Peninsula Dental Social Enterprise (PDSE)

Surgical Management of Patients on Anticoagulation Medication

Version 5.0

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Approved by: The Board

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Policy will be updated as required in response to a change in national policy or evidence-based guideline.

Clinical Guidelines for the Surgical Management of Patients on Anticoagulant Medication

Many people in the community rely upon anticoagulation medication to prevent the onset of catastrophic medical problems. The most commonly used oral anticoagulant in the UK is **Warfarin**. In addition additional oral anti-coagulants have been recommended by NICE for use in patients with atrial fibrillation. These include **Dabigatran Apixaban**, and **Rivaroxaban**. Rarely some patients may be on **Heparin**.

The most common medical conditions which require anticoagulation include:

- Prosthetic heart valves
- Cardiac arrthymias
- Multiple deep vein thrombosis
- Multiple pulmonary emboli
- Some cases of ischaemic neurological disease e.g. embolic strokes, transient ischaemic attacks

It is essential that students/staff take a full medical history and identify those patients on anticoagulant medication.

- Clinical Procedures which pose the biggest risk with bleeding include:
  - Dental extractions
  - Dento-alveolar surgery
  - Periodontal debridement
  - Periodontal surgery
  - Pulp extirpations

Clinical Guidelines for Extractions in Patients on Warfarin

Preoperative Phase

- Ask the patient for evidence of their current International Normalised Ratio (INR). They should have an anticoagulation card which will show how well controlled they have been over the last 2 months. Patients who show wide and wild fluctuations in their INR ratios should be brought to the attention of the Clinical Supervisor.

- The patient's INR should be done ideally within 24 hours before the extraction. However, INR results done in the last 72 hours (maximum) are acceptable. An INR machine is available in the DEF and protocols for its use are kept with the machine. Any member of staff who uses this machine must be fully trained in its use.

- Up to three routine extractions / one surgical procedure can be carried out at one appointment for patients with INR < 3.5 (local DEF protocol; nationally an INR of <4.0 is acceptable).

- If more than three teeth need to be extracted, multiple appointments should be arranged.
- Surgery should ideally be carried out at the beginning of the day and the beginning of the week. This way any re-bleeding can be dealt with during the working day.

- If the INR is >3.5, surgical treatment should not be carried out in the DEF.
    - Non-acute cases – the patient's General Medical Practitioner should be contacted and asked if it is possible to adjust the patient's medication to reduce the INR to below 3.5.
    - Acute cases – the patient should be referred using appropriate forms:

➢ Plymouth

- Devon Referral Support Services (DRSS) Dental
  Bridge House, Collet Way, Brunel Industrial Estate
  Newton Abbot, TQ12 4PH
  Tel: 01626 883897

➢ Truro

- Kernow Health Referral Management Service
  1st Floor Cudmore House, Treliske Industrial Estate
  Truro Cornwall TR1 3LP
  Tel: 01872 226700

Intra operative Phase

- A LA containing a vasoconstrictor should be given by infiltration or intraligamentary injection, if practical. Regional nerve blocks should be avoided where possible and must not be administered if the INR is >3.5 (Local PDS policy). LA should be administered cautiously using an aspirating syringe. Local vasoconstriction may be encouraged by infiltrating a small amount of LA with adrenaline close to the site of surgery.

- The procedure should be as atraumatic as possible. The Clinical Supervisor should be involved if necessary.

- Assess bleeding throughout the procedure and if a source of concern, take appropriate actions with help from your supervisor

- Each root socket should be packed gently with appropriate hemostatic agent (surgical / gelfoam) followed by suturing with 3-0 or 4-0 Vicryl rapide preferably using conventional of figure-of-eight horizontal mattress suture. Following closure, pressure should be applied to the socket(s) with a bite pack for 10-15 minutes.

- **<u>Haemostasis must be achieved prior to the patient leaving the surgery.</u>**

Post-operative Phase

- The patient should be given a Postoperative Instruction Sheet for Patients taking Anticoagulant or Antiplatelet Therapy. These include out-of-hours contact details should the patient have any episodes of postoperative bleeding.

- Paracetamol is recommended for postoperative analgesia. Aspirin at analgesic doses and NSAID's (Ibuprofen) should be avoided.

- If the patient requires antibiotics, these should only be prescribed in consultation with the patient's General Medical Practitioner as they may interact with Warfarin and will alter the INR.

- If there are any concerns, a follow-up appointment should be made for the patient on the next available clinic.

Table 1: Useful Information on Warfarin

Targets	Factors II, VII, IX and X Proteins C and S
Effective half-life	20-60 h (mean ~40 h)
Food and other effects on absorption	Food may delay rate
Need for routine monitoring of coagulation	Yes (PT/INR)
Antidote/reversal agent available	Yes (vitamin K)
Drug and food interactions: increased anticoagulation	Antifungals: miconazole, ketoconazole, fluconazole (lesser degree: itraconazole) Antibiotics: erythromycin, clarithromycin, (metronidazole possibly) azithromycin, tetracycline, doxycycline, cephalosporins, levofloxacin Analgesics: NSAIDs, (antiplatelet agents: aspirin, clopidogrel), ibuprofen, diclofenac, paracetamol (prolonged regular use) Food/herbs: cranberry juice, St John's wort, alcohol, many dietary supplements
Drug and food interactions: decreased anticoagulation	Green leafy vegetables (vitamin K), vitamin E

Clinical Guidelines for Extractions in Patients on Other Anticoagulants

NICE has recommended additional oral anti-coagulants for use in patients with atrial fibrillation. These include **Dabigatran, Apixaban** and **Rivaroxaban**. These drugs have little effect on Prothrombin Time and therefore *INR is unsuitable for monitoring*.

Dabigatran Etexilate *(Pradaxa)*
Dabigatran reversibly inhibits free & clot-bound thrombin by binding to the active site of the thrombin molecule. It is monitored with Activated partial thromboplastin time (aPTT) and Thrombin clotting time (TT). Half-life = 12-17 hours; Standard dose 150mg tablet twice daily

Rivaroxaban (Xarelto)
Direct factor Xa inhibitor and is monitored with activated partial thromboplastin time (aPTT) and anti-factor X-a assays. Half-life= 5-7 hours; Standard dose 20mg once daily

Apixaban (Eliquis)
Reversible inhibitor of factor Xa .
Monitored with activated partial thromboplastin time (aPTT) and Anit Factor X a Assay
Half-life= 12 h; Standard dose 5mg tablet twice daily

Heparin
Heparin is a natural product found in mast cells that line the vasculature and released in response to injury. It is also prescribed as an anticoagulant in patients at risk of thrombo embolism and ischemic heart disease. It exerts its anti-coagulant effect through several mechanisms, namely,

i. Binds to anti-thrombin III (indirect acting) – prevents conversion of prothrombin to thrombin
ii. Inhibits activation of factor X
iii. Also prevent the conversion of fibrinogen to fibrin

Management:

- 1-3 simple extractions are classified as low risk and may be carried out safely
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- If the patient is on a twice daily dose of Apixaban or Dabigatran, the morning dose may be missed with the evening dose to be taken as usual

- If the patient is on a once daily dose of Apixaban or Dabigatran, the morning dose may be delayed for approximately 4 hours after haemostasis has been achieved

- Take general preoperative and perioperative precautions along with additional local haemostatic measures (Surgicel and suturing) as described under Warfarin.

Drug Interactions: Other Anticoagulants

Anticoagulant effect increased with the following drugs:		
Dabigatran etexilate	**Rivaroxaban**	**Apixaban**
Aspirin	Aspirin	Aspirin
NSAIDs	NSAIDs	NSAIDs
Clopidogrel	Clopidogrel	Clopidogrel
SSRI/SNRI	Dronedarone	
Verapamil		
Quinidine		
Clarithromycin		
Amiodarone		
Ticagrelor		

Anticoagulant effect decreased with the following drugs:		
Dabigatran etexilate	**Rivaroxaban**	**Apixaban**
Phenytoin	Phenytoin	Phenytoin
Carbamazepine	Carbamazepine	Carbamazepine
Rifampicin	Rifampicin	Rifampicin
St John's Wort	St John's Wort	St John's Wort
	Phenobarbital	Phenobarbital

Contra-indicated drugs:		
Dabigatran etexilate	**Rivaroxaban**	**Apixaban**
Other anticoagulants	Other anticoagulants	Other anticoagulants
Azole antimycotics	Azole antimycotics	Azole antimycotics
Cyclosporin	HIV protease inhibitors	HIV protease inhibitors
Tacrolimus		
Dronedarone		