NHS
Rotherham
Clinical Commissioning Group

Quick Reference Document on Anticoagulation with Warfarin.

This document summarises information found in the Rotherham Foundation Trust Anticoagulation / VTE Policy for Adults 2018-21 and the Rotherham Foundation Trust Anticoagulation /. VTE Clinical Procedure Document 2018-21 within Rotherham CCG Top Tips & Therapeutic-guidelines under Cardiovascular system via the links above, and should be read in conjunction with this policy if further detail is required. It is not intended to replace training on the initiation and use of warfarin.

General guidance

Anticoagulants are high risk medicines, therefore before prescribing:

- Clinically assess the patient
- Undertake baseline investigations
- Consider the risks and benefits of anticoagulation prior to commencement of therapy
- Provide patient information / alert cards
- Arrange appropriate follow up and review
- Warfarin 1mg tablets should ideally be used for maintenance therapy, have a combination of different strengths can be used in suitable patients.

Patients must be given information on the treatment they are being offered, and available alternatives. The need for anticoagulation therapy, venous thromboembolism (VTE) prophylaxis and any associated risks must be discussed with the patient, and remains the responsibility of the prescribing health care professional.

Initiation of warfarin therapy

Warfarin should only be initiated by adequately trained and competent individuals. An example of the type of training can be found in the MRHA online oral anticoagulants e-learning module (https://www.gov.uk/government/publications/e-learning-modules-medicines-and-medical-devices/e-learning-modules-medicines-and-medical-devices#oral-anticoagulants). Warfarin should be taken once daily at a fixed or regular time.

Ensure baseline blood results (i.e. Full Blood Count, Urea and Electrolytes, coagulation screen and baseline International Normalised Ratio (INR)) are within normal ranges before commencing warfarin.

Initiation checks, counselling and dosing should be in line with the Rotherham Foundation Trust (TRFT) Anticoagulation prescription and referral form (Appendix 1). Please note that this referral form is a TRFT document and as such some of the procedures on page one are not relevant to primary care.

Clinical indication, Target INR and duration of therapy

Condition	Target INR	Duration
THROMBOSIS		
DVT PE	2.5	Start on warfarin and refer to Anticoagulation Clinic and to Thrombosis Clinic
VTE associated with malignancy	2.5	Initially 6 months LMWH **then** consider lifelong
ATRIAL FIBRILLATION: CONSIDER RISK VS BENEFIT		
Non-valvular AF: CHADS2-VASC score: 1 (males only) 2 or more	2.5	Life long
Clinical evidence of heart disease Thyrotoxicosis ECHO evidence of: LA > 45mm LV dysfunction & dilatation Proven cardiac source of thrombus Mitral valve disease Mitral annulus calcification Consider IHD	2.5	Lifelong
AF for cardioversion	2.5	Minimum of 3 WEEKS before and 4 WEEKS AFTER, if remains in sinus rhythm
HEART VALVES REPLACEMENT		
Mitral valve stenosis or regurgitation with additional risk factors: • AF • history of systemic embolism • atrial thrombus • enlarged heart	2.5	Discuss
Bioprostheic heart valve: • in the mitral valve position • history of systemic embolism • left atrial thrombus at surgery • prothrombotic risk factors e.g. AF, low ventricular ejection fraction	2.5	3-6 months post-op (discuss)
Mechanical heart valve prosthesis Depends on thrombogenicity of prosthesis and other risk factors	3.5	Lifelong
OTHERS		
Mural thrombus after myocardial infarct	2.5	Review after 3 months with ECHO
Myocardial infarction (if warfarin prescribed)	2.5	Lifelong
Dilated cardiomyopathy	2.5	Lifelong
Prophylaxis in patients with thrombophilia post-operative	2.5	8 weeks

Once therapeutic range has been reached, newly initiated patients require weekly or sometimes twice weekly INR review. As the INR settles into the therapeutic range, INR interval testing can be increased to once a fortnight, increasing to once a month.

Where control is very stable, testing can be increased to 8-12 weekly, however, testing frequency should never be greater than 12 weeks.

Maintenance dosing

Treatment with warfarin requires monitoring of INR and dose adjustment guided by the use of approved clinical decision support software (CDSS). Dose adjustments should take into account deviation of the INR from the target, the usual maintenance dose, the presence of any destabilizing factors (i.e. concurrent illness, medication changes), presence of known risk factors and the ease of monitoring the patient.

Following a dose adjustment, testing should be brought forward to assess the effect of the dose change.

Drug interactions

Many drugs have a potential, but unpredictable interaction with the Vitamin K antagonists such as warfarin. Therefore any change in medication (addition or removal) a repeat INR must be taken within 2- 4 days.

Patients on antiplatelet medication

The use of combination of warfarin and antiplatelet therapy should be assessed on an individual patient basis, considering the disease-specific thrombotic risk and the patient-specific bleeding risk. If in doubt, seek specialist advice.

Management of INRs above 8

INR above 8 but below 10 – discuss with admissions unit at TRFT
INR above 10 – stop warfarin and admit to hospital
Major bleeding – admit to hospital.

Risk of bleeding for patients undergoing dental procedure

See Appendix 2 for further information.

Appendix 1

The Rotherham NHS Foundation Trust Patient Assessment: Vitamin K antagonists (e.g. warfarin)

The Rotherham NHS Foundation Trust

NHS

Anticoagulation prescription and referral

This is a legal document, all sections must be completed. Failure to do so may delay treatment for the patient. BLACK ink must be used at all times.

Please Note Responsibility for the patient's anticoagulation remains with the Consultant in charge of the patient's care until the patient is seen in the Anticoagulant Clinic or by another monitoring team. Send a copy of this anticoagulation referral form when completed to the Anticoagulant clinic, GP or other monitoring team, with a copy of the discharge letter.

Stockings – Refer to the Orthotics Dept for graduated compression stockings, if appropriate following a Deep Vein Thrombosis (DVT)

Always seek advice from the Consultant in charge of the patient's care or a Consultant Haematologist if you have any concerns or you have identified any contraindications before commencing or continuing anticoagulation

Patient Full Name

Date of Birth

Hospital Number

NHS Number Allergies

Clinical Area

Consultant

Indication for treatment

Treatment initiation? Yes ☐ No ☐

(usual dose _____ mg)

Target INR Range

Duration of therapy:

3 months ☐ 6 months ☐ Permanent* ☐

Stop **only** after review by Medical Consultant, review date

* Consider permanent anticoagulation therapy if unprovoked Venous Thromboembolism

INR monitored by: Rotherham Hospital Clinic ☐ GP* ☐ Other Hospital ☐

If other, please state where

If referring a new patient to GP services and initiating anticoagulation please complete the following:

Name of GP the discharge has been discussed with:

Practice Address

Has the GP accepted the patient? Yes ☐ No ☐ *A Copy of this form must be sent to the GP with the discharge letter*

The usual prescriber has been informed of this admission and an appointment has been made for the patient.

Date of Appointment Signature Print Name

Designation Date

All patients must have INR check within 7 days of discharge

Relevant Information

Reason for anticoagulation

Reason for this admission

Other relevant medical history

Past history of thrombosis Yes ☐ No ☐ Give details

Family history of thrombosis Yes ☐ No ☐ Give details

Concurrent antiplatelet therapy required? Yes ☐ No ☐ Give details

If applicable, please tick the appropriate box for any predisposing factors:

Hormone Replacement Therapy ☐ Contraceptive Pill ☐ Pregnancy ☐ Surgery ☐ Air Travel ☐ Other

Medication ☐ Trauma ☐

Date: Signature Print Name Designation

Produced by TRFT Graphic Design Service 01709 426362 / 15 06/15 CSP

Contraindications To Anticoagulation Therapy.	Yes	No
Subacute Endocarditis		
Known bleeding disorder or Thrombocytopenia		
Hypersensitivity to Heparin / Warfarin		
Recent peptic ulceration or known symptoms of peptic ulceration		
Cerebral Haemorrhage/Recent head injury/Visual problems/Headaches		
Ischaemic stroke less than 14 days prior to anticoagulation		
Recent surgery with risk of bleeding		
Uncontrolled hypertension		
Pregnancy (Warfarin contraindicated only)		
Social Circumstances, i.e falls risk, confused, unable to self-medicate or follow instructions not supported by a carer/relative		

	Signature	Profession	Date
Patient counselled (new patients only)			
Temporary warfarin record issued			
Discharge dose in record			
Referral form completed			
'Life with Warfarin" booklet issued			

Warfarin Treatment Management Guidelines

A. General guidance on initiating warfarin

- Ensure baseline blood results (i.e. Full Blood Count, Liver Function Tests, Urea & Electrolytes, coagulation screen and baseline INR) are within normal ranges before commencing warfarin
- Explain to the patient the indication for warfarin treatment, risk and benefits
- Measure INR daily when initiating warfarin in conjunction with low molecular weight heparin
- Continue low molecular weight heparin for a minimum of 5 days and until INR is more than 2 for 2 consecutive days. Check platelet count on Day 5.

Elderly Patients

1. High risk of drug interaction with warfarin due to likelihood of higher co-morbidity and polypharmacy.
2. Decision to initiate should take into account likely compliance, attendance for INR checks and risk of falling.
3. Normal ageing and/or acute ill health may require treatment to be reviewed taking into account above point.

Cancer Patients

Patients with active malignancy, particularly those receiving chemo/ radiotherapy should be considered for ongoing treatment with low molecular weight heparin. Discuss with the Oncologist or Haematologist for advice.

Thromboembolic Disease in Pregnancy and the Puerperium

Avoid warfarin therapy during pregnancy. Discuss with an Obstetrician those patients requiring heparin treatment in pregnancy and warfarin initiation in the puerperium.

ORAL ANTICOAGULANT

Warfarin ☐

Acenocoumarol (Nicoumalone) ☐

Consultant

Patient name

Unique Identification Number

Date

Signature

Print Name

Designation

Start warfarin when diagnosis confirmed.
Give warfarin once daily at 12 midday (whilst in hospital):
DOSE 1 - 10mg
DOSE 2 - 10mg
DOSE 3 - 5mg (refer to chart below for suggested warfarin dose on Day 4)

Decrease these doses if the patient has hepatic/renal impairment, cardiac failure, is elderly or at risk of possible drug interactions.

Warfarin dosing for Day 4 ONLY when loaded 10mg, 10mg, 5mg

DAY 4	INR	DOSE mg
	<1.4	Refer to Haematology Dept, for advice.
	= 1.4	8mg
	=1.5	7mg/8mg on alternate days
	1.6 - 1.7	7mg
	=1.8	6mg/7mg on alternate days
	=1.9	6mg
	2.0 - 2.1	5mg/6mg on alternate days
	2.2 - 2.3	5mg
	2.4 - 2.6	4mg/5mg on alternate days
	2.7 - 3.0	4mg
	3.1 - 3.5	4mg/3mg on alternate days
	3.6 - 4.0	3mg
	4.1 - 4.5	Miss out one days' dose, then give 2mg
	>4. 5	Miss out two days' dose, then give 1mg
DAY 5		Monitor INR daily until in range and stable. Heparin can be stopped when two consecutive INR results are in therapeutic range.

Monitoring and Dosing Chart

WARFARIN: if the baseline INR is less than 1.4 seek advice from the responsible Consultant. ** The prescribing doctor must know the baseline INR before signing the first dose of warfarin

DATE	INR	Oral dose in milligrams (to be given @.....)	TIME	Signature of prescriber	Signature of administering nurse
	Baseline**		12 midday		
			12 midday		
			12 midday		
			12 midday		
			12 midday		
			12 midday		
			12 midday		
			12 midday		
			12 midday		
			12 midday		

B. Maintenance Dosing of Warfarin for Patients

General Principles:

- Dose changes should usually only be +/- 10%
- It will take 3 to 4 days for a dose change to significantly change the INR
- When starting or stopping ANY additional medication check the current BNF for any interaction with warfarin
- When starting ANY new drug (or discontinuing one known to interact with warfarin), check the INR in 3 to 4 days to observe effect.
- Any uncertainty regarding dosing contact the Anticoagulation Nurses ext 4016 or Consultant Haematologist on call for advice.

C. Recommended Target Ranges for INR

A target INR of 2.5 (range 2 - 3) is sufficient for most indications EXCEPT

- Recurrent DVT/Pulmonary Embolism when fully anticoagulated:- a target INR of 3.5 is recommended.
- All patients with prosthetic heart valves should be discussed with Cardio Thoracic Surgeon

Bleeding whilst on Anticoagulation: If in doubt, consult the Haematologist.

1. Bleeding whilst on heparin, if suspected overdose:

1. Request APTT and state 'overdose' on request form.
2. Inform Consultant Haematologist as reversal with protamine sulphate may be required.
3. Repeat APTT after 24 hours if needed.

2. Bleeding whilst on warfarin/acenocoumarol

I. Major bleed – Contact the Consultant Haematologist.

STOP anticoagulants – **EVEN IF INR IS IN THERAPEUTIC RANGE**
Consider activating the massive haemorrhage protocol by dialling '2222'.
Obtain FBC, Crossmatch & Clotting Screen
Give IV vitamin K 5mg and repeat as necessary after 24 hours.
Intracerebral bleeds and major gastrointestinal bleeding require reversal with prothrombin Complex concentrate. This must be discussed with the Consultant Haematologist on call.

II. INR more than 8 No bleeding or minor bleed

STOP anticoagulant for 1-3 days and restart when INR is less than 5 at 1mg or less than the last dose.

If bleeding risk, e.g. 70 years of age or had recent surgery, give IV vitamin K 2mg

III. INR 6.0 – 8.0 No bleeding

STOP anticoagulants for 1-3 days and restart when INR is less than 5.0 at 1mg or less than the last dose.

3. Consider other causes for bleeding, e.g.

Drugs (aspirin)
Low platelet count
Abnormal liver function tests
Other pathology.

For further information staff are referred to guidance available on InSite or contact the Anticoagulation Nurse (x 4016) or Consultant Haematologist on call for advice (via Switchboard)

For Anticoagulant Nurse use only

Anticoagulant Clinic

Date	INR	Warfarin dose	Signed Print Name

Version 5: June 2015 Authors: Anticoagulation Team Ratified by: Drugs & Therapeutics Group
Date: June 2015 Next Review: May 2018

Appendix 2

Management of dental patients taking anticoagulants and antiplatelets

The operating surgeon, dentist, or interventional radiologist must assess the risk of bleeding for the individual patient and discuss this and the plan for peri-operative anticoagulation with them. The plan must be recorded clearly in the notes including a plan for when the patient is discharged.

1. **Establish bleeding risk with dental procedure**		
Dental procedures that are unlikely to cause bleeding	**Dental procedure that are likely to cause bleeding**	
	Low risk of post-operative bleeding complications	**High risk of post-operative bleeding complications**
Local anaesthesia by infiltration, intraligamentary or mental nerve block Local anaesthesia by inferior dental block or other regional nerve blocks Basic periodontal examination Supragingival removal of plaque, calculus and stain Direct or indirect restorations with supragingival margins Endodontics – orthograde Impressions and other prosthetic procedures Fitting and adjustment of orthodontic appliances	Simple extractions (1-3 teeth, with restricted wound size) Incision and drainage of intra-oral swellings Detailed six point full periodontal examination Root surface instrumentation (RSI) and subgingival scaling Direct or indirect restorations with subgingival margins	Complex interactions, adjacent extractions that will cause a large wound or more than 3 extractions at once Flap raising procedures: Elective surgical extractions Peridontal surgery Preprosthetic surgery Periradicular surgery Crown lengthening Dental implant surgery Gingival recontouring Biopsies