Dental note

Treating patients on new anticoagulant drugs

Christopher Daly
Chair
Dental Therapeutics Committee
Australian Dental Association
Sydney

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Introduction

Patients on anticoagulant drugs are at risk of postoperative bleeding after invasive dental treatments, especially extractions and oral surgery. A new class of oral anticoagulants has recently been introduced for the treatment and prevention of thromboembolism. Currently dabigatran (Pradaxa), apixaban (Eliquis) and rivaroxaban (Xarelto) are available.

Warfarin has evidence-based safety parameters and dental treatment protocols.[1] It can be monitored with the INR and its effect can be quickly reversed. As the drug has been used widely for over 50 years, dental and medical practitioners have had long experience in managing dental patients taking warfarin. In contrast, there are no specific evidence-based guidelines for the dental management of patients taking the new oral anticoagulants.

Guidelines

Recent reviews[2-4] have not identified any randomised controlled trials, case-control studies or systematic reviews of the new drugs in patients having dental procedures. There is no firm clinical evidence on which to base a decision to either continue or discontinue the drugs before invasive dental treatment. To date, all published guidelines have been based purely on expert opinion and the consensus of multidisciplinary writing groups[4-7] or on clinical experience.[8]

All guidelines recommend that dentists should take a cautious approach when performing invasive dental treatments for patients taking the new anticoagulants. Unlike warfarin, where the dose can be adjusted according to the INR, the new drugs are prescribed at fixed doses. Depending on the pharmacokinetics of the drug, patients with liver disease or impaired renal function may have a higher risk of bleeding following invasive dental treatments as they may have an increased plasma concentration of the drug. Referral to an oral and maxillofacial surgeon should be strongly considered for patients requiring extractions who have liver disease or impaired renal function, or complex medical histories, or who are also taking antiplatelet drugs.[8] A referral should also be considered when the required extractions are complex, extensive or have a high risk of postoperative bleeding.

The need for referral to an oral and maxillofacial surgeon is highlighted by a case[8] in which an 84-year-old man taking dabigatran for atrial fibrillation developed significant postoperative bleeding, following drainage of an abscess and extraction of 18 teeth under general anaesthesia, despite tight suturing of the extraction sockets. The patient had to be returned to theatre for further suturing and haemorrhage control. However, the bleeding only stopped 24 hours after cessation of the dabigatran.

Currently, the most detailed guidelines for the dental management of patients taking the new anticoagulants are those from the Scottish Dental Clinical Effectiveness Programme.[6] These list specific dental procedures which are associated with postoperative bleeding and classify them as having a low risk or higher risk of bleeding complications (Box). For low-risk procedures, interruption of anticoagulation is not recommended. For high-risk procedures, the Scottish guidelines[6] provide a detailed schedule for the timing of cessation and resumption for each specific drug.

Box Risk of bleeding with specific dental procedures

Low risk of postoperative bleeding complications

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 and subgingival scaling

Direct or indirect restorations with subgingival margins

Higher risk of postoperative bleeding complications

Complex extractions, adjacent extractions that will cause a large wound or >3 extractions at once

Flap-raising procedures:

- elective surgical extractions
- periodontal surgery
- preprosthetic surgery
- periradicular surgery
- crown lengthening
- dental implant surgery

Gingival recontouring

Biopsies

Source: Reference 6

Managing risk

Before undertaking any treatment, dentists must obtain a thorough medical history from the patient. This includes the name, dose and prescriber of all drugs. Ideally, patients on anticoagulants should have been informed by their prescribing doctor about the potential risks of bleeding complications with dental procedures, and the need to inform their dentist about their treatment. A medical history should also identify other drugs that can result in postoperative bleeding problems, especially antiplatelet drugs such as clopidogrel, prasugrel, ticagrelor, aspirin, non-steroidal anti-inflammatory drugs and some complementary medicines.

Anticoagulation must only be interrupted by the patient's prescribing doctor. The timing of cessation and resumption will be influenced by the patient's renal function, the bleeding risk of the procedure and the drug's half-life.[7] Trough concentrations occur 12 hours after the last intake for dabigatran and apixaban (taken twice daily) and 24 hours after the last intake of rivaroxaban (taken once daily).[5] Any decision to interrupt anticoagulant therapy must only be taken after careful consideration of the risk of a thromboembolic event, such as stroke, if the drug is stopped versus the risk of postoperative bleeding. Such decisions need to be made on a case-by-case basis and involve communication between the medical and dental practitioners. Patients also need to be told of the potential risks involved with interrupting or not interrupting their anticoagulation so that they can make an informed decision.

Procedures

Less invasive options should be used when clinically feasible to avoid dental procedures with a high risk of bleeding if anticoagulation is not interrupted. For example, perform root canal therapy instead of extraction.[2] Similarly, it would be preferable to delay invasive dental treatment if possible for a patient who is only being anticoagulated for a short time, for example following joint replacement surgery.

Extraction of 1–3 teeth without interrupting anticoagulation is recommended by most guidelines.[5-7] This is in keeping with recommendations[1] for extractions in patients on warfarin when the INR is under 4. The same holds true for subgingival scaling and root planing. However, each patient must be assessed individually and, if there is marked gingival inflammation present, the risk of bleeding complications may be higher. In such situations only treat a small area and ensure haemostasis before proceeding to another area. When treatment interruption is not advised, the Scottish guidelines[6] recommend treatment early in the day. Although this timing is more likely to coincide with peak drug concentration if the anticoagulant is taken in the morning, the risk is judged to be outweighed by allowing monitoring and management of postoperative bleeding during normal surgery hours.

Following dental extraction in an anticoagulated patient, the socket should be packed with haemostatic material and should also be sutured. Apart from providing compression, suturing assists in retaining the haemostatic packing material and the clot. Pressure and compression should then be applied to the socket until bleeding stops. Printed postoperative instructions should be given to all patients. These should include a contact number for the treating clinician as well as clear instructions to attend a hospital emergency department or ring 000 if there is uncontrollable bleeding and the practitioner cannot be contacted.

Many patients are elderly and a carer or other responsible adult should accompany them to their appointment and stay with them for at least 24 hours after dental extraction or other oral surgery. This is most important if they live alone. These precautions are necessary due to the potential serious outcomes with uncontrollable bleeding.

Antidote

To date, one major disadvantage of the new drugs compared to warfarin has been the lack of a reversal agent to help deal with uncontrollable bleeding. This has recently changed with the approval of idarucizumab,[9] a humanised monoclonal antibody against dabigatran. Parenteral idarucizumab can be given when rapid reversal of dabigatran is required for emergency surgery or urgent procedures, or for life-threatening or uncontrolled bleeding. Antidotes for the other new drugs are not yet available.

Conclusion

If a patient taking a new anticoagulant drug requires a dental procedure with a high risk of postoperative bleeding, a decision must be made whether or not to stop the drug. This decision requires discussion with the patient's medical practitioner. For many procedures with a low risk of postoperative bleeding, anticoagulation can be continued.

Conflict of interest: none declared

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FURTHER READING

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