

## REVIEW ARTICLE

# Management of Dental Patients on Anticoagulant Therapy Undergoing Surgical Procedures

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## ABSTRACT

Dental interventions are usually associated with a low risk of bleeding; however, the dental implications of new antithrombotic agents are not yet fully understood. The present review is based on the latest evidence and recommendations published on the periprocedural management of dental patients treated with single or dual antiplatelet therapy, Vitamin K antagonists, or direct oral anticoagulants for a variety of indications.

**Keywords:** Antiplatelet therapy, Dental interventions, Direct oral anticoagulant, Periprocedural management.

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## INTRODUCTION

Most practical recommendations consider dental procedures as minor interventions associated with a low risk of bleeding and self-limited blood loss that can be managed with local hemostatic agents.<sup>[1-3]</sup> However, certain interventions, such as dental reconstruction surgery, may require the temporary discontinuation of antithrombotic therapy. Therefore, it may not be appropriate to handle dental procedures as a homogeneous group when it comes to assessing the risk of bleeding. The Scottish Dental Clinical Effectiveness Programme guidance provides a comprehensive classification of dental interventions based on the associated bleeding risks. Due to the increasing life expectancy and the aging of the population, the periprocedural management of patients receiving oral anticoagulant or antiplatelet therapy for the primary or secondary prevention of cardiovascular disease is an increasingly common clinical problem.<sup>[4,5]</sup> The management of these patients represents a challenge for physicians as they

should carefully balance the risk of bleeding with the risk of thromboembolic complications resulting from the temporary interruption of antithrombotic therapy. Therefore, the primary aim of this article is to provide a summary of the latest relevant evidence on the periprocedural antithrombotic management of patients undergoing dental procedures, intending to help dentists, and general practitioners' decision-making in this setting. For this purpose, a comprehensive search of the literature was performed through PubMed using "dabigatran," "rivaroxaban," "apixaban," "edoxaban," "warfarin," "antiplatelet," "dental," "oral," and "surgery" as search terms. Studies that provided general and specific information on the management of oral anticoagulants and antiplatelet agents in the perioperative setting and a dental context were identified and selected.

## DENTAL PATENTS RECEIVING ORAL ANTICOAGULANT THERAPY

### Vitamin K Antagonists (VKA)

The management of patients who require dental interventions and receive chronic treatment with VKAs has been extensively investigated.<sup>[6-9]</sup> There is general agreement that treatment regimens with VKAs should not be altered before dental procedures. The current guidelines of the American College of Chest Physicians on the perioperative management of antithrombotic therapy recommend dental surgery without VKA interruption with the co-administration of a prohemostatic agent. British guidelines state that oral anticoagulation with VKA should not be discontinued in the majority of patients requiring dental surgery. Most randomized trials and prospective cohort studies assessing periprocedural anticoagulant management in VKA-treated patients undergoing dental procedures showed similar rates of post-operative bleeding after dental surgery in continuously anticoagulated patients, patients whose anticoagulation was reduced or withdrawn and non-anticoagulated patients.<sup>[10,11]</sup> Therefore, most authors concluded that the risk of interrupting or reducing VKA therapy outweighed the consequences of potential bleeding complications. Based on the available evidence and extensive clinical experience, the interruption of VKA treatment before dental procedures is

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not recommended for interventions that are unlikely to cause bleeding and for low and high-bleeding risk procedures if the INR of the patient is  $\leq 3.5$  24 h before the planned intervention. If  $\text{INR} \geq 3.5$ , dose adjustment is required, and the procedure should be delayed until the patient's INR has been reduced to  $< 3.5$ .<sup>[12,13]</sup> According to current recommendations, this strategy applies for both low and high-bleeding risk dental procedures.<sup>[2]</sup>

### Direct Oral Anticoagulants (DOACs)

Recently, several DOACs have been developed and tested in large clinical trials as well as real-world studies. These include the direct factor Xa inhibitors rivaroxaban, apixaban, and edoxaban, and the direct thrombin inhibitor dabigatran. The new agents are now approved for indications including the acute treatment of deep vein thrombosis and pulmonary embolism, the prevention of stroke and systemic embolization in non-valvular atrial fibrillation, venous thromboembolism prophylaxis after orthopedic surgery and in hospitalized medically ill patients, and for the management of ACS. A recent evidence summary has revealed that the research pertaining on dental surgery in patients taking DOACs is of very low quality and limited volume.<sup>[5]</sup> Practical recommendations and the summary of product characteristics of DOACs contain recommendations for the management of dental patients.<sup>[2]</sup> For patients usually taking their rivaroxaban or edoxaban dose in the evening, there is no need to modify their medication schedule before dental treatment. If complete hemostasis has been achieved, DOACs can be resumed 6–8 h after the intervention. Due to the short time to peak plasma concentration of DOACs, resuming the drug at the same dose once hemostasis has been established provides a rapid restoration of anticoagulation after the intervention. Therefore, bridging with other anticoagulants is not necessary for patients undergoing dental interventions. In emergency settings, if the required procedure is associated with a high risk of bleeding, referral to an oral surgeon may be necessary. Further practical recommendations for patients undergoing high-bleeding risk, dental interventions include scheduling the dental treatment for the morning to allow for monitoring and the management of potential bleeding complications, limiting the surgical site by performing a single extraction or limiting subgingival periodontal scaling to three teeth and assessing bleeding before continuing, and the use of hemostatic measures to achieve haemostasis as soon as possible. Finally, it has to be noted that while the classification of procedures based on the expected risk of bleeding may guide decisions about the continuation or temporary interruption of antithrombotic therapy, management

approaches should always be individualized taking into account the patient's current medication schedule and chronic conditions that may further influence the risk of bleeding (e.g. renal or hepatic impairment, thrombocytopenia, concomitant anticoagulants, antiplatelets, or non-steroidal anti-inflammatory drugs) as well as the availability of hemostatic measures.<sup>[14,15]</sup> Checking for clinically important drug interactions and consultation with a pharmacist or clinical pharmacologist are required during the management of patients taking multiple medications.

### CONCLUSION

The available evidence suggests that most dental interventions can be safely performed without the interruption of antithrombotic therapy. However, further studies are needed to establish evidence-based guidelines for the periprocedural antithrombotic management of patients receiving DOACs or novel antiplatelet agents.

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*Dental patients on anticoagulant therapy*

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