Good Practice Guidance for Care Staff: Safe use of anticoagulants in care homes

Introduction

Anticoagulants are medications used to treat and prevent blood clots; they can be oral or injectable formulations.

Examples of anticoagulants include:

- Vitamin K antagonists e.g. warfarin
- Direct Oral Anti Coagulants (commonly referred to as DOACs) e.g. rivaroxaban (Xarelto®), dabigatran (Pradaxa®), apixaban (Eliquis®), edoxaban (Lixiana®).
- Injectable anticoagulants e.g. low molecular weight heparins such as enoxaparin and dalteparin.

Anticoagulants **reduce a resident's chance of developing a blood clot and** are commonly prescribed for the following clinical conditions:

- **Atrial fibrillation (AF)/Atrial Flutter**
  Heart condition that causes an irregular and often abnormally fast heart rate. People with these conditions have an increased risk of developing blood clots, which can lead to a stroke. Treatment is usually long term.

- **Pulmonary Embolus (PE):**
  Blood clot blocks one of the blood vessels in the lungs, blocking the supply of blood to the lungs. Duration of treatment for PE will vary for each person and will depend on a number of factors.

- **Deep Vein Thrombosis (DVT)**
  Blood clot forms in one of the deep veins in the body, usually in the legs, causing pain and swelling. Duration of treatment for DVT will vary for each person and will depend on a range of factors.

- **Recent hip or knee replacement**
  Anticoagulants are prescribed after hip or knee replacement to reduce the risk of clots forming, until residents can move around. Treatment is usually short term.

- **Mechanical Heart Valves**
  Treatment with a vitamin K antagonist anticoagulant (usually warfarin) for residents with mechanical heart valves minimises the risk of clot formation.
  A National Patient Safety Alert addressed the importance for patients with mechanical heart valves to remain on treatment with a vitamin K antagonist, usually warfarin.

Anticoagulants are one of the classes of medicines most frequently identified as causing preventable harm and admission to hospital.

They are considered critical medicines and must be given at the prescribed times to ensure they are effective.

If a resident goes into hospital, it is important to send a printed copy of the Medication Administration Record (MAR) chart and the warfarin dose administration record if relevant, with them so that the hospital staff know exactly what anticoagulant medication the resident is taking.

Policies and procedures

The care home should have a written procedure for the safe administration of anticoagulants, including the processes involved if a resident misses one or more doses of anticoagulant medication.
Care home staff must have received adequate training about anticoagulants to enable them to undertake their duties safely.
Staff should be aware of the symptoms of bleeding and bruising with all anticoagulants and when to escalate to the resident's GP.

Side effects of anticoagulants

Bleeding is a common side effect of all anticoagulants, examples include:

- bruising
- bleeding gums
- nosebleeds
- prolonged bleeding from cuts
- blood in urine or stools
- vomiting blood or coughing up blood
- vaginal bleeding in a postmenopausal woman

Seek immediate medical advice immediately, if bleeding occurs whilst taking an anticoagulant and the bleeding does not stop or recurs.

Anticoagulants and Falls.

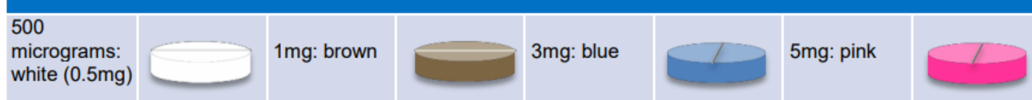
Special care must be taken if a resident has a fall while taking an anticoagulant, as there is a higher risk of bruising, bleeding and internal bleeding. Seek immediate medical advice.
Care home staff must follow their local care home protocol/ falls pathway.
Refer to Medicines and Falls Prevention- Good Practice Guidance

Warfarin

Warfarin is an oral anticoagulant and is administered once daily, usually at 6pm.
It increases the time taken for blood to clot, known as the International Normalised Ratio (INR).
The INR is calculated by doing a blood test.
To use warfarin safely, the daily dose needs to be adjusted by reviewing the resident's INR result.
Under treatment can result in clot formation (thrombosis) and over treatment can cause bleeding (haemorrhage) which can be fatal.
Daily doses of warfarin will be decided by the anticoagulation service or by the resident's GP.

Warfarin is available in four different strengths of tablets which are colour coded:

- 500 micrograms (white),
- 1 milligram (brown),
- 3 milligrams (blue), and
- 5 milligrams (pink).



In the UK, the colours of warfarin tablets are:							
500 micrograms: white (0.5mg)		1mg: brown		3mg: blue		5mg: pink	

It is important care home staff administering and monitoring medicines are familiar with the different colours of warfarin tablets as different strengths of warfarin tablets may be required to make up a resident's dose.
Each resident on warfarin will have a 'warfarin anticoagulant record' (yellow book) and/ or warfarin dosing letter with the following information:

- a target INR range (the aim of treatment is to keep the INR within or close to this range),
- the reason the resident is on warfarin,
- duration of treatment,
- strength of tablets (in milligrams) to be taken each day throughout the week.
  The dose of warfarin can vary within each week. Residents are often given supplies of one or more strengths of warfarin tablets to enable doses to be adjusted.

Once a resident is stable on warfarin, blood tests to measure INR can be monthly – 12 weekly intervals. The frequency of monitoring may / will be increased when there is a change in a resident's:

- clinical condition,
- prescribed medication regimen,
- diet.

Administration and Record keeping of Warfarin

Care staff must ensure:

- Warfarin tablets are administered at the same time each day, usually at 6pm. This is so that any recommended dose changes based on INR results can be implemented the same day.
- The dose must always be recorded as milligrams (mg), not the number of tablets.
- They check the most recent INR and check the up-to date warfarin dosing schedule prior to administration.
- All warfarin dose changes must be:
  - confirmed by the prescriber in writing,
  - details of warfarin dose changes are clearly documented in each resident's medicine profile,
  - details of warfarin dose changes are clearly documented in each resident's care plan.
- A process is in place to ensure:
  - blood tests are taken at the correct time,
  - INR results are received
  - the correct dose is transcribed on to the MAR chart safely
  - follow up results if they have not been received.
- Care staff administering medicines are familiar with the different colours of warfarin tablets as the various strengths of warfarin tablets may be required to make up a specific dose.
- Warfarin is administered from original packs.

Side effects of warfarin

The most common side effect of warfarin is bleeding. You should contact the resident's GP immediately if residents taking warfarin experience any of the following:

- nose bleeds that last more than 10 minutes
- blood in vomit or sputum
- passing blood in urine or faeces
- passing black coloured faeces
- severe or spontaneous bruising
- unusual headaches

Interactions with warfarin

The INR can be affected by various factors. These include:

- Diet
  - foods rich in vitamin K e.g. green leafy vegetables, broccoli, cabbage, liver, brussels sprouts may affect an INR result. These foods do not need to be avoided as they are

required for a healthy balanced diet, however residents must aim for consistency in the amount of these foods they eat.
    - Drinking cranberry juice and grapefruit can also affect your INR and so should be avoided in large quantities.
    - Inform the anticoagulant clinic of any major changes to a resident's diet
- Acute illness
- Alcohol consumption
- Smoking
- Weight changes
- Medications - many medicines interact with warfarin and affect INR results. This includes starting a new medicine e.g. antibiotics, stopping or a dose change of medications. The prescriber may advise a blood test to check INR within a few days of starting or stopping the new medication. This is to make sure that the INR remains within the target range.
  Before using over-the-counter medicines or homely remedies (including herbal or alternative remedies), a care home or resident should get advice from the resident's GP, community pharmacist or anticoagulant clinic.
  The Medicines and Healthcare Regulatory body (MHRA) warns of the risk of increased INR, severe bruising and bleeding, which in some patients could be fatal, if warfarin and tramadol are taken together.

Missed Dose of warfarin

Any missed doses within the last two weeks can affect the resident's INR result. The anticoagulant service and resident's GP **MUST** be informed of any missed warfarin doses including those missed due to a resident refusing or unable to take warfarin.
Care home staff must clearly document any communication and advice with/ from the anticoagulant clinic and GP in the resident's care plan.

Ensure the NPSA Alert for the 'Actions that can make oral anticoagulant therapy safer: Information for patients and carers' has been reviewed and the required actions implemented within the care home.

Direct Oral Anticoagulants (DOACs)

Direct oral anticoagulants (DOACs) include rivaroxaban (Xarelto®), dabigatran (Pradaxa®), apixaban (Eliquis®), edoxaban (Lixiana®). Every resident on a DOAC will be provided with an anticoagulant alert card.

Depending on which DOAC is prescribed and the condition being treated, the frequency of administration will either be once or twice a day.
- If the DOAC is prescribed once a day, administer the dose at the same time each day.
- If the DOAC is prescribed twice a day, administer the doses 12 hours apart.

Care home staff should ensure there is a safe system in place for managing different systems of medication administration.

Refer to the specific brand's Patient Information Leaflet (PIL) for advice and recommendations about:
- administration before or after food
- special precautions for handling
- crushing

Residents on DOACs do not need regular INR testing to determine their doses.
Residents on DOAC will require blood tests:
- before starting treatment,

- one month after starting treatment.
- once stable between 3 months to one year.

Missed doses

The anticoagulant effect of DOACs reduces 12–24 hours after taking the last dose. Omitting or delaying doses leads to a reduction in anticoagulant effect. This would cause a higher risk of blood clots which can be fatal.

If a resident misses a dose of a DOAC, care staff must follow the care home policy concerning what action to take and how to record this. Care staff must inform the prescriber and clearly document any advice and information in the resident's medicines administration record (MAR) chart and care plan.

Errors

All errors involving anticoagulants, including missed doses, should be reported to the GP.
Refer to Good Practice Guidance for Care Homes: Handling and Reporting medication errors, incidents, near misses, concerns or adverse reactions to medicines in Care Homes.
Templates for Care Home staff for Reporting and Learning from a medicine-related Patient Safety Incident (PSI) are available in the medicines safety section of care home guidance.

References

- Care Quality Commission High risk medicines: anticoagulants https://www.cqc.org.uk/guidance-providers/adult-social-care/high-risk-medicines-anticoagulants
- Specialist pharmacy service. DOACs (Direct Oral Anticoagulants) monitoring https://www.sps.nhs.uk/monitorings/doacs-direct-oral-anticoagulants-monitoring/
- National Patient Safety Alert: Inappropriate anticoagulation of patients with a mechanical heart valve NaPSA-DOAC-Heart-Valve-FINAL-v2.pdf (england.nhs.uk)
- Good Practice Guidance for Care Homes: Handling and Reporting medication errors, incidents, near misses, concerns or adverse reactions to medicines in Care Homes Good Practice Guidance for Care Homes: Handling and Reporting medication errors, incidents, near misses, concerns or adverse reactions to medicines in Care Homes
- BNF
- PIL/EMC/SPC
- Good Practice Guidance 7: Safe use of Warfarin in care homes adapted from NHS Oxfordshire guidance, 'Good Practice Guidance 3: Use of warfarin in Care Homes Guidance' (2011).