MIL

Oxford University Hospitals NHS
NHS Foundation Trust

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This Medicines Information Leaflet is produced locally to optimise the use of medicines by encouraging prescribing that is safe, clinically appropriate and cost-effective to the NHS.

Venous Thromboprophylaxis for Lower Limb Immobilisation in outpatients aged 16 or more

This Medicines Information Leaflet (MIL) is applicable to all patients aged 16 years or more at Oxford University Hospitals (OUH) with lower limb immobilisation. For guidance on the prevention of venous thromboembolism (VTE) in adult inpatients, please refer to MIL.

Assessing the risk of VTE

Lower limb immobilisation is associated with an increased risk of VTE. The incidence of VTE in patients with temporary plaster cast immobilisation is estimated anywhere between 5 - 39%, depending on the type of patient and the type of immobilisation.[1] There is limited data available with regard to VTE risk and other forms of lower limb immobilisation, such as removable boot and knee brace[2].

Current NICE guidance[3] states to 'consider pharmacological VTE prophylaxis with LMWH for people with lower limb immobilisation whose risk of VTE outweighs their risk of bleeding.' The NICE guidelines define immobilisation as 'any clinical decision taken to manage the affected limb in a way that would prevent normal weight-bearing status or use of that limb, or both'.

The process agreed upon locally at OUH is to risk assess all patients aged 16 years or more with a form of lower limb immobilisation (e.g. plaster cast, brace, removable boot). Patients should be assessed using the OxFord venous ThromboEmbolism risk Number (OFTEN) assessment. This has been developed to provide a method of risk stratification for the prevention of VTE in this setting, using the recognised NICE VTE risk factors. Appendix 1 shows the list of VTE risk factors to be discussed with the patient, and appendix 2 illustrates the overall pathway.

VTE risk should be discussed, with written information provided to all patients and a decision made regarding prophylactic dalteparin following discussion with the patient. This decision should be documented. The OUH guidance recommends that in patients with an OFTEN score of 2 or more, dalteparin should be initiated once daily, unless contraindicated. This should be continued until the end of full immobilisation or following a review in the clinic on an individual basis depending on mobility. In patients with an OFTEN score of less than 2, the VTE risk whilst in immobilisation is likely to be lower and therefore daily dalteparin is generally not advised.

VTE risk assessment and prescribing of dalteparin if appropriate should usually occur at the initial assessment and review as the clinical situation changes. However, for patients presenting to the Emergency Department who require a fracture clinic appointment the following day, this will occur the following day in the fracture clinic.

The prescribing and supply of dalteparin should be carried out by OUH.

Renal function and dose of dalteparin

When clinically indicated, a standard dose of dalteparin 5,000 units daily subcutaneously should be prescribed. However, in patients with a known GFR of less than 20, this should be reduced to 2,500 units daily. In the absence of a GFR in the preceding 6 months, patients should be screened for chronic

kidney disease as detailed in appendix 2 (box c). Monitoring the clearance of dalteparin (via heparin Xa assay) is not a necessary requirement in this cohort of patients.

Pregnancy or within 6 weeks of childbirth
Patients who are pregnant or within 6 weeks of childbirth should be discussed with a Consultant Obstetrician from the Silver Star unit to establish the dose and duration of thromboprophylaxis.

Patient counselling
All patients should be counselled for VTE risk, offered a patient information leaflet and advised to seek medical attention if increasing pain/swelling in leg or new chest pain or shortness of breath.

Alternative thromboprophylaxis options
If dalteparin is unsuitable (e.g. allergy, history of heparin induced thrombocytopenia, needle phobic patient or those who decline dalteparin due to porcine origin) please refer to venous thromboembolism (VTE) in adult inpatients MIL.

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References:

[1]The College of Emergency Medicine (2012). Guideline for the use of thromboprophylaxis in ambulatory trauma patients requiring temporary limb immobilisation. Accessed via https://rcem.ac.uk/wp-content/uploads/2021/10/Thromboprophylaxis_in_Ambulatory_Trauma_Patients_Requiring_Temporary_Limb_Immobilisation_Flowchart.pdf {19/05/17}

[2]Emergency Medicine Journal (2020). Thromboprophylaxis in lower limb immobilisation after surgery (TiLLI). Accessed via: https://emj.bmj.com/content/37/1/36 (07/03/2023)

[3] NICE NG89 (2018) Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism. Accessed via https://www.nice.org.uk/guidance/NG89 (13/06/2019)

Appendix 1: OxFord venous ThromboEmbolism risk Number (OFTEN) assessment for lower limb immobilisation in outpatients

To be completed by all patients (16 years or older) immobilised in a lower limb cast/boot

Patient's name_____ **Hospital/NHS number**_____

Date_____ **Date of Birth**_____

Please circle each score box that applies to you (the patient); please discuss with the doctor if uncertain.

	Score
Age 60 years or over	1
Obese (BMI greater than 30kg/m^2)	1
Varicose veins with phlebitis	1
Use of oestrogen-containing contraceptive therapy e.g. oral combined contraceptive pill	1
Use of hormone replacement therapy (HRT)	1
One or more long-term medical conditions requiring treatment such as heart disease, lung disease, bowel disease, hormone disease, inflammatory conditions	1
Known blood clotting disease/thrombophilia: - Low risk thrombophilia (heterozygous for Factor V Leiden mutation or prothrombin gene G20210A mutation) - High risk thrombophilia (anti-thrombin deficiency, protein C or S deficiency, homozygous/compound heterozygous Factor V Leiden mutation)	 1 2
Active cancer or cancer treatment	2
Pregnancy or within 6 weeks of childbirth	2
Previous personal history of leg vein clots (deep vein thrombosis) or lung clots (pulmonary embolus)	2
Known family history of leg vein clots (deep vein thrombosis) or lung clots (pulmonary embolus) in close family (brother, sister, father, mother)	2
Achilles tendon rupture	2
Recent surgery to lower limb or pelvis (with total anaesthetic and surgical time greater than 60 minutes)	2
TOTAL SCORE	

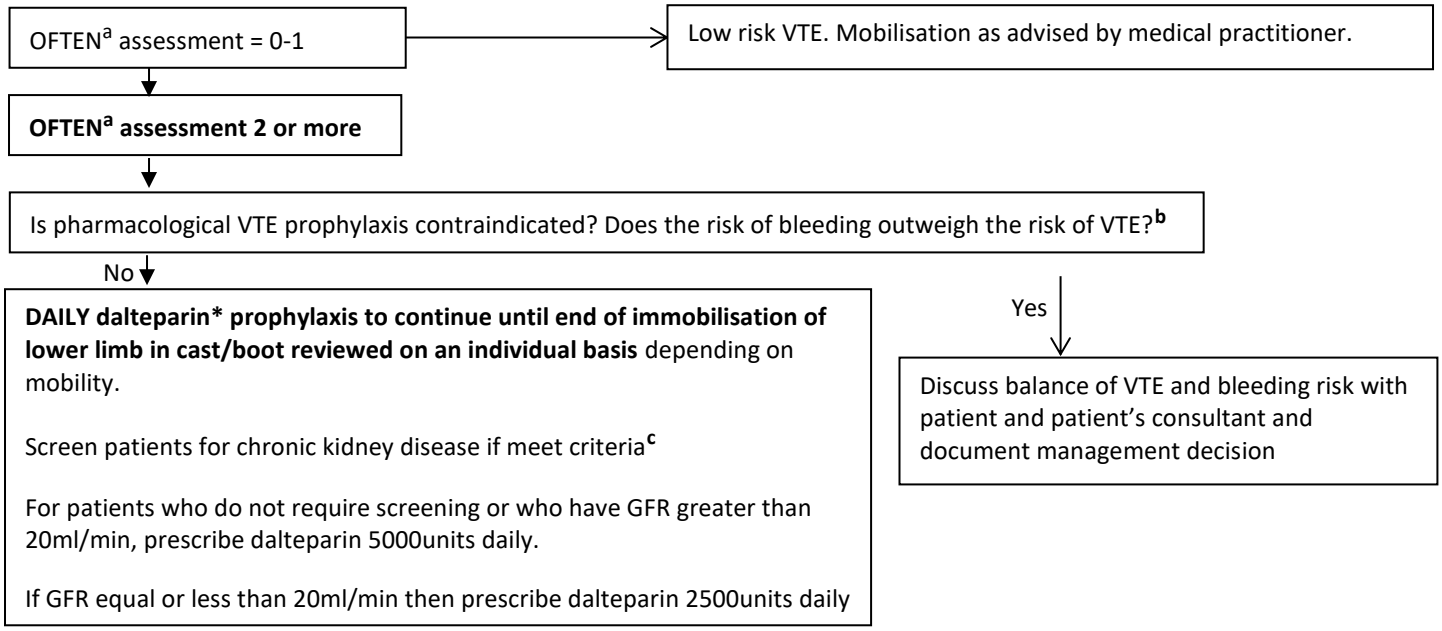
Signature of patient/clinician_____

SCORE	RECOMMENDATION
0-1	Mobilisation as advised by medical practitioners. Give the patient an information leaflet on 'VTE and plaster casts'.
2	**If no contraindication to dalteparin, prescribe dalteparin prophylaxis daily until end of immobilisation of lower limb in cast/boot reviewed on an individual basis** depending on mobility – refer to the flowsheet for 'Venous Thromboprophylaxis for Lower Limb Immobilisation in Outpatients'

Appendix 2: Venous Thromboprophylaxis for Lower Limb Immobilisation in Adult Outpatients

Document VTE risk assessment in all patients (16 or older) who are immobilised in a lower limb cast/boot using the OFTEN assessment[a]

Offer all patients written information on VTE risk.



Key and notes

Patients who are pregnant or within 6 weeks of childbirth should be discussed with a consultant obstetrician from the Silver Star Unit to establish the dose and duration of thromboprophylaxis

*Discuss with haematology for alternatives to dalteparin if history of heparin induced thrombocytopenia (HIT) or allergy

GFR – glomerular filtration rate (eGFR is a reasonable guide to GFR in most patients, but in patients at extremes of body weight GFR should be calculated using

a OxFord venous ThromboEmbolism risk Number (OFTEN) assessment for lower limb immobilisation in cast/boot

	Score
Age 60 years or over	1
Obesity (BMI greater than 30kg/m^2)	1
Varicose veins with phlebitis	1
Use of oestrogen-containing contraceptive therapy	1
Use of hormone replacement therapy	1
One or more significant medical comorbidities (for example): heart disease, metabolic, endocrine or respiratory pathologies, acute infectious diseases, inflammatory conditions	1
Low risk thrombophilia (heterozygous for Factor V Leiden mutation or prothrombin gene G20210A mutation)	1
High risk thrombophilia (anti-thrombin deficiency, protein C or S deficiency, homozygous/compound heterozygous Factor V Leiden mutation)	2
Active cancer or cancer treatment	2
Pregnancy or less than 6 weeks postpartum	2
Personal history of VTE	2
First-degree relative with a history of VTE	2
Achilles tendon rupture	2
Surgical procedure involving pelvis or lower limb with total anaesthetic time greater than 60 minutes	2
TOTAL SCORE	

b Risk factors for bleeding

- Active bleeding
- Acquired bleeding disorder (such as acute liver failure)
- Concurrent use of anticoagulants known to increase the risk of bleeding (such as warfarin with an INR 2 or more; direct/novel oral anticoagulants such as apixaban, rivaroxaban, edoxaban, dabigatran; or fondaparinux)
- Acute stroke
- Known thrombocytopenia (platelets less than 75x10^9/l)
- Uncontrolled systolic hypertension (230/120mmHg or higher)
- Untreated inherited bleeding disorder (such as haemophilia and von Willebrand disease)
- Lumbar puncture/epidural/spinal anaesthesia within the next 12 hours
- Lumbar puncture/epidural/spinal anaesthesia within the previous 4 hours
- Other high risk bleeding procedure such as neurosurgery, spinal surgery or eye surgery

c Risk factors for chronic kidney disease

- Diabetes
- Hypertension
- Cardiovascular disease (ischaemic heart disease, chronic heart failure, peripheral vascular disease or cerebral vascular disease)
- Structural renal tract disease, recurrent renal calculi or prostatic hypertrophy
- Multisystem diseases with potential kidney involvement – for example, systemic lupus erythematosus
- Family history of end-stage kidney disease or hereditary kidney disease

If a patient has a risk factor for chronic kidney disease, then check renal function (unless there is already a recent result within the last 6 months)