

DENTAL MANAGEMENT OF PATIENTS TAKING ORAL ANTI-COAGULANT DRUGS

Anti-coagulant therapy produces an increased risk of bleeding. The common anti-coagulant is the coumarin, **warfarin** – a vitamin K antagonist (VKA).

In the last five years there has been an introduction of **new oral anti-coagulant drugs (NOAC)** e.g. Dabigatran, Rivaroxaban and Apixaban which in some cases have replaced Warfarin.

In addition there are an increasing number of patients on Anti-platelet therapy e.g. clopidogrel+/- aspirin.

Many dental procedures do not involve a significant risk of bleeding and therefore no special measures are required when treating patients who take an oral anti-coagulant drug. These procedures are:

- Simple restorative treatment
- Supra gingival scaling
- Local anaesthesia by buccal infiltration, intraligamentary or mental block
- Impressions and other prosthetic procedures
- Crown and bridge preparations

Procedures which carry a risk of significant bleeding and for which the dentist needs to consider the management of the patient in relation to their anti-coagulant therapy are:

- Local anaesthesia by inferior alveolar or other regional nerve blocks or lingual or floor of mouth infiltrations
- Sub gingival scaling and root surface instrumentation
- Extractions
- Oral surgery
- Periodontal surgery
- Biopsies
- Incision and drainage of swellings

GENERAL GUIDANCE

- Morning appointments, earlier in the week allow any post op. bleeding to be dealt with in the working day and before the weekend.
- Local anaesthetic solutions containing a vasoconstrictor should be used unless rarely contraindicated on other medical grounds. An aspirating syringe must be used for all local anaesthetic injections.
- For sub-gingival scaling, a small area should be scaled first, to assess the amount of bleeding, before instrumentation of larger areas is carried out. It may be necessary to complete a full mouth scaling over several visits.
- Extractions should be restricted to a maximum of three to four teeth per visit in a maximum of two quadrants
- All extractions should be completed as atraumatically as possible (using luxators/periostomes)
- Sockets should be gently packed with a haemostat and sutured with resorbable sutures at the time of the extraction.

Table 1. Oral anticoagulants for stroke prevention in atrial fibrillation

	Warfarin	Dabigatran	Rivaroxaban	Apixaban
Coagulation factor target	Vitamin K dependent factors II, VII, IX and X	Direct factor IIa (thrombin) inhibitor	Direct factor Xa inhibitor	Direct factor Xa inhibitor
Dose	Variable	110 mg or 150 mg	10 mg	2.5 mg or 5 mg
Frequency	Daily	Twice daily	Daily	Twice daily
Peak onset	72–96 h	2–3 h	2–4 h	1–3 h
Half-life	~40 h	12–15 h	5–9 h (young) 11–13 h (elderly)	8–13 h
Protein binding	99%	35%	92–95%	87%
Metabolism	Hepatic cytochrome P450 isozymes (predominantly CYP2C9)	20% liver metabolism	66% liver metabolism	70% liver metabolism
Renal excretion (active drug)	–	80% renal	33% renal	27% renal
Drug interactions	Numerous clinically significant interactions <i>Refer to BNF</i>	P-GP inhibitors/inducers <i>Refer to SmPC</i>	CYP3A4/CYP2J2 and P-GP inhibitors/inducers <i>Refer to SmPC</i>	CYP3A4 and P-GP inhibitors/inducers <i>Refer to SmPC</i>
Non-specific coagulation tests	↑PT	↑aPTT ↑TCT	↑PT ↑aPTT	↑PT ↑aPTT
Specific coagulation tests	INR	Dilute thrombin time (Hemoclot®)	Anti-Xa assay (rivaroxaban calibrator)	Anti-Xa assay (apixaban calibrator)
Antidote	Vitamin K PCC	Idarucizumab (phase II study)	Andexanet-α (phase II study)	Andexanet-α (phase II study)

MANAGEMENT OF WARFARINISED PATIENTS

The vast majority of patients on Warfarin will have an INR of 2.0 to 3.0 and should be able to undergo routine dental extractions/minor oral surgery without stopping their warfarin. Extractions should be able to be safely carried out in the following circumstances:

- Where the INR is less than 4
- If local haemostatic measures are taken (packing, sutures). Warfarin should not be stopped but the INR should be checked within 24 hours of the planned procedure (patients can usually co-ordinate this themselves with either their doctor or anti-coagulant clinic).
- Patients should be referred if other coagulopathies co-exist or if the INR is maintained at greater than 4.

NEW ORAL ANTI-COAGULANTS (NOAC)

The main drugs in this classification that you will come across include:

DABIGATRAN (Pradaxa) Direct thrombin inhibitor (factor IIa) BD
RIVAROXABAN (Xarelto) Direct Factor Xa inhibitor OD
APIXABAN (Eliquis) Direct Factory Xa inhibitor BD

Their primary use is for the treatment of atrial fibrillation (AF) or because of recent or recurrent pulmonary embolus (PE). Occasionally used for 2 to 6 weeks following elective knee and hip replacement surgery. The maximum coagulant effect is achieved 2 hours after ingestion.

They have a half life of approximately 12 hours and so the clotting status returns to normal within 24 hours if the drug is discontinued.

There is no routine blood test monitoring required for NOAC (INR is not sensitive to the anti-coagulant effect) and there is no drug that can counteract their activity (unlike Warfarin).

When managing patients taking a NOAC, you must assess the balance between **the risk of bleeding and the risk of a thrombotic event** if the drug is stopped.

DENTAL MANAGEMENT FOR NOAC

- For patients on short courses of anti-coagulant, delay elective treatment until patient is recovered.
- If additional concerns exist for any patient e.g. social or medical, consider referral even if treatment seems straightforward.

LOW RISK

I.e. less than or equal to 3 - 4 simple extractions in up to 2 quadrants / simple oral surgery (e.g. incision of abscess, periodontal surgery, positioning of implants, simple oral surgery)

- Do not stop NOAC
- Carry out procedure with least possible trauma
- Treat with local haemostatic measures (example oxidised cellulose or collagen sponges and sutures)
- Allow patient to leave only when bleeding has stopped.

HIGHER RISK

I.e. Greater than 3 - 4 teeth in more than 2 quadrants/difficult oral surgery - Refer to secondary care.

GUIDE LINES ON ANTI-PLATELET THERAPY

Management of patients taking Clopidogrel plus +/- Aspirin. Clopidogrel is given for a number of reasons but most commonly after PCI (percutaneous coronary intervention, coronary stent placement or to patients who have recently had a MI). There has been some evidence to suggest that Clopidogrel should be stopped prior to surgery if patients are also taking Aspirin as well.

If however there is a stent in situ the risk of stopping Clopidogrel and Aspirin are very high and therefore the drug should continue for six weeks after a bare metal stent and twelve months after a drug alluting stent.

Stopping anti-platelet therapy increases the risk of a stroke or myocardial infarction occurring – patients are more at risk of permanent disability or death if they stop anti-platelet medication prior to a surgical procedure than if they continue it. Bleeding complications while inconvenient do not carry the same risk as thromboembolic complications. **It is therefore advisable to continue an anti-platelet drug and to take appropriate haemostatic measures.** There is unfortunately very little evidence published regarding the risk of bleeding associated with dual anti-platelet drugs (Clopidogrel + Aspirin) but it seems sensible to follow the above NOAC guidelines.

POST OPERATIVE MANAGEMENT/CARE INSTRUCTIONS FOR EXTRACTIONS AND SURGERY

The patient should be advised to rest for four hours post operatively, should avoid eating and drinking for that time to allow the clot to stabilise and local anaesthetic to wear off. The patient should be given the standard post operative advice verbally and in writing. Appropriate telephone contact details should be issued to the patient in writing and the patient should know how to obtain advice and/or help both in and out of hours if bleeding occurs.

In addition the following advice regarding analgesics should be given:

- For post-operative pain control paracetamol is the safest pain killer. Non-steroidal anti-inflammatory drugs such as aspirin, ibuprofen, and voltarol should be avoided.
- If paracetamol alone is not sufficient to manage pain, dihydrocodeine may be an appropriate alternative if not contraindicated. Otherwise, the patient should consult their doctor for advice on pain relief.

PATIENTS UNSUITABLE FOR DENTAL MANAGEMENT IN PRIMARY CARE

Patients who have a INR greater than 4 or who have a very erratic INR should not undergo any form of dental procedure other than those from the safe list previously mentioned without consultation with the clinician who is responsible for maintaining their anti-coagulation. The anti-coagulant dose may be adjusted prior to the procedure at the discretion of this clinician or elective dental procedures which are at risk of significant bleeding may need to be referred.

The following medical problems may affect coagulation and clotting:

- liver impairment and/or alcoholism
- renal failure
- Thrombocytopenia, haemophilia or other disorder of haemostasis
- current course of cytotoxic medication

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