WARFARIN

Top tips for MURs

- Check that the patient/carer understands the purpose of warfarin, how long their treatment should continue and what their INR target/ range should be. Explain that the blood takes longer to clot (becomes 'thinner') as the INR rises
- Ensure that the patient/carer is familiar with strengths/ colours of warfarin tablets available and that they are able to make up the correct dosage from the tablets they have
- Advise that warfarin is taken once a day, preferably at the same time, swallowed with a full glass of water. If a dose is missed on one day, patients should not take double the dosage the next day. A note should be made in the record booklet that a dose was missed. If late taking a dose, it can be taken within 6 hours of the usual time
- Check that the patient/carer has the oral anticoagulant pack containing an information booklet, record booklet, and alert card
- Encourage the patient/carer to carry the alert card at all times, and to take their record booklet whenever they visit their GP practice, pharmacy, hospital, dentist or other healthcare professional
- Discuss the INR/dosage record with the patient/carer:
  - Are the records generally complete and clear?
  - Is the INR generally in range?
  - Does the patient take the doses as written?
  - Ensure doses are written clearly and in milligrams
- Counsel patient on signs / symptoms that need referral (**see red flags overleaf**)
- Ensure that the patient/carer has a system for recording their INR and doses. Discuss the use of calendars/ diaries to help if the dosage varies
- Advise those women of child bearing potential that they should not take warfarin whilst pregnant and check they use contraception. If not, refer to GP/Family Planning Clinic as soon as possible
- Go through the information booklet with the patient/ carer. Ensure that the following are understood (you may wish to do this by asking them what they know and filling in the gaps):
  - They should always inform their INR clinic of changes to medication
  - They should always discuss non-prescription medicines with a pharmacist before purchasing
  - Patients will need to have their INR monitored at least every 3 months whilst taking warfarin.
  - Patients on warfarin should avoid binge drinking as this could be dangerous. Alcohol will increase the INR therefore thinning the blood
  - They should always seek advice if unexpected or severe bleeding/bruising occurs (see list in information booklet)
  - Cranberry juice and pomegranate juice should be avoided
- Report any relevant adverse drug reactions to the Yellow Card Scheme

What is warfarin used for?

Indication	Target INR	Duration
AF (prophylaxis of embolus)	2.5	Long term
DVT/PE	2.5	Usually 3-6 months
Recurrent DVT/PE	2.5*	Long term
Mechanical heart valves (prophylaxis of embolus)	Varies – check with surgeon	Long term

*may be 3.5 if recurrence occurred whilst within target 2.5

More information on indications for warfarin is available in the BCSH guidelines[1]. There are now several non-vitamin K antagonist oral anticoagulants (NOACs) available as alternatives to warfarin (see MUR quick practice guide on NOACs). However the NOACs are not suitable for all patients and are not licensed for certain indications (e.g. mechanical heart valves).

How does warfarin work?

Warfarin works by interfering with the synthesis of vitamin K dependant clotting factors[2]. The onset of action is delayed due to the half-life of the clotting factors already in the circulation. The peak effect may not be seen for 48-72 hours. The effects of a dosage change will also be delayed.

Lifestyle issues:

- Counsel patient on reducing alcohol intake to within safe limits (up to 14 units a week, spread evenly over 3 more days, with several alcohol free days), patients on warfarin should avoid binge drinking as this could increase the INR and thin the blood
- Counsel patient on healthy eating, exercise & weight loss (if BMI > 25kg/m^2) – patients should avoiding dramatic changes in diet.
- Advise patients to complete 30 minutes of aerobic exercise three to five times a week, reduce caffeine intake to no more than 5 cups a day and recommend 5 portions of fruit and vegetables a day
- Advise patients who smoke the benefits of stopping smoking and how to access pharmacy smoking cessation services or Stop Smoking Wales

Compiled: D Roberts, WCPPE, November 2011
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Red flags that need referral

- Signs of bleeding – see list in information booklet
- Signs of thrombosis
  - Worsening or new symptoms of DVT i.e. redness, tenderness, swelling
  - Chest pain/shortness of breath
- Rash, purpura, purple toes, skin necrosis
- Diarrhoea and vomiting may lead to poor absorption so the INR should be checked
- Unusual headaches/confusion
- Pregnancy as warfarin is teratogenic and not recommended in any trimester
- Sign of stroke - (numbness, weakness/paralysis, slurred speech, blurred vision, confusion and severe headaches)

Potential drug interactions? – See BNF Appendix 1: Interactions for more details

Any medicine should be considered to potentially interact with warfarin unless it is known otherwise.

- Some drugs will increase the risk of bleeding as they also thin the blood e.g. antiplatelets. It is usual to avoid these drugs in patients taking warfarin although some patients will need both aspirin and warfarin. Some herbal remedies will have antiplatelet effects and should be avoided
- Some drugs will inhibit the liver metabolism of warfarin e.g. clarithromycin, amiodarone. The INR should be checked, and the dosage adjusted if necessary, when such drugs are started and stopped. It may be possible to suggest an alternative when an interacting antibiotic is prescribed. However, it should be noted that febrile illnesses may cause an increase in the INR and therefore more frequent monitoring may be necessary for this reason
- Some drugs will induce the metabolism of warfarin e.g. St John's Wort, rifampicin. The INR should be checked, and the dosage adjusted if necessary, when such drugs are started and stopped. The effect may be prolonged on stopping the drug.
- OTC oral miconazole gel (Daktarin®) significantly raises the INR and should be avoided. Suggest alternative e.g. nystatin oral drops.

What else interferes with the control of warfarin?

Further information on factors affecting control can be found in the Monitoring Anticoagulant Therapy, WeMeReC Bulletin (table 3).

When should monitoring be more frequent?

Monitoring will be daily to twice weekly at the beginning of therapy, depending on the indication for anticoagulation. Patients slow-loaded as outpatients may be seen once a week. As the INR begins to stabilise, the frequency can gradually decrease. Patients should be aware of when it might be necessary to increase the frequency:

- Signs of bleeding/thrombosis
- Recent trauma such as a blow to the head
- Changes in clinical status such as acute illness or diarrhoea/vomiting
- Dramatic changes in diet
- A recent high or low INR result
- Changes in medication
- Non adherence
- Prior to a medical or surgical procedure e.g. cardioversion

Once the patient begins to stabilise after such an episode, the frequency can once again gradually decrease. The actual frequency will depend on the patient, the indication and the seriousness of the episode. If in doubt as to whether the patient needs an INR, it is advisable to contact the clinic (the number should be on the patient's alert card).

Where can you find more information?

- NPSA has issued a safety alert for 'Actions that can make anticoagulant therapy safer' and can be found on the NPSA website (**http://www.nrls.npsa.nhs.uk/alerts/?entryid45=61777**)
- Oral anticoagulants – BNF sub-section 2.8.1
- Anticoagulation distance learning pack can be found on WCPPE website (**http://www.wcppe.org.uk**)
- WeMeReC Bulletin: Monitoring anticoagulant therapy in primary care, March 2007 that can be found on WeMeRec website (**http://www.wemerec.org/**)
- WCPPE - Safe use of oral anticoagulants (**http://www.wcppe.org.uk**)

References

1. Keeling D et al. Guidelines on oral anticoagulation with warfarin: fourth edition - 2011. Br J Haematology 2011: 311:324
2. Anticoagulation – managing patients, prescribing and problems, CPPE, 2012
3. WeMeReC Bulletin: Monitoring anticoagulant therapy in primary care. March 2007

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