CLINICAL PROTOCOL FOR PULMONARY EMBOLUS

SCOPE: Western Australia

RED Unsuitable for community admission to HATH. Refer to ED/Inpatient management. (May become suitable for HATH after inpatient stabilisation)	• Severe respiratory or cardiovascular symptoms requiring hospital admission. • Co-existing medical conditions requiring hospital admission. • Known or suspected hypersensitivity to warfarin or enoxaparin (unless under governance of Haematologist or thrombosis clinic). • Pregnancy.
ORANGE Requires discussion with Medical Governor and/or Haematologist prior to acceptance.	Conditions that increase risk of bleeding: • Recent major surgery • History of familial bleeding disorder • Peptic Ulcer disease • Increased risk of falling • Thrombocytopenia • Uncontrolled hypertension
GREEN Accepted for HATH protocol.	• Confirmed diagnosis of pulmonary embolism via CTPA or V/Q scan. • Client's medical condition has been assessed as stable, has a clear diagnosis and prognosis and is at a low risk of rapid deterioration. • Over 13 years, suitable for adult dosing and not under the care of a Paediatrician.

ASSESSMENT

- Check target INR
- Check current INR.
- Check warfarin dose given to date (incuding the brand)
- Confirm client not on any other oral anticoagulants
- Check weight.

PATHOLOGY WORK UP

Verify if any recent pathology has been ordered prior to requesting the below:

- Baseline blood tests:
- Full blood picture (FBP) for baseline platelet counts
- Urea and electrolytes to assess renal function
- Coagulation profile (INR, APTT, fibrinogen)
- Liver function tests.
- Day 5, repeat FBP to assess platelet count for heparin induced thrombocytopenia.

Calculate creatinine clearance using Cockcroft – Gault equation.

GENERAL MANAGEMENT

- Access blood results from referral source.
- Obtain last INR and Warfarin dose from referral source.
- Collaborate with medical governance doctor regarding any abnormal test results.
- Twice daily nursing assessment as per Pulmonary Embolism Care Pathway. Collaborate with medical governance doctor if any deterioration in client's condition.
- Monitor INR daily (utilising Coagucheck) and liaise with medical governance doctor for dosing of warfarin (*If INR reading >3.5, formal blood test is required for confirmation).
- Administer enoxaparin sodium as per medical authority.
- Enoxaparin sodium should be continued for a minimum of 5 days and until INR is within therapeutic range for at least 24 hours.
- Advise client regarding warfarin use, including its potential complications and interactions with diet and alcohol as per *Living with Warfarin* booklet.

TREATMENT

Recommended warfarin nomogram

Day	INR	Suggested Dose
1	1.0 – 1.4	5mg
2 and 3	Below 1.8 Above or equal 1.8	5mg 1mg
4 and 5	Below 1.5 1.5 – 1.9 2.0 – 2.5 2.6 – 3.5 3.5 – 4.5 Above 4.5	7mg 5mg 4mg 3mg 2mg (formal INR required) 0mg (formal INR required)

Recommended enoxaparin dose

Renal function	Treatment dose
Normal renal function CrCl > 30mL/min	• 1.5 mg/kg SC daily* ** or • 1 mg/kg SC BD
Severe renal impairment CrCl < 30mL/min	• 1 mg/kg SC daily
* Twice-daily dosing of enoxaparin is preferred for patients at high risk of bleeding or of thrombus extension, such as patients who are older, obese or have a malignancy. ** If dose required is greater than 150mg, dose must be given as twice daily dose.	

MEDICAL GOVERNANCE

- The client has access to medical governance support for 24 hours per day, 7 days per week.
- Primary medical governance can be by referring medical specialists, credentialed referring GPs or by Silver Chain medical staff.

- When governance is retained by a Silver Chain medical officer the client will have a medical review within 48 hours of admission and the medical officer will determine when the scheduled follow up and discharge will occur.
- Where the primary medical governor is unavailable the Silver Chain medical officer can provide the medical governance.
- Care delivery is planned and provided in consultation with the client, medical officer/specialist holding medical governance and nursing staff.
- In the instance when a client's condition deteriorates the Silver Chain medical officer or nursing staff will confer with an emergency department medical officer.
- A summary of the episode of care is sent to the referrer or the client's GP at discharge.

FOLLOW UP

- Ensure the client has an appointment arranged with own General Practitioner (GP) prior to discharge to ensure continuity of care.
- Fax protocol with client discharge summary to GP.

REFERENCES

- WA TAG Information for Patients. Living with Warfarin. Department of Health 2016. http://www.watag.org.au/wamsg/docs/Living_with_Warfarin.pdf
- Treatment of pulmonary embolism, Therapeutic Guidelines Ltd (eTG March 2017 edition) Therapeutic Guidelines Available from: deep-vein-thromobosis-and-pulmonary-embolism-treatment&guideline