Weston Area Health NHS Trust

OP39 POL VTE v 4

Policy for the Prevention of Venous Thromboembolism (VTE)

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If you require this document in a different format, please telephone the Patient Advice and Liaison Service (PALS) on 01934 647216

VERSION CONTROL SHEET

Version Number	Issue Date	Revisions from Previous Issues

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1 Introduction

This policy is based mainly on the recommendations of:

- NICE clinical guideline 92: Venous thromboembolism: reducing the risk of venous thromboembolism (deep vein thrombosis and pulmonary embolism) in patients admitted to hospital. (January 2010).

There are also recommendations from the following:

- Report of the independent working group on the prevention of venous thromboembolism in hospitalised patients (March 2007)
- Prevention of Venous Thromboembolism: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8^{th} Edition). Chest 2008; 133(Supplement 6):381S-453S
- The prevention of hospital-acquired venous thromboembolism in the United Kingdom. Hunt JB. British Journal of Haematology, 2009, 144(5):642
- UK Thromboprophylaxis Forum, Contentious Areas in Thromboprophylaxis, multidisciplinary day, 3rd October 2014, Exeter

Venous thromboembolism (VTE) is the formation of a blood clot in a vein which may dislodge from its site of origin to cause an embolus. As well as causing death from pulmonary embolus (PE), VTE can also cause long term morbidity due to venous insufficiency and post-thrombotic syndrome, potentially leading to venous ulceration. It has been well recognised for a number of years that the formation of thrombi is associated with both inactivity and surgical procedures – in the case of surgery the risk increasing with the duration of the operation and the period of immobility. However, there is increasing evidence suggesting that hospitalised medical patients, in particular those with restricted mobility, are at increased risk for VTE. More VTE are diagnosed during the three months after hospitalisation than while in hospital.

2 Aim and Purpose

To summarise the need for risk assessment of VTE for all patients admitted to hospital. The policy refers to current recommendations for VTE prophylaxis for different risk groups.

Patient group

All clinical areas where patients are admitted for either inpatient or day care treatment.

Exceptions

- Patients who are planned to go home within 12 hours of admission
- Medical Day Case patients
- Urology patients having procedures as out-patients
- Continence and stoma patients
- AEC (Ambulatory Emergency Centre) patients
- Oncology patients in the oncology day unit
- Endoscopy patients
- Children under the age of 18 years

Standards / Audit

There will be regular audits of aspects of this policy.

Comments

Any comments on this document, should, in the first instance, be addressed to the authors.

3 Clinical Management

General Principles

All relevant patients (see exceptions above) admitted to Weston General Hospital will be assessed for risk of VTE and risk of bleeding on admission to hospital using one of the risk assessment tools. For surgical day cases this can be found on the “lilac form”. For all other relevant patients the tool is found on page 2 of the Trust Prescription Chart.

A **decision will be made and recorded on the risk assessment form as to how to manage the risk of VTE** based on the outcome of the risk assessment against the risk of bleeding.

The **documented mandatory VTE risk assessment** should be undertaken within two hours of the decision to admit emergency medical and surgical patients.

Elective surgical patients may have the risk assessment performed by nursing staff at the

preoperative assessment clinic and subsequently endorsed by medical staff. If the risk assessment form is completed by a nurse then the assessment must be checked and countersigned by a doctor.

Appropriate preventive treatment will be prescribed in accordance with the thromboprophylactic decision recorded on the risk assessment form.

Treatment must take into account any contraindications to chemical or mechanical therapies. Contraindications must be recorded in the patient's healthcare record.

Anti-embolism stockings (also known as Thrombo-Embolus Deterrent Stockings –TEDS) should only be applied to the patient after the risk assessment for VTE has been undertaken.

Contraindications to TEDS are found in paragraph 8.

Anti-embolism stockings (TEDS) should be prescribed separately from pharmacological methods on the Trust Prescription Chart

The risk of VTE should be reassessed within 24 hours of the patient's admission to hospital and when there is any change in the condition of the patient, or length of stay. Treatment should be adjusted accordingly.

Extended thromboprophylaxis is indicated in high risk patients. High risk patients include patients undergoing major joint surgery, patients having sustained a fractured neck of femur, or who have had major cancer surgery in the abdomen or pelvis. (Whilst this covers most of the relevant patients at Weston Hospital, it is not an exhaustive list - ref NICE CG 92).

Patients should not be allowed to become dehydrated unless clinically indicated.

Patients should be encouraged to **mobilise** as soon as possible according to the clinical circumstances. Treatment, both mechanical and pharmacological, should (unless contra-indicated) be continued until the patient no longer has significantly reduced mobility.

Patients should be encouraged to sit with their legs up when resting.

Patients should be shown how to exercise their legs if they are on bed rest.

Where clinical specialties have written guidelines for VTE prophylaxis in specific clinical

conditions, these should be evidence-based and submitted to the VTE Prevention Committee and the Quality and Governance Committee for approval.

Where in existence they will supersede the contents of this policy.

i.e. stroke – ref "stroke management proforma" found on the DMS, Orthopaedics – ref "orthopaedic arthroplasty peri-operative prescribing guidelines", Orthopaedics - ref "the orthopaedic bible for junior doctors.

If venous thromboembolism is suspected - see medical guidance – ref DMS

Treatment of confirmed VTE

This policy does not cover the treatment of patients who have a confirmed VTE. Consideration should be given to discussing the management of such patients with the on call medical team. See medical guidance – DMS

4 Surgical patients and patients with trauma

Risk of VTE in surgical patients

Patients admitted under the care of surgeons are considered to be at risk of VTE:

- if total anaesthetic and surgical time > 90 minutes **or**
- if surgery involves pelvis or lower limb and total anaesthetic + anaesthetic time > 60 minutes

or

- if acute surgical admission with inflammatory or intra-abdominal condition **or**
- if expected to have significant reduction in mobility **or**
- if any VTE risk factor present

Principles of general management in surgical patients

VTE risk assessment should be followed by the appropriate choice of thromboprophylaxis.

Mechanical thromboprophylaxis - offer mechanical, (one of anti-embolism stockings, foot impulse devices or intermittent pneumatic compression devices) as soon as possible after admission. Continue until no longer has significantly reduced mobility.

Pharmacological VTE prophylaxis should also be started as soon as possible after the risk assessment has been completed and should be continued until the patient no longer has significantly reduced mobility.

Regional anaesthesia should be considered, in addition to other methods of VTE prophylaxis, as it carries a lower risk of VTE than general anaesthesia. Patient preferences, suitability for regional anaesthesia and other planned method of VTE prophylaxis should be taken into account. If regional anaesthesia is used, then the timing of pharmacological prophylaxis should be carefully planned to minimise the risk of epidural haematoma. The risks and benefits of stopping **pre-existing established anticoagulation** or antiplatelet therapy 1 week before surgery should be assessed. This assessment may involve discussion between members of different clinical disciplines.

Patients should be advised to stop **oestrogen containing oral contraceptives or hormone replacement therapy** 4 weeks before elective surgery. If oral contraception is stopped, advice should be provided on alternative contraceptive methods.

Pharmacological or mechanical VTE prophylaxis should not routinely be offered to patients having surgery with local anaesthesia by local infiltration with no limitation of mobility.

Orthopaedic surgery

Elective hip replacement (THR), total knee replacement (TKR) and hip fracture surgery

Patients undergoing THR, TKR and Hip Fracture Surgery are considered as high risk for VTE. Mechanical prophylaxis is particularly important in the period around the operation when patients are not protected by pharmacological thromboprophylaxis. Prolonged pharmacological thromboprophylaxis (28 – 35 days) should be considered for patients undergoing THR surgery.

Prolonged pharmacological thromboprophylaxis (10 - 14 days) should be considered for patients undergoing TKR surgery.

Prolonged pharmacological thromboprophylaxis (28 – 35 days) should be considered for patients undergoing surgery for the correction of fractured neck of femur.

For patients who are at high risk of bleeding undergoing either THR, TKR or hip fracture surgery, mechanical thromboprophylaxis with intermittent pneumatic compression devices should be considered. Patients are likely to have swollen legs after their operation and therefore it is important to ensure that patients' legs are re-measured after surgery to ensure stockings remained correctly fitted.

Patients with lower limb plaster casts

Patients with a lower limb plaster cast should be given verbal and written information about the risks of VTE and how to prevent them ("Advice for Patients in Plaster Casts").

Patients with a lower limb plaster cast should have a simple VTE risk assessment, in line with NICE recommendations.

5 Medical Patients

Risk of VTE in medical patients

Medical in-patients are considered to be at risk of VTE:

- If mobility significantly reduced for 3 days or
- if expected to have ongoing reduced mobility relative to normal state

plus

- any VTE risk factor.

Principles of management

VTE risk assessment should be followed by the appropriate choice of thromboprophylaxis.

Pharmacological VTE prophylaxis should be started as soon as possible after the risk assessment has been completed and should be continued until the patient is no longer at risk of VTE.

Patients with stroke

Do NOT offer TED stockings

Prophylactic-dose LMWH should be offered to patients with a stroke if:

- a diagnosis of haemorrhagic stroke has been excluded, **and**
- the risk of bleeding (haemorrhagic transformation of stroke or bleeding into another site) is assessed to be low, **and**
- the patient has one or more of:
    - major restriction of mobility
    - previous history of VTE
    - dehydration
    - co morbidities (such as malignant disease)

LMWH should be continued until either the patient's mobility is no longer increasing or they are discharged from hospital.

Consider a foot impulse device or intermittent pneumatic compression device where pharmacological methods are contra-indicated

6 Recording the outcome of risk assessment

A clinical decision with regard to VTE prophylaxis will be made for each patient and recorded on the "lilac form" in the day case unit, or the prescription chart for all other patients.

The clinical decision with regard to VTE prophylaxis should be reviewed within 24 hours of the patient's admission to hospital and when there is any change in the condition of the patient or length of stay. A record of this review should be made on the prescription chart

7 Guidance in the use of pharmacological thromboprophylaxis

Low Molecular Weight Heparin (LMWH)

Tinziparin is the currently preferred LMWH preparation in use in the Trust.

An appropriate dose and schedule for Tinziparin (3500 or 4500 units) should be prescribed according to the weight of the patient if the VTE risk assessment shows that the patient is at either moderate or high risk of VTE. (If epidural or spinal anaesthesia is being used in patients receiving a preoperative anticoagulant, insertion of the spinal or epidural needle should be delayed until the anticoagulant effect of the medication is minimal (usually at least 12 hours after a subcutaneous dose of heparin)). Similarly, removal of epidural catheters should be done when the anticoagulant effect of the prophylaxis is at a minimum (usually just before the next scheduled injection). Anticoagulant prophylaxis should usually be delayed for at least 4 h after the epidural catheter is removed.

It is recommended that Tinziparin should usually be prescribed to be administered in the evening rather than the morning to minimize interference with regional anaesthesia techniques in patients undergoing surgery.

LMWH bio-accumulates in the presence of renal impairment and, in such circumstances, unfractionated heparin (UFH) should be used instead (see below).

Before prescribing a LMWH, staff should assess the patient for suitability with regard to the risk of this treatment. In particular, patients at high risk of bleeding or with hypersensitivity to heparins (including heparin-induced thrombocytopenia) may be deemed unsuitable.

Unfractionated heparin (UFH)

In general, LMWH is preferred to UFH for prophylaxis against VTE as the safety profile is better. However, LMWH preparations have a longer half-life than UFH and in patients with renal failure (estimated GFR <30 ml/min or creatinine >175 micromol/l) consideration should be given to using either a shorter-acting UFH or a lower dose of Tinziparin than normal (i.e. 2500 units daily).

Aspirin and other antiplatelet agents

Neither aspirin alone nor other antiplatelet agents should be regarded as adequate thromboprophylaxis for VTE.

VTE prophylaxis for patients already having antiplatelet or anticoagulant therapy to treat other conditions

Consider offering additional mechanical or pharmacological VTE prophylaxis if patient is at risk of VTE.

- If the risk of VTE outweighs the risk of bleeding consider offering pharmacological prophylaxis according to the reason for admission.
- If the risk of bleeding outweighs the risk of VTE, offer mechanical VTE prophylaxis.
- Do not offer additional pharmacological or mechanical VTE prophylaxis to patients who are taking vitamin K antagonists and who are within their therapeutic range, providing anticoagulant therapy is continued
- Do not offer additional pharmacological or mechanical VTE prophylaxis to patients who are having full anticoagulant therapy (such as Fondaparinux, LMWH, UFH or “NOAC's” (novel oral anticoagulants)).

8 Guidance in the use of mechanical forms of thromboprophylaxis

Anti-Embolism stockings (graduated compression stockings).

Anti-embolic stockings are used prophylactically to prevent deep vein thrombosis and pulmonary embolism certain in non ambulatory patients who are assessed to be at risk of VTE.

Anti-embolism stockings can be a therapy on their own or used as an adjunct to chemical thromboprophylaxis in patients who have been clinically assessed. They are particularly important in the prevention of deep vein thrombosis where anticoagulant therapy is contra-indicated.

Prescribing and applying anti-embolism stockings

Anti-embolic stockings should not be prescribed for patients who have:

- Suspected or proven peripheral arterial disease / weak or absent foot pulses
- Peripheral arterial bypass grafting
- Peripheral neuropathy or other causes of sensory impairment
- Any local conditions in which stockings may cause damage e.g. fragile'tissue paper' skin, dermatitis, heel pressure ulcers, gangrene or recent skin graft.
- Known allergies to the components/material of the stocking.
- Cardiac failure
- Severe leg oedema or pulmonary oedema from congestive cardiac failure
- Unusual leg shape or size / major limb deformity preventing correct fit.
- Acute cellulitis

Use caution and clinical judgment when applying stockings over venous ulcers or wounds. Staff who fit stockings should be trained in their use and have their competence assessed. In addition they should be able to show patients how to use them.

Staff need to be aware of the contraindications to the use of anti-embolism stockings and that the incorrect fitting of anti-embolic stockings can be detrimental to the patient. Evidence of vascular insufficiency must be sought before the application of anti-embolic stockings. A record that this has been done should be made in the patient's medical records. If arterial disease is suspected, expert opinion should be sought before stockings are applied.

The patient's legs should be measured and the correct stocking size should be used to provide a calf pressure of 14-15 mm Hg.

Patients should be encouraged to wear the stockings day and night from admission until they no longer have significantly reduced mobility.

Stockings should be removed daily to allow washing of the legs for hygiene purposes and to inspect skin condition. More frequent inspection of the skin, particularly over the heels and bony prominences, should occur in patients with poor skin integrity or sensory loss. A record that the stockings have been applied satisfactorily should be made on the prescription chart on a daily basis.

The use of stockings should be discontinued if there is marking, blistering or discolouration of the skin, or if the patient has pain or discomfort. If suitable, intermittent compressions devices

may be offered as an alternative.

Intermittent pneumatic compression devices

Intermittent pneumatic compression devices may be used instead of anti-embolism stockings. Patients who have these devices should be encourage to use them for as much of the time as possible and practical, both when in bed and when sitting in a chair.

These devices should not be offered to patients with a known allergy to the material of manufacture.

Vena Cava Filters

Temporary inferior vena cava filters should be considered on an individual basis for patients who are very high risk of VTE (such as a previous VTE event or active malignancy) if mechanical and pharmacological VTE prophylaxis are contraindicated.

9 Information

All patients should be offered oral and written information regarding Venous Thrombo-Embolism. For elective surgery patients this will be at the pre-operative clinic. For all other appropriate patients this will be at the time of admission. All patients should again have the information offered at discharge. A short guide – “Venous Thrombo-Embolism” will be offered to all appropriate patients as above. A longer guide “Blood Clots and Deep Vein Thrombosis” is available on request. Patients having lower-limb plaster casts are provided with the booklet “Advice for Patients in Plaster Casts” by the plaster technicians in hours, or by the Emergency Department staff out of hours. These documents cover the essential information pertaining to the topic.

All patients should be given oral and written information on the signs and symptoms of deep vein thrombosis and pulmonary embolism, the correct use of prophylaxis at home and the implications of not using prophylaxis correctly as part of their discharge plan. Patients should also be told to seek help if they have any problems using prophylaxis (if discharged with prophylaxis) or if they suspect a VTE episode.

10 Education

An educational programme should ensure that all clinical staff caring for patients have ongoing training and competency assessment with regard to VTE risk assessment and thromboprophylaxis. For medical staff his will be via the induction process for all junior doctors and subsequently included in specialty induction and on going Foundation training programs.

11 Audit

There should be regular audits to ensure that the Trust complies with NICE Quality Standards. Root cause analysis should take place for all patients who have a Hospital Associated Thrombosis – i.e. patients who have a VTE and who have been in hospital during the three months prior to the diagnosis of VTE. To facilitate this all positive leg Doppler venograms and CT pulmonary angiograms are coded by the reporting radiologist to enable patients specific retrieval of data and subsequent analysis.

Daily audits are undertaken to evaluate compliance with risk assessment, and intermittent audits to assess appropriate prophylaxis are performed. Data is collected and reviewed as part of the executive integrated Board report.

12 Monitoring

It will be the responsibility of the Venous Thromboembolism Committee to monitor the effectiveness of this policy.