Gateshead Health
NHS Foundation Trust

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Thromboprophylaxis Guideline for Medical Patients

Approved by:	VTE Committee
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Next Review Date:	Author:
January 2022	Rob Allcock, Gavin Mankin, Scott Marshall
	Ruth Petch

This clinical guideline/protocol supersedes all previous issues.

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THROMBOPROPHYLAXIS GUIDELINES FOR MEDICAL PATIENTS

1. Development

This guideline was developed by the Gateshead Health NHS Foundation Trust Thrombosis Committee in consultation with the Haematologists and the Medical Directorate.

The sub-group that developed this guideline was as follows;
Mr. G Mankin (Medicines Governance Pharmacist), Dr. R Allcock, and Dr. S Marshall (Consultant Haematologist).

It has been updated in October 2016 by Dr Ruth Petch (Consultant Acute Physician) in consultation with Dr Annette Nicolle (Consultant Haematologist) and Mr. Neil Gammack (Chief Pharmacist).
It has been ratified by the VTE committee on 21/10/2016.

2. Background

Studies have demonstrated that medical patients are at increased risk of venous thromboembolism (VTE). [1] Incidence of VTE in the general population is 0.1 % but there have been reports of this rising up to 20% in medical patients. [2,3] Thromboprophylaxis in medical patients has been shown to reduce the risk of VTE's.[4]

3. Aim

This protocol aims to ensure that medical patients are appropriately treated with thromboprophylaxis therapy to prevent development of a VTE. The care pathway (page 5) and risk assessment tool on page 6 aims to guide the clinician to assess whether the patient requires VTE prophylactic treatment with a Low Molecular Weight Heparin (LMWH) or TED stockings.

4. Implications

In 2006 the Trust Policy Forum and Drug & Therapeutics Committee have approved the prescribing of tinzaparin for prophylaxis of VTE in medical patients despite it being unlicensed for this indication. There is no evidence to suggest that Tinzaparin is not effective in medical patients (as opposed to surgical patients).

The policy applies to all medical patients with the following exceptions:

Pregnant patients
For women who are pregnant or have given birth within the last 6 weeks consult Gateshead Health NHS Foundation Trust Obstetric Department Protocols.

Patients admitted with acute stroke
Patients admitted with acute stroke should not routinely be offered pharmacological thromboprophylaxis in the acute phase but most patients will require pharmacological VTE prophylaxis by day 7 as long as there are no contraindications.
Anti-embolism stockings should not be used in patients with acute stroke. Intermittent pneumatic compression can be used as mechanical VTE prophylaxis in patients with immobility admitted within 3 days of acute stroke.

Patients reaching their end of life
Palliative patients who are presumed to have reached the last days of their life should not routinely be offered VTE prophylaxis as part of end-of-life care.

5. Dosing and Duration of Tinzaparin Treatment For Medical Thromboprophylaxis

The dose of Tinzaparin for thromboprophylaxis is based on body weight. Therefore, for patients to be dosed correctly they must have their weight measured and recorded. Tinzaparin must be given by a once daily subcutaneous injection at 17:00 at the following dose:

- 2500 units/day if body weight 30 -50kg
- 3500 units/day if body weight 50-70kg

- 4500 units/day if body weight 70-130kg
- Consider dosing at 50 units/kg/day if body weight below 30kg or above 130kg.

Dose reduction is required in renal impairment, according to the following guidelines:

- eGFR >30ml/min - dose as above
- eGFR 20-30ml/min - dose reduction to 2500 units/day
- eGFR < 20 ml/min - Consider 2500 units/day if benefits outweigh risks. Ensure senior review.

Tinzaparin should be continued until the patient is fully mobile for 24 hours or discharged.
Consider continuation of Tinzaparin in patients discharged with ongoing intravenous treatment in the community and ongoing risk of VTE.
Tinzaparin should be discontinued 12 hours prior to surgery or invasive procedures (e.g lumbar puncture, pleural drain).

6. Monitoring of Tinzaparin Thromboprophylaxis

Tinzaparin can cause thrombocytopenia but this is rare in medical patients. Platelet counts should be measured in patients receiving heparin treatment for longer than 5 days and the treatment should be stopped immediately in those who develop thrombocytopenia.
Patients discharged on Tinzaparin will need to have their platelets measured by their GP on day 7 of treatment.

7. Implementation & Audit

The updated guidelines will be launched following approval by the VTE committee in October 2016. It will be uploaded onto the intranet and distributed via email to all relevant staff. Relevant changes will be highlighted at Educational Meetings and the Medical Grand Round. An updated poster of the treatment algorithm with new dosing recommendations will be widely circulated across the Gateshead Health NHS Foundation Trust.

This policy will continue to be reviewed on a biannual basis or in the intervening period if new evidence is published that means an update or revision is required before two years have passed.

8. References

NICE Clinical Guideline Clinical Guideline 92. Venous thromboembolism: reducing the risk. January 2010 updated June 2015

British National Formulary October 16 (https://www.medicinescomplete.com/mc/bnflegacy/current/)

Lindblad B, Sternby NH, Bergqvist D. Incidence of venous thromboembolism verified by necropsy over 30 years. BMJ 1991; 302: 709-11

Anderson FA Jr, Wheeler HB, Goldberg RJ, Hosmer OW, Forcier A. The prevalence of risk factors for venous thromboembolism among hospital patients. Arch Intern Med 1992;152:1600-4

Vanden Belt et al. Fixed dose subcutaneous low molecular weight heparins versus adjusted dose unfractionated heparin for VTE. Cochrane Review. In the Cochrane Library 2001.
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Keeling D, Davidson S, Watson H. The management of heparin induced thrombocytopenia. British Committee for Standards in Haematology. 2005.

Clagett GP, Anderson FA Jr, Prevention of venous thromboembolism Chest 1998;114: Suppl:5315-5605

CARE PATHWAY

Patient Admitted to Hospital

- Assess VTE Risk
- Assess bleeding risk
  (Perform as part of the admission process)

- Balance risk of VTE and bleeding
- Offer VTE prophylaxis if appropriate.
- Do not offer pharmacological VTE prophylaxis if risk of bleeding outweighs risk of VTE **but**
- offer mechanical VTE prophylaxis instead (anti-embolism stockings) as long as no contraindications*

Reassessment

Patients should be reassessed within 24 hours of admission as part of routine senior clinician review to:

1. Ensure that methods of VTE prophylaxis being used are suitable
2. Ensure VTE prophylaxis being used correctly
   - Identify adverse events resulting from VTE prophylaxis

Reassessment must also occur whenever the clinical situation changes

***Contraindications for the use of anti-embolism stockings (NICE CG 92)**

- suspected or proven peripheral arterial disease
- peripheral arterial bypass grafting
- peripheral neuropathy or other causes of sensory impairment
- any local conditions in which stockings may cause damage (fragile 'tissue paper' skin, dermatitis, gangrene or recent skin graft)
- known allergy to material of manufacture
- cardiac failure
- severe leg oedema or pulmonary oedema from congestive heart failure
- unusual leg size or shape

RISK ASSESSMENT FOR VENOUS THROMBOEMBOLISM (VTE)

	Tick		Tick
Medical patient expected to have ongoing reduced mobility relative to normal state		Medical patients **NOT** expected to have significantly reduced mobility relative to normal state	
ASSESS FOR THROMBOSIS & BLEEDING RISK		Risk assessment now complete	

ASSESS THROMBOSIS RISK

Patient Related	**Tick**	**Admission Related**	**Tick**
Active cancer or cancer treatment		Significantly reduced mobility for 3 days or more	
Age > 60		Hip or knee replacement	
Dehydration		Hip fracture	
Known thrombophilias		Total anaesthetic + surgical time > 90 minutes	
Obesity (BMI > 30 kg/m2)		Critical care admission	
One or more significant medical co-morbidities (e.g. heart disease; metabolic, endocrine or respiratory pathologies; acute infectious diseases; inflammatory conditions)		Acute surgical admission with inflammatory or intra-abdominal condition	
Personal history or first-degree relative with a history of VTE		Surgery involving pelvis or lower limb with a total anaesthetic + surgical time > 60 minutes	
Use of hormone-replacement therapy		Surgery with significant reduction in mobility	
Use of oestrogen-containing contraceptive therapy			
Varicose veins with phlebitis			
Pregnancy or < 6 weeks post-partum (see NICE guidance for specific risk factors)			

ASSESS BLEEDING RISK

Patient Related	**Tick**	**Admission Related**	**Tick**
Active bleeding		Neurosurgery, spinal surgery or eye surgery	
Acquired bleeding disorders e.g. acute liver failure		Other procedure with high bleeding risk	
Concurrent use of anticoagulants known to increase the risk of bleeding (e.g. warfarin with INR > 2)		Lumbar puncture/epidural/spinal anaesthesia expected within the next 12 hours	
Acute stroke		Lumbar puncture/epidural/spinal anaesthesia within the previous 4 hours	
Thrombocytopenia (platelets < 75 x 10^9/l)			

Uncontrolled systolic hypertension (230/120mmHg or higher)			
Untreated inherited bleeding disorders (such as haemophilia and von Willebrand's disease			

Thromboprophylaxis Appropriate but Tinzaparin contra-indicated:

Consider TED Stockings (if NOT contraindicated*)

Tinzaparin Thromboprophylaxis Appropriate:

Tinzaparin s/c: 2500 units/day if 30-50kg
At 17:00 3500 units/day if 50-70kg
4500 units/day if 70-130kg
50 units/kg/day if < 30kg or > 130kg
Dose reduction required in renal impairment

RE-ASSESS FOR THROM
It is recommended that re-assessment of risk of VTE and bleeding is within 24 hours of admission and whenever clinical situation changes

Who	When	What
Patients having elective surgery	Before admissior	▪ Advise women to consider stopping oestrog containing oral contraception or HRT 4 weel before surgery. ▪ Assess the risks and benefits of stopping antiplatelet therapy for 1 week before surge ▪ Plan anesthesia
All patients	At admission	▪ Assess risk of VTE. ▪ Assess risk of bleeding. ▪ Offer patients verbal & written information VTE. ▪ Offer VTE prophylaxis in appropriate.
All patients	During ward-based care	▪ Reassess risks of VTE and bleeding. ▪ Review VTE prophylaxis. ▪ Monitor use of mechanical VTE prophylaxis. ▪ Keep patients hydrated and encourage then mobilize as soon as possible.
All patients	Before discharge	▪ Offer information on signs and symptoms o and PE. ▪ Offer information on the importance of seek medical help and who to contact if DVT, PE other adverse event suspected.
Patients discharg with VTE prophylaxis	Before discharge	▪ Offer information on correct use and duratic VTE prophylaxis to be used at home and wh contact for help. ▪ Ensure patients are able to use/administer VTE prophylaxis at home, or have someone available to help them. ▪ Offer information on signs and symptoms o adverse effects related to VTE prophylaxis a who to contact for help. ▪ Inform GP that patient has been discharged VTE prophylaxis on discharge summary.

SUMMARY OF CARE