen et al. Haemostasis 1996; Lindblad et al. BMJ 1991; Sander et al. J R Soc Med 1989
- **0.4% of hospital admissions**
  - Khan et al. Haematology Association of Ireland Annual Meeting 2015
- **7000 patients and 2000 admissions with HA-VTE**
- **Healthcare costs of €161 million**
  - Cohen et al. For VITAE. Thromb Haemost 2007; 98: 756-764



Our Lady of Lourdes Hospital

Before VTE service

- Assessed and managed
  - Emergency Department (ED)
  - Acute Medical Assessment Unit (AMAU)
- Positive VTE
  - Admitted for three days
  - No hospital follow up

VTE Nurse's Role

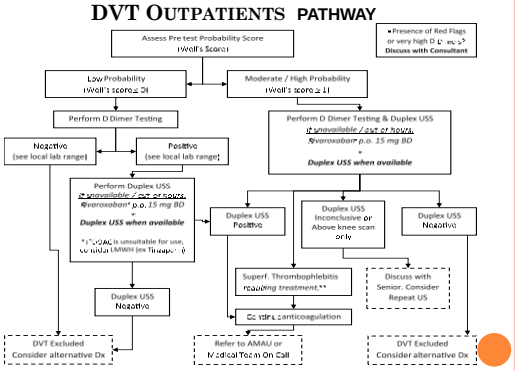
- Introduced in 2015
- Multidisciplinary team
- VTE workup

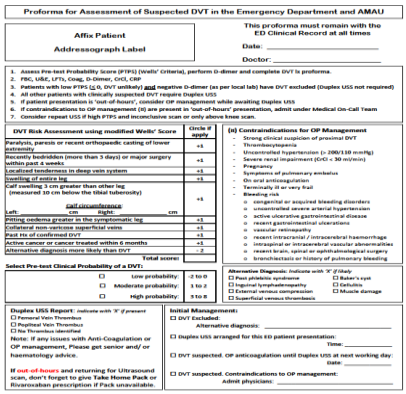
- Risk assess – wells score, d-dimer, doppler
- Patient education

VTE Pathway in OLOL

- Health assessment by VTE nurse
- Wells score
- FBC, U&E, LFTs, CRP, Coag, d-dimer
- Calculate renal function
- US scan
- Weight, height

DVT Outpatients Pathway





Proforma for Assessment of Suspected DVT in the Emergency Department and AMAU

Affix Patient Addressograph Label

This proforma must remain with the ED Clinical Record at all times

Date: _____

Doctor: _____

1. Assess Pre-test Probability Score (PTPS) (Wells' Criteria), perform D-dimer and complete DVT is proforma.
2. FBC, U&E, LFTs, Coag, D-Dimer, CrCl, CRP
3. Patients with low PTPS (≤ 0, DVT unlikely) and negative D-dimer (as per local lab) have DVT excluded (Duplex USS not required)
4. All other patients with clinically suspected DVT require Duplex USS
5. If patient presentation is 'out-of-hours', consider OP management while awaiting Duplex USS
6. If contraindications to OP management (x) are present in 'out-of-hours' presentation, admit under Medical On-Call Team
7. Consider repeat USS if high PTPS and inconclusive scan or only above knee scan.

DVT Risk Assessment using modified Wells' Score	Circle if apply
Paralysis, paresis or recent orthopaedic casting of lower extremity	+1
Recently bedridden (more than 3 days) or major surgery within past 4 weeks	+1
Localized tenderness in deep vein system	+1
Swelling of entire leg	+1
Calf swelling 3 cm greater than other leg (measured 10 cm below the tibial tuberosity)	+1
calf circumference: Left: ___ cm Right: ___ cm	
Pitting oedema greater in the symptomatic leg	+1
Collateral non-varicose superficial veins	+1
Past Hx of confirmed DVT	+1
Active cancer or cancer treated within 6 months	+1
Alternative diagnosis more likely than DVT	- 2
Total score:	

Select Pre-test Clinical Probability of a DVT:

☐	Low probability:	-2 to 0
☐	Moderate probability:	1 to 2
☐	High probability:	3 to 8

(x) Contraindications for OP Management
- Strong clinical suspicion of proximal DVT
- Thrombocytopenia
- Uncontrolled hypertension (> 200/110 mmHg)
- Severe renal impairment (CrCl < 30 ml/min)
- Pregnancy
- Symptoms of pulmonary embolus
- On oral anticoagulation
- Terminally ill or very frail
- Bleeding risk
  - congenital or acquired bleeding disorders
  - uncontrolled severe arterial hypertension
  - active ulcerative gastrointestinal disease
  - recent gastrointestinal ulceration
  - vascular retinopathy
  - recent intracranial / intracerebral haemorrhage
  - intraspinal or intracerebral vascular abnormalities
  - recent brain, spinal or ophthalmological surgery
  - bronchiectasis or history of pulmonary bleeding

Alternative Diagnosis: Indicate with 'X' if likely
☐ Post phlebitic syndrome ☐ Baker's cyst
☐ Inguinal lymphadenopathy ☐ Cellulitis
☐ External venous compression ☐ Muscle damage
☐ Superficial venous thrombosis

Duplex USS Report: Indicate with 'X' if present
☐ Femoral Vein Thrombus
☐ Popliteal Vein Thrombus
☐ No Thrombus identified
Note: If any issues with Anti-Coagulation or OP management, Please get senior and/or haematology advice.

If out-of-hours and returning for Ultrasound scan, don't forget to give Take Home Pack or Rivaroxaban prescription if Pack unavailable.

Initial Management:
☐ DVT Excluded:
Alternative diagnosis: _____
☐ Duplex USS arranged for this ED patient presentation:
Time: _____
☐ DVT suspected. OP anticoagulation until Duplex USS at next working day:
Date: _____
☐ DVT suspected. Contraindications to OP management:
Admit physicians: _____

Previous Management of DVT

- Treatment dose low molecular weight heparin (LMWH) as per weight
- Doppler ultrasound
- Treatment with oral anti-coagulants
  - Warfarin
  - Apixaban
  - Dabigatran
  - Edoxaban
  - Rivaroxaban

Present Management

- Rivaroxaban and Apixaban
  - licensed to prevent & treat DVT (1) (2) (3)
- Equal efficacy & better safety profile than LMWH, Warfarin (4) (5) (6) (7) (8)
- Benefits
  - Patient – discharged on tablet, no return to hospital
  - Hospital – reduction in costs, number of patients attending ED/AMAU

Direct Oral Anti-coagulants options

Rivaroxaban (take with food):
•15 mg PO BD for 21 days 3 weeks
•20 mg PO OD for the next 3 months

OR

Apixaban (take with food):
•10 mg PO BD for 7 days
•5 mg PO BD for 3 months

•To Take Home (TTH) packs available
•3 days supply of tablets

CONTRAINDICATIONS TO OUTPATIENT MANAGEMENT OF SUSPECTED VTE

- Suspected PE - admit
- Suspected proximal lower limb DVT or upper limb DVT
- Known allergy or sensitivity to DOACs
- Established on Warfarin or LMWH
- Pregnancy or breast feeding
- Alcohol dependence
- Age <18 years
- Active bleeding / significant risk of bleeding
- Significant renal impairment
- Suspected compliance issues
- Severe acute venous obstruction or limb ischemia
- Other medical / surgical problems requiring admission

Bleeding Risk

- Congenital or acquired bleeding disorders
- Uncontrolled severe arterial hypertension (>200/110 mmHg)
- Active ulcerative gastrointestinal disease
- Recent gastrointestinal ulcerations
- Liver disease (INR ≥ 1.5), including cirrhotic patients with Child Pugh scores B & C
- Moderate to severe renal impairment (CrCl<50 ml/min)
- Recent intracranial / intracerebral haemorrhage
- Recent brain, spinal or ophthalmological surgery
- Bronchiectasis or history of pulmonary bleeding
- Patients on other drugs which may affect haemostasis, including:
  - NSAIDs e.g. Ibuprofen, Diclofenac
  - Antiplatelet agents e.g. Aspirin, Clopidogrel
- HAS-BLED Score - Stratify bleeding risk in patient with AF taking DOAC
- Vascular retinopathy

TO CONCLUDE

- By improving our clinical practice, we can provide a treatment option with similar efficacy and better safety profile compared to previous treatment to patients with suspected lower limb DVT.
- More importantly, we can achieve a significant reduction in time, cost and resources.
- Patient commenced on DOAC's follow up is very important.

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THANK FOR LISTENING- ANY QUESTIONS??