

Anticoagulant therapy in patients with dental treatment needs. A literature study



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Abstract

Aim and objectives: The aim of this literature study was to review relevant articles regarding the specificity of dental treatments, especially oral surgery and implantation in anticoagulated patients. **Material and methods:** Using relevant MeSH terms, a search in PubMed database was performed in order to find publications about the particularities of dental treatments in patients who are anticoagulated, particularly with non-vitamin K antagonist oral anticoagulants (NOACs). **Results:** The practitioners must act taking into account the bleeding risk and the extent of the surgical procedure. **Conclusions:** The main conclusion is that the non-vitamin K antagonist oral anticoagulant (NOAC) therapy does not represent a contraindication for surgical dental procedures.

Keywords: anticoagulated patients, dental treatment, bleeding risk

INTRODUCTION

Non-vitamin K antagonist oral anticoagulants (NOACs), also known as direct oral anticoagulant drugs (DOACs) are considered nowadays safe and effective, and have dramatically increased the quality of life of the treated patients. NOACs are considered world-wide the medication of choice in many clinical situations, such as acute venous thromboembolic disease (deep vein thrombosis and pulmonary embolism), prevention of thromboembolism and stroke in patients with non-valvular atrial fibrillation, prophylaxis in the postoperative setting, and in the acute coronary syndrome. The dental treatments in clinical practice may rise sometimes difficulties because dentists face with patients requiring surgical procedures. Some of these patients have multiple comorbidities and, moreover, the dentists are more often performing invasive dental procedures in patients with anticoagulants. The rapid trigger of action, their relatively short half-life and predictable pharmacokinetics make the periprocedural use of the NOACs more simple and safer [1,2,3,4,5].

Clinical studies have demonstrated that NOACs have a safe efficacy and a predictable anticoagulant effect. They do not need a routine coagulation monitoring, although they require a good understanding of their effects, side-effects and interactions [6,7].

Aim and objectives

The aim of this article is to review the literature regarding the therapeutic attitude of the dentist with patients undergoing NOACs therapy and need surgical procedures of different extents.

MATERIAL AND METHODS

A literature review was conducted using PubMed database and applying relevant MeSH terms (between January 2011-December 2021). The primarily identified studies were screened independently by 2 reviewers using the following criteria: surgical dental treatment, patients taking anticoagulants and hemostatic intervention. After removing duplicates and irrelevant publications, the search identified 19 studies, which were reviewed and included in this work.

RESULTS

It is generally recognized, that the practitioners must make the difference between the therapeutic attitudes in invasive surgical procedures which require temporary discontinuation of NOACs, and the less invasive procedures with a low bleeding risk. These ones require minimally- or uninterrupted NOAC therapy [8].

For instance, in an extensive review, Steffel et al. concluded that dental extractions can generally be performed in the dental office using local hemostatic measures, without interrupting anticoagulation or by just omitting the morning dose of the NOAC (where applicable). The hemostatic techniques refer to the use of sutures, oxidized cellulose or resorbable gelatin sponge or compressive gauze soaked in tranexamic acid [8].

Additionally, getting into details, some authors recommend that dental extractions of 1 to 3 erupted teeth, implantation, root canal procedures, subgingival scaling may require a preprocedural temporary interruption period of 12 - 24 hours. The intervention may be scheduled 18 - 24 hours after the last NOAC dose, with a restart 6 hours later (i.e. not skipping a dose of rivaroxaban). The same authors reported that the patients with low or moderate

bleeding risk should take the last NOAC dose ≥ 24 hours before multiple tooth extractions of more than 3 teeth. Also, the creatinine clearance has an influence on the moment at which the last NOAC dose should be taken [8,9,10,11].

In cases of high risk of bleeding (extractions of more than 5 teeth, extensive surgery procedures in patients with comorbidities, or surgical procedures lasting more than 45 minutes), the intake of dabigatran, rivaroxaban and apixaban should be suspended 24 hours before surgery or even longer, depending on the renal function, and should be resumed 24 hours after. The authors provide no information about the use of edoxaban [12].

Another study, which included patients under treatment with dabigatran, apixaban and rivaroxaban, showed that continuing the medication at the time of teeth extractions led to bleeding similar to patients on warfarin with an INR between 2.0 and 4.0. (under local hemostasis). The authors concluded that there is no need to adjust the doses prior to dental extractions, or to schedule the extractions around doses, thus eliminating the thrombotic risk associated with anticoagulant interruption [13].

In contrary, other authors recommend that tooth extractions in patients with comorbidities taking direct oral anticoagulants may be safely managed when they are performed at least 4 hours after the last intake and do not involve 2 or 3 contiguous premolars and molars [14].

Delayed extractions of at least 6 hours after the last dose (in patients under dabigatran or rivaroxaban) are also recommended from some authors. They also concluded that an interruption of medication is not necessary [15].

A study of Miclotte et al. concluded that omitting the morning dose (where applicable) of NOACs (dabigatran, rivaroxaban, or apixaban) may avoid extensive bleeding during and early after the dental extractions. One must be aware that patients undergoing anticoagulation therapy exhibit a higher risk of delayed bleedings [16]. Moreover, before invasive surgical procedures, which may be linked with a higher risk for bleeding or in which bleeding may have important clinical consequences, it is advisable to take the last NOAC dose 48 hours or longer before surgery but this decision should take into account all clinical-related factors, including renal function and the measurement of NOAC plasma levels [8].

A retrospective study conducted by Al Sheef et al. in 2021 had concluded that in case of dental extractions the higher bleeding risk was observed in patients under warfarin treatment compared with those who were treated with clopidogrel. The bleeding surgical areas were treated just with local hemostatics [17].

Regarding the implant insertion, in a prospective study including patients receiving dental implants, Gómez-Moreno et al. found no statistically significant differences in bleeding episodes during and after implant insertion among patients receiving continuous rivaroxaban therapy and healthy volunteers receiving placebo. After the surgical procedures, the implant sites were sutured with nonabsorbable material, and all patients bit gauze soaked in 5% tranexamic acid for 30-60 minutes [18].

A retrospective study evaluated the incidence of bleeding events and healing complications in patients with Rivaroxaban (20 mg) treatment, who needed implants and immediate implant-supported restorations. The implants were inserted in mandible, either in healed sites or fresh extraction alveoli. The medication was interrupted for 24 hours, at the physicians' recommendations. No major postoperative bleeding was observed. In three patients (25%) a slight immediate postoperative bleeding was noticed and controlled just under compression. The authors concluded that implant placement with an immediate loading does not pose any significant risk in patients with a 24 h discontinuation of Rivaroxaban, in agreement with the patient's physician [19].

DISCUSSIONS

The non-vitamin K antagonist oral anticoagulant (NOAC) therapy does not represent a contraindication for surgical dental procedures. The practitioners must do a careful preprocedural evaluation of the patient, in order to choose the best attitude regarding the anticoagulant treatment. It must be always assessed, which is the best option for the patient: a bleeding at the surgical site or a life-threatening alternative.

CONCLUSIONS

Within the limitations of this literature study, the following conclusions can be drawn:

1. The non-vitamin K antagonist oral anticoagulant (NOAC) therapy must not always be interrupted before oral surgery.
2. A delayed surgical procedure after the last dose might be a clinical alternative.
3. Patient's comorbidities must be always taken into consideration.
4. The local hemostatic measures limit or even avoid the postoperative bleeding.

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