Royal Berkshire NHS
NHS Foundation Trust

Shared Care Guideline

For the treatment and prevention of Venous Thromboembolic disease (DVT/PE)

For the latest information on interactions and adverse affects, always consult the
latest version of the Summary of Product Characteristics (SPC), which can be found at: http://www.medicines.org.uk/

Approval and Authorisation

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Change History

Version	Date	Author	Reason
2.0	Jan 13	Rebecca Sampson, Consultant Haematologist	Revised protocol

Contents list (use if protocol longer than 7 pages)

Introduction

Until recently, the only therapeutic options available to treat or prevent thromboses in patients with venous thromboembolic disease were unfractionated heparin and the oral anticoagulants (warfarin or more rarely acenocoumarol or phenindione). As such, management of patients with acute venous thromboembolic disease was undertaken on an inpatient basis. More recently, low molecular weight heparins (LMWH), which are administered subcutaneously once or twice daily, have become available. LMWHs are now widely used for a number of licensed and unlicensed indications including the prevention and treatment of venous (and sometimes arterial) thromboses in selected patient groups.

Principles of Shared Care Arrangements for the Prescription of Tinzaparin

(a) Target Patient Groups

The main target population includes those adult patients prescribed tinzaparin for more than 14 days by a secondary care specialist, cancer patients undergoing cancer therapies or with metastatic malignancy who are not being seen at least every 4 weeks at the RBHFT by a clinician, injectable drug users, patients in whom it has not been possible to stabilise on oral anticoagulant therapy.

The other group are those patients with a known thrombotic risk who are undergoing a short term increase in their thrombotic risk such as long haul flight and require only a short supply of LMWH.

Patients initiated on therapy are suitable for referral to a primary care service once monitoring for HIT is no longer required (usually after 14 days of treatment). However, the practice and the hospital may agree to transfer patients sooner where they judge this clinically appropriate.

For intravenous drug users the procedure for providing LMWH is different.

The categories of patient suitable for general practice prescription of tinzaparin are as follows:

Treatment of venous thromboembolic disease in:

- Cancer patients undergoing cancer therapies or with metastatic
- Malignancy.
- *Patients within 1 month of a VTE who become sub-theraputic - INR below 1.6.*
- *Injectable drug users*
- *Patients in whom it has not been possible to stabilise on oral anticoagulant therapy and who are not suitable for the new oral anticoagulant medications.*
- The occasional prescription for high risk patients undergoing high risk activities such as long haul flights.

Patients for whom The Royal Berkshire Foundation Trust will provide LMWH prescriptions and are not covered by this policy:

- Pregnant patients with VTE disease or prophylaxis will have their LMWH prescribed the Obstetric department of the RBHFT**.**

- High risk surgical patient who require extended thromboprophylaxis, including patients immobilised in a lower limb cast and all orthopaedic patients who require anticoagulation for 6 weeks and have not been prescribed pradaxa or rivoroxaban.

- Thrombosis associated with central venous access lines.

- For patients on warfarin who are going to be admitted for planned surgery / procedures where the warfarin should be stopped will be managed as per the **"Warfarin and Surgery Guidelines"** (available on the intranet) with LMWH heparin prescribed as per those guidelines. The hospital will take overall responsibility for these patients and will ensure that adequate prophylaxis is provided when they are admitted to hospital. The admitting team will on discharge provide LMWH and restart warfirinisation and contact the anticoagulant clinic to let them know the patients discharge date so that adequate follow up can be arranged.

i.e. These patients are not part of the shared care guidelines but the responsibility of the RBHFT.

(b) Exclusions for LMWH

Patients with the following conditions are excluded from this protocol:
• History of Heparin Induced Thrombocytopenia
• Renal impairment (calculated creatinine clearance <30mL/min)
• Significant hepatic impairment
• Active gastric or duodenal ulceration or oesophageal varices
• Haemophilia and other inherited bleeding disorders / major bleeding disorders
• Thrombocytopenia with platelets <50
• Recent cerebral haemorrhage
• Severe hypertension
• Recent neurosurgery or eye surgery
• Acute bacterial endocarditis
• Hypersensitivity to tinzaparin
• Children under 16 years
• Low body weight

(c) Initial Prescription

A decision is made for a patient to be commenced on tinzaparin by the patient's clinical team. This is discussed with the patient and he or she is given a drug information sheet, detailing side effects and monitoring requirements.

Baseline investigations are requested and, if satisfactory, the patient is commenced on treatment. The patient is given a prescription for a 14 day supply of the drug. In most circumstances the patient or carer is advised on how to perform the administration of the drug, otherwise a referral is made to the district nurse.

Arrangements are made for monitoring to be performed (for heparin induced thrombocytopenia and hyperkalaemia) if appropriate. The patient's practice will be informed of the proposed treatment plan and monitoring arrangements and if the screening for HIT and other monitoring is satisfactory the patient will be given a further 14 days supply which will be the last prescription for LMWH from the RBHFT and the patients GP will take over prescribing the LMWH at this point.

Intravenous Drug Users

For Intravenous drug users in whom a diagnosis of VTE has been made will be prescribed 1 weeks supply of LMWH. They will then return to the hospital and will be assessed with a HIT screen and U+E's if needed by the clinical team that they were under at the RBHFT at the time of diagnosis. Once this has been done they will be given a further 2 week prescription and further prescriptions after this time will be provided by the patients GP.

(d) Dosage

For full anticoagulant treatment for venous thromboembolism tinzaparin will be initiated by the hospital team. This will be a full therapeutic, weight adjusted dose (175 IU/kg, rounded off to nearest 0.05mL of appropriate syringe) administered subcutaneously every 24 hours.

For thromboprophylaxis the hospital clinical team will perform a risk assessment and prescribe a prophylactic dose of either 3500iu or 4500iu depending on the patients clinical risk and weight.

For warfarin patients follow the "Warfarin and Surgery Guidelines".

(e) Administration

Attempts will be made by the Royal Berkshire Foundation Trust to train all patients requiring outpatient administration of tinzaparin to self-inject. If this is not possible, attempts will be made to train a carer to administer the LMWH. In some instances it will be necessary to make a referral to district nurses to administer the therapy.

(f) Referral from secondary care

A formal referral must be made from the RBHFT clinic initiating tinzaparin treatment. Referral should be made after monitoring for heparin-induced thrombocytopenia (HIT) has been completed. A medical and medication history must be provided, including:

• Drug prescribed
• Name of responsible consultant and contact details
• Indication for prescription
• Date started
• Proposed duration
• Current dose
• Relevant conditions
• Any monitoring variations outside normal range (e.g. known to have mild thrombocytopenia)
• Interval before patient next due to be seen by STHFT for disease review
• Any specific instructions for the practice

This referral to the practice must be made on the appropriate form (attached) Treatment should only be discontinued by the GP after discussion with the responsible hospital clinician (unless there are exceptional circumstances). This will be confirmed by a letter from the GP to the patient and/or carer.

(g) Monitoring

When the appropriate monitoring for HIT and hyperkalaemia have been performed (and results are satisfactory) the responsibility for re-prescribing the drug and further monitoring for hyperkalaemia (if appropriate in higher risk patients) will pass to the patient's practice. The practice will be informed of this transfer of prescribing responsibilities and the patient provided with a further 2 weeks' supply of drug by the hospital pharmacy.

Monitoring of tinzaparin for heparin-induced thrombocytopenia (HIT) is not required at all in some patient groups (e.g. pregnant patients receiving LMWH for prophylaxis), whereas others usually require only limited monitoring between days 7 and 14. This will be carried out by RBHFT. Occasional patients will require ongoing monitoring for hyperkalaemia.

For warfarin patients who are still on LMWH on discharge between days 7 and 14 will have monitoring for HIT arranged by the RBHFT.

Although a hospital consultant initiates treatment, the consultant will not provide the ongoing prescriptions or monitoring for hyperkalaemia if required.

(h) Clinic Review

The patient will normally be attending for regular disease review by secondary care at intervals determined by their clinical status. This can either be by the clinical team initiating tinzaparin treatment, or for a one off assessment of thrombosis risk.

(i) Contacts

If any problems occur or you have any concerns please contact the relevant specialist:
Consultant initiating tinzaparin treatment
(contact details on referral form / clinic letters)
Anticoagulant Clinic RBHFT:

On-call haematologist via RBHFT switchboard, or bleep 922: (out of hours - via RBHFT switchboard): 0118 3225111

Summary of Responsibilities

(a) Responsibilities of the Hospital

• Initiate treatment with tinzaparin and provide the first 14 days of treatment

• Instruct patient or carer on administration (or arrange for district nurse to be involved)

• Ensure patient has a basic understanding of what the drug is, why it is being used, awareness of side effects and arrangements for further prescriptions

• Monitor for heparin-induced thrombocytopenia or hyperkalaemia if required for the first 14 days of treatment

• Make formal referral using the appropriate transfer form

• Initiating consultant to keep patient under clinical review ,assessing need for ongoing tinzaparin treatment for up to 6 months or refer to Dr. Chris Davies or a consultant haematologist to assess need for longer-term treatment

• Provide advice and support if problems occur during treatment using the contact details provided

• Give direction in most cases as to when treatment should be discontinued

• Conduct annual audit / review as deemed appropriate

(b) Responsibilities of General Practice

• Accept referral from secondary care to take on continued prescribing of tinzaparin after initial 14 days (or sooner if agreed)

• Reinforce educational points provided by the hospital

• Monitor for hyperkalaemia in those patients at higher risk of raised plasma-potassium concentrations (those with diabetes mellitus, chronic renal failure, acidosis, raised potassium concentrations, those taking potassium-sparing drugs / potassium supplements or patients on long-term treatment). Monitoring should be done at least once a month in these patients

• Keep records / register of all patients for whom tinzaparin has been prescribed (should include relevant details such as indication, concurrent conditions, dose, start date, expected duration, monitoring details, adverse incidents, consultants involved in treatment, any advice or actions)

• Discontinuation of treatment if patient is experiencing severe side effects and hospital is not contactable

• Confirmation letter to patient and/or carer if treatment is discontinued

• Conduct audit / annual review as deemed appropriate

(c) Patient responsibilities

- Patients / carers are responsible for using medication as prescribed.
- Patients are expected to attend for blood tests when required.
- Patients / carers will report problems with treatment to the GP or A&E in emergencies.

Monitoring:

Secondary care:
baseline FBC, coagulation screen, U&E / creatinine &LFTs
• If unfractionated or low molecular weight heparin has been given within 100 days: check FBC 24 hours after starting therapy.
• Surgical and medical patients: FBC to be checked after 7 – 10 days of treatment.
• Pregnant patients receiving treatment doses of tinzaparin: FBC to be checked after 7 – 10 days of treatment.
• Pregnant patients receiving prophylactic doses of tinzaparin: no requirement to monitor.
• Patients being monitored for HIT and those at risk of hyperkalaemia to have potassium level checked weekly for 2 weeks.

Primary care:
U&Es at least monthly if at high risk of hyperkalaemia
(see under side effects / caution section).

Contraindications:
• History of Heparin Induced Thrombocytopenia
• Renal impairment (calculated creatinine clearance <30mL/min)
• Significant hepatic impairment
• Active gastric or duodenal ulceration or oesophageal varices
• Haemophilia and other inherited bleeding disorders / major bleeding disorders
• Thrombocytopenia with platelets <50
• Recent cerebral haemorrhage
• Severe hypertension
• Recent neurosurgery or eye surgery
• Acute bacterial endocarditis
• Hypersensitivity to tinzaparin

Heparin Induced Thrombocytopenia (HIT)

HIT usually presents between 5 and 14 days after starting therapy. This should be considered if platelet count falls below normal range, or to less than 50% of
baseline platelet count. RBHFT will undertake monitoring for HIT during first 2 weeks of therapy, if indicated.

If HIT is suspected, refer as emergency to haematology
(see contact details below).

If patient develops thrombocytopenia, skin reaction or new thrombosis within 14 days of starting therapy, HIT should be considered. Refer as emergency to haematology for assessment.

Common side effects / caution needed if:

• Hyperkalaemia: Heparin inhibits aldosterone secretion and may cause hyperkalaemia (patients with diabetes, chronic renal failure, acidosis, raised potassium or taking potassium-sparing drugs most susceptible). Risk increases with duration of therapy.
• Haemorrhage
• Thrombocytopenia (monitoring for HIT required by secondary care as above)
• Injection site reactions (consider change to alternative tinzaparin)
• Osteoporosis (risk lower with tinzaparin than with unfractionated heparin)
• Skin necrosis and hypersensitivity reactions

Pregnancy and Lactation

Heparins, including LMWHs do not cross the placenta and are the anticoagulant of choice for prevention and treatment of pregnancy-associated VTE. Guidelines for treatment have been published by the Royal College of Obstetricians and Gynaecologists to support this.
As benzyl alcohol may cross the placenta, the use of tinzaparin formulations containing benzyl alcohol (green multi-dose vials only) should be avoided during pregnancy.

The use of tinzaparin in women with imminent miscarriage is contraindicated.

Warfarin and LMWH are both considered compatible with breast feeding.

Although there are no data available on the transfer of tinzaparin into human milk it is likely to be low it is also unlikely any would be orally bioavailable. No detectable levels have been found in breast milk and no paediatric concerns have been reported via milk.

Common drug interactions:

This is not a comprehensive list. Please see current BNF for complete information:

Systemic
salicylates, non-steroidal anti-inflammatory drugs (NSAIDs), clopidogrel, dipyridamole (increased risk of bleeding), ACE inhibitors (increased risk of hyperkalaemia), dextran, ticlopidine, systemic glucocorticoids, thrombolytics, anticoagulants

If any problems occur or you have any concerns please contact the relevant specialist:

Consultant initiating tinzaparin treatment
(contact details on referral form / clinic letters)
Anticoagulant Clinic RRHFT:

On-call haematolologist blp 922, (out of hours - via RBHFTswitchboard): (0118) 3225111

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