

Chapter 166

Exodontia in patients on anticoagulant therapy: A review of the literature



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ABSTRACT

Patients on anticoagulant therapy are widely encountered in the clinical, dental practice where increased risks of bleeding complications are a major concern. According to the literature, the recommendation is to suspend anticoagulants five days before surgery, replacing them with Low Molecular Weight Heparin. The aim was to reduce the risk of bleeding without compromising the thromboembolic situation. This literature review aims to investigate the scientific literature protocols to be taken in the pre and postoperative period of dental extractions in patients who use anticoagulants, such as warfarin, aspirin, and dabigatran; assessing the risk of medication withdrawal and possible bleeding. Articles related to patients who were undergoing anticoagulant treatment and the procedures to be adopted in tooth extractions for these patients were included. The works included are between 2018 and 2022 selected from the virtual libraries: Scientific Electronic Library Online (SciELO), Public MedLine (PubMed), Google Scholar 42 articles were read so that 15 articles were selected, 6 evaluating the risk of bleeding, 9 evaluating surgical conduct and came to the conclusion that the continuation of the use of anticoagulants in patients with indications for dental extractions, can be performed if the patient is in the appropriate medication range and with the tests done and analyzed carefully.

Keywords: Tooth extraction, Anticoagulant, Bleeding, Surgery, Third molar.

1 INTRODUCTION

Anticoagulant therapy is widely used in clinical practice, where increased risks of bleeding complications, whether perioperative or spontaneous, are a major concern.

The action of anticoagulants is investigated using the prothrombin time (PT) and the international normalized index, also known as the international normalized ratio (INR). In this way, the blood clotting time can be carefully evaluated (CARDOSO; D'AVILA, 2020).

Anticoagulants and antiplatelet agents are widely used in patients with high thromboembolic risk. These drugs are commonly administered in patients who have cardiovascular disease, arrhythmias, atrial fibrillation, neurological disorders including embolic stroke or transient ischemic attack, as well as surgeries where the period of immobilization is expected to be long. They can also be used in cases of pulmonary embolism and venous thrombosis (MARTÍNEZ-MORENO et al., 2021).

Some anticoagulants such as aspirin, warfarin and dabigatran have been increasingly used. For the prevention of thromboembolic episodes, the use of oral anticoagulants is quite useful in the treatment of these pathologies. Aspirin and warfarin are the anticoagulants most associated with their class, being seen as low-cost and highly reliable drugs; dabigatran, on the other hand, was the most current anticoagulant included in the market and may be an excellent alternative to warfarin (MENEZES; DE OLIVEIRA; DA SILVA, 2018).

These drugs are of great importance to the patient who may experience increased bleeding potential as an adverse effect. In case of suspension, there will be a probability of hemorrhage and thromboembolism after performing more invasive procedures, such as tooth extractions. Thus, there are still doubts among dentists as to the best approach to adopt (INOKOSHI et al., 2021).

In tooth extractions, which are common dental procedures, it is extremely important to prevent possible bleeding complications through hemostatic measures and a careful anamnesis before the procedure (WANG et al., 2021).

The number of patients receiving oral antithrombotic therapy is increasing worldwide. Post-surgical bleeding after a tooth extraction is a critical and clinically highly relevant situation for physicians and patients, particularly for those who need to intervene with anticoagulants; as discontinuation or temporary reduction of anticoagulants may result in serious thromboembolic complications. The continuation of common-dose anticoagulants was recently recommended for tooth extractions in patients receiving anticoagulant therapy (YAMADA et al., 2020).

Hemostatic management in the pre- and postoperative period is essential for patients on anticoagulant therapy who will be exposed to oral surgery, and possible bleeding after surgery can be of great concern. Preoperative examinations can help to prevent the bleeding risk in DOACS therapy in patients who will undergo tooth extraction. The divergent calculation in the values of the coagulogram has a potential risk of the presence of an anticoagulant of great effect. Activated partial thromboplastin

time (aPTT) and prothrombin time (PT) are excellent tests to ask the patient with suspected pathologies that require anticoagulant therapy (CORTEZIA et al., 2021).

In the scientific literature, the recommendation was to suspend anticoagulant therapy five days before surgery, replacing it with Low Molecular Weight Heparin (LMWH). The aim was to reduce the risk of bleeding without compromising the thromboembolic situation. Although the management of these drugs is well documented in the literature, their management is different from Direct Oral Anticoagulants (DOACs). Generally, the risk of postoperative bleeding after extractions and osteotomies in patients treated with DOACs is low and easily controllable with local hemostatic measures, so it is recommended not to interrupt treatment with DOACs for dental intervention, avoiding the risk of a thromboembolic episode (PEREZ et al., 2021).

Chronic therapy with the new direct oral anticoagulants (DOACs) presents new challenges for dentists who assess the risk versus benefit of cessation versus non-cessation of anticoagulant therapy for dentoalveolar procedures. A retrospective controlled cohort study was designed to evaluate a non-cessation protocol for patients using DOACs in the setting of tooth extractions (LABABIDI et al., 2018).

A growing number of cardiovascular pathologies in the population has shown to be something of concern, thus, a large portion of the population uses anticoagulant medications. These drugs alter the functioning of hemostasis; thus, the risk of blood disorders after procedures becomes a concern for dentists (MENEZES; DE OLIVEIRA; DA SILVA, 2018).

The decision to discontinue anticoagulation can be complex and dynamic, depending on both the pharmacotherapy indication and the timing of previous thromboembolic events. (KAPLOVITCH; DOUNAEVSKAIA, 2019).

In current studies, these drugs are relatively safe in terms of general and perioperative bleeding by evaluating the difficulty of the procedure, the risk of bleeding, the risk of embolism, and the renal function of each specific patient. Bridging with heparin, often applied in patients using VKAs, is never recommended in patients using DOACs; only the suspension or delay of a single dose can be considered (BERTON et al., 2019).

This literature review aims to investigate in the scientific literature protocols to be taken in the pre and postoperative period of dental extractions in patients who use anticoagulants such as warfarin, aspirin, dabigatran. Thus, assessing the risk of medication withdrawal and possible complications.

2 MATERIALS AND METHODS

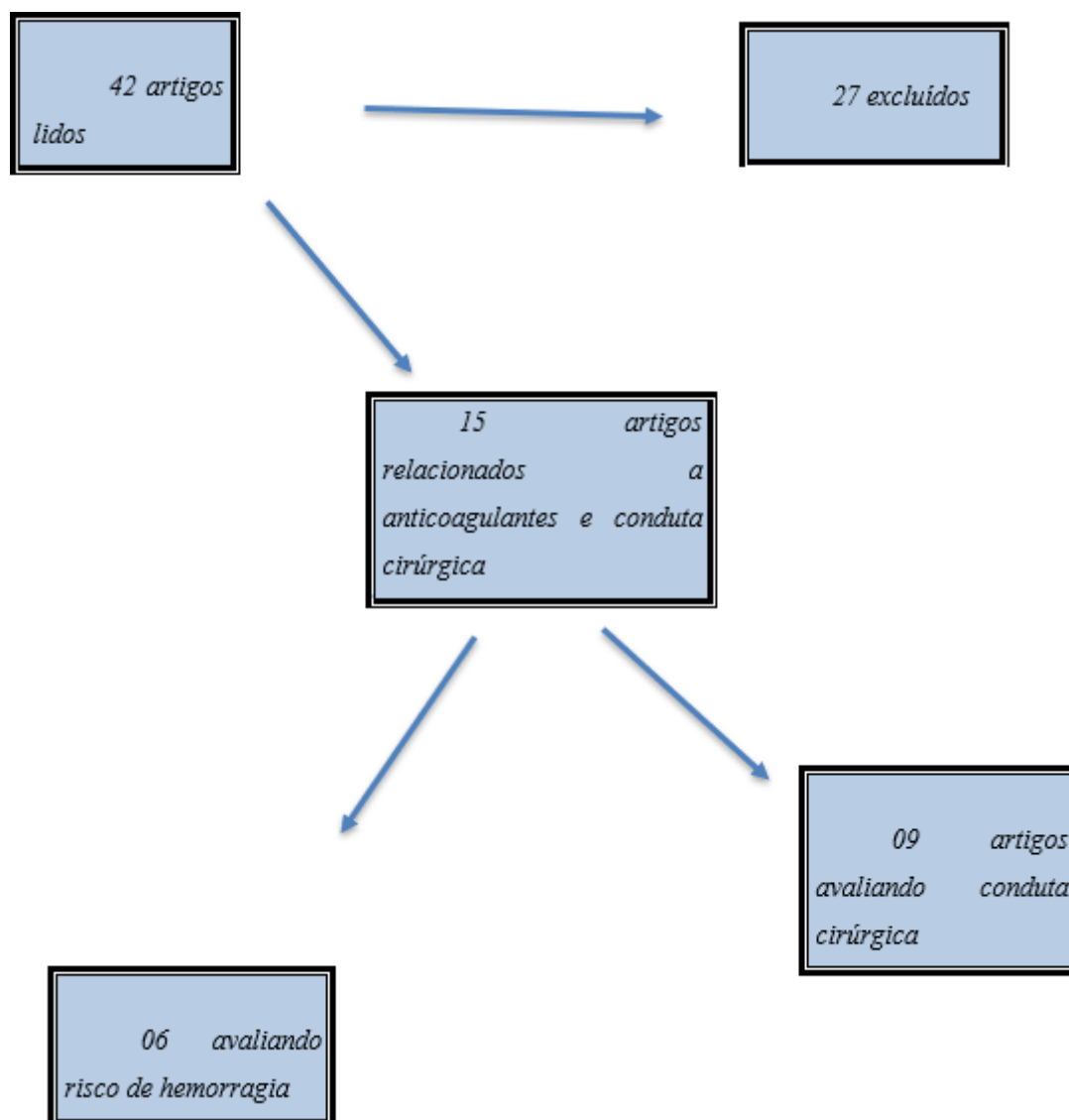
The bibliographical research was carried out in the electronic database of Public MedLine (PubMed), Scientific Electronic Library (Scielo), and Google Scholar, in English and Portuguese. patients pass, when tooth extraction is indicated. The following keywords were used to search for these articles: Extraction, Anticoagulation, Hemorrhage, Surgery, Warfarin. As inclusion criteria, readings of related articles were carried out to evaluate the mechanism of action of anticoagulants and conducts to be taken

in the surgical procedure of anticoagulated patients. The selected studies were published between 2018 and 2022.

3 RESULTS

42 scientific studies were identified in Portuguese and English, where 27 articles were excluded after reading the abstracts and 15 articles were included so that 06 articles consist of the surgical evaluation and 09 of the conducts to be taken.

Figure 1: Flowchart with criteria for inclusion of articles



Source: Authors, 2022.

Subtitle: 42 articles read
27 deleted
15 articles related to anticoagulants and surgical management
06 assessing bleeding risk
09 articles evaluating surgical conduct

4 DISCUSSION

To CABBAR et al. (2019), currently, many patients who need dental care are undergoing antithrombotic drug treatment and this situation is increasingly recurrent so that cardiovascular problems can affect a huge portion of the population

In the study by BERTON et al. (2019), it was reported that patient management is specific to each case, as the degree of difficulty of the surgery to be performed can lead the patient to possible hemorrhage during surgery, as well as compromise the renal function of patients. Patients who were using warfarin and in need of tooth extraction were chosen and only the selected one was extracted and evaluated in the first consultation. The patients included in this study had a low incidence of bleeding events after simple tooth extraction.

For BORJES et al. (2020), the recurrence of heart diseases in the population has constantly increased, and with that, the growing number of people who make routine use of anticoagulant therapy and platelet antiaggregants has increased greatly. These drugs alter the functioning of hemostasis, increasing the likelihood of possible bleeding complications after outpatient procedures, becoming a concern for dentists. In the study carried out by MENEZES, DE OLIVEIRA, and DA SILVA (2018), it was analyzed how much dentists and dental students understood about anticoagulants and concluded that there is a low level of knowledge and handling of patients who undergo this type of therapy.

Regarding warfarin YAMADA et al. (2019), postoperative bleeding after a tooth extraction is a critical and clinically important issue for physicians and patients receiving anticoagulants. A study was conducted to investigate the prevalence and risk factors for postoperative bleeding after mandibular third molar extraction in Japanese patients receiving warfarin therapy. Postoperative hemorrhage after extraction of mandibular third molars was significantly greater in patients receiving warfarin than in healthy subjects.

LU, LIN, and HSUE (2018), in turn, analyzed in their article that in patients for who the anticoagulant was paused, 99% no complications were reported, however, 0.8% were found thromboembolic complications and 0.2% complications risk of death. The authors also showed that there were cases that after 02 days of extraction of a premolar and 05 days of medication break, it could generate an acute myocardial infarction.

DA SILVA et al. (2019), based on the critical reading and study of articles that were based on evidence of a high scientific nature, decided to outline a protocol for preoperative guidelines, ordering tests, International Normalized Ratio (INR) parameters, determination of the pause or permanence of the therapy, orientations before the procedures and their complexity, as well as the use of hemostatic techniques and postoperative precautions.

LABADIB et al. (2018), since its approval, other types of direct-acting oral anticoagulants (DOACs) have become increasingly prescribed, more precisely gantran, apixaban, rivaroxaban, offering an alternative to what are said to be disadvantages of warfarin. A study done by the Royal Dental Hospital

of Meuborn based on bleeding profiles similar to the use of DOACs or warfarin, it was concluded that the results of the study suggest that extractions can be performed without ceasing the direct oral anticoagulant, with a low incidence of complications bleeding if local hemostatic measures are applied.

According to KAPLOVITCH and DOUNAEVSKAIA (2019), when helping physicians make these decisions, guidelines stratify patients according to high, moderate, or low risk of developing systemic thrombosis. And based on the indication of anticoagulant therapy, it is during the thrombotic event and comorbidities that increase coagulation.

5 CONCLUSION

The study constructed concluded that the continuation of the use of anticoagulants in patients with indications for dental extractions, can be performed if the patient is in the appropriate medication range and with the exams performed and analyzed carefully.

Therefore, in case of any surgery under the use of anticoagulants, a medical report and all local oral hemostatic devices and follow-up of these patients in the postoperative period are required, making it safer to avoid bleeding.

REFERENCES

- Berton, f. Et al. Should we fear direct oral anticoagulants more than vitamin k antagonists in a simple single tooth extraction? A prospective comparative study. *Clinical oral investigations*, v. 23, n. 8, p. 3183-3192, 2019.
- Cabbar, f. Et al. Effects of direct oral anticoagulants on quality of life during periprocedural management for dental extractions. *Journal of oral and maxillofacial surgery: official journal of the american association of oral and maxillofacial surgeons*, v. 77, n. 5, p. 904-911, 2019.
- Cardoso, r.; d'avila, a. Anticoagulantes orais diretos ininterruptos em ablação por cateter de fibrilação atrial: pronto para a prática clínica: aods ininterruptos em ablação de fa. *Arquivos brasileiros de cardiologia*, v. 114, n. 3, p. 443-445, 2020.
- Cortezia, k. S. Exodontia em pacientes submetidos a terapia com os novos anticoagulantes orais diretos. *Revista cathedral*, v. 2, n. 1, 2020.
- Da silva, t. E. Et al. Manejo cirúrgico do paciente submetido à terapia anticoagulante oral. *Revista pró-universus*, v. 10, n. 1, p. 145-149, 2019.
- De faria martins braga, l. Et al. Identificação da qualidade da anticoagulação em pacientes que utilizam varfarina e fatores associados: mundo da saude (1995), v. 45, n. S/n, p. 003-009, 2021.
- Inokoshi, m. Et al. Postoperative bleeding after dental extraction among elderly patients under anticoagulant therapy. *Clinical oral investigations*, v. 25, n. 4, p. 2363-2371, 2021.
- Kaplovitch, e.; dounaevskaia, v. Treatment in the dental practice of the patient receiving anticoagulation therapy. *Journal of the american dental association (1939)*, v. 150, n. 7, p. 602-608, 2019.
- Lababidi, e. Et al. Assessing an oral surgery specific protocol for patients on direct oral anticoagulants: a retrospective controlled cohort study. *International journal of oral and maxillofacial surgery*, v. 47, n. 7, p. 940-946, 2018.
- Lu, s.-y.; lin, l.-h.; hsue, s.-s. Management of dental extractions in patients on warfarin and antiplatelet therapy. *Taiwan yi zhi [journal of the formosan medical association]*, v. 117, n. 11, p. 979-986, 2018.
- Martínez-moreno, e. Et al. Bleeding complications in anticoagulated and/or antiplatelet- treated patients at the dental office: a retrospective study. *International journal of environmental research and public health*, v. 18, n. 4, p. 1609, 2021.
- Menezes, l. Dos s.; de oliveira, r. L. B.; da silva, l. C. F. Avaliação do nível de Conhecimento de cirurgiões-dentistas e graduandos em odontologia quanto ao manejo de indivíduos em uso de anticoagulantes orais. *Revista de odontologia da unesp*, v. 47, n. 5, p. 321-327, 2018.
- Perez, f et al. Clinical guidelines for the general practitioner in patients taking direct oral anticoagulants (doacs). 2021.
- Wang, m. Et al. Drug-drug interactions with warfarin: a systematic review and meta-analysis. *British journal of clinical pharmacology*, v. 87, n. 11, p. 4051-4100, 2021.
- Yamada, s.-i. Et al. Prevalence of and risk factors for postoperative hemorrhage after lower third molar extraction on warfarin therapy: a multicenter retrospective study in japan. *Odontology*, v. 108, n. 3, p. 462-469, 2020.