

DENTAL PATIENTS ON ORAL ANTICOAGULANT THERAPY

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Oral anticoagulant therapy (OAT) has been used for more than half a century in the management and prevention of thromboembolic disorders. Due to somewhat awkward phenomena accompanying anticoagulant therapy during dental-surgical interventions, dentists have to be well acquainted with the characteristics of the therapy and the measures to be undertaken in the management of patients on OAT. This paper aims to present a short overview of the procedures and measures to be undertaken by a dentist in the management of patients on OAT. *Acta Medica Medianae* 2013;52(1):48-51.

Key words: OAT, dentistry, anticoagulant therapy, oral surgery

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Introduction

Oral anticoagulant therapy (OAT) has been used for more than half a century in the treatment and prevention of thromboembolic diseases. OAT is commonly a long-term approach, sometimes with life-long administration. Clinicians therefore have to take care and balance benefits against adverse effects of the therapy. If over-dosed, oral anticoagulants may lead to prolonged bleeding, and insufficient or abruptly stopped OAT may lead to complications, manifested as thrombosis (1). Due to adverse manifestations associated with OAT during dental surgery interventions, dentists have to be well acquainted with the effects of this approach in disease prevention. In this paper, we intend to give an overview of the procedures and measures to be undertaken by dentists managing the patients on OAT.

Basic properties of OAT

Oral anticoagulants are vitamin K antagonists, reducing by 30-50% the synthesis of vitamin K-dependent coagulation factors in the liver (2). They do not have an impact on already circulating coagulation factors, but for them to be able to act, at least three to four days are required (the half-life of some of the coagulation factors) (3). OAT is most commonly used in the following situations (4):

- Prevention of recurrent stroke in patients with atrial fibrillation, prevention of myocardial infarction and venous thromboembolism in high risk patients.
- Prevention of systemic embolism in patients with artificial heart valves, diseases of mitral valves with or without atrial fibrillation, and acute myocardial infarction. Prevention in non-valvular atrial fibrillation.

Anticoagulants most commonly used in our institutions are presented in Table 1 (3,5,6). In order to prevent overdosing or underdosing when giving anticoagulant treatment, the action of these medications should be monitored by way of laboratory tests. They monitor prothrombin time (PT) and thrombotest (TT) values. The best and most effective indicant in the monitoring of activity of anticoagulants is the INR (International Normalized Ratio) system. The INR system was established by the World Health Organization in 1983, and in contrast to PT and TT, it was devised not to be sensitive to the type of used reagent thromboplastin, enabling direct comparisons of the results from different laboratories. We can withdraw OAT permanently or temporarily, with normalization of coagulation in 4 to 7 days.

Dental aspects of patients on OAT

Individual health education activity

It is obvious that most patients on OAT have fears related to their underlying disease and then to the treatment administered. These fears may have an impact on the understanding and relationship with their doctor. In the area of dental health care, in his everyday activity a dentist has to pay much attention to individual health education work with these patients. The work starts with the initial contact with the patient, being gradually developed and extended according to a well established program.

Table 1. Anticoagulants most commonly used in our country

Medicament	Dose	T/2	Effect duration	Maximum therapeutic effect
Ethylbiscumacetate - Pelentan - Tromexane	300 mg	25-30 hours	4 days	2-3 days
Acenocoumarol - Sintrom 1	1 mg	8-11 hours	2 days	36-48 hours
Acenocoumarol - Sintrom 4	4 mg	8-11 hours	2 days	36-48 hours
Warfarin sodium - Farin	5 mg	31-50 hours	3 days	36-48 hours
Phenprocoumon - Marcoumar	3 mg	6,5 days	4 days	48 hours

A patient has to be warned of any possible complication in the practice of dentistry and be aware of possible accompanying events such as pain, hematoma, bleeding, and other discomforts. Future visits should be planned, with communication focusing on the patient motivation to continue further dental management, offering to the patients basic knowledge about postoperative course and possible future dental interventions (7).

Oral surgery aspects

In the comprehensive review of the management of patients on OAT, from the point of view of oral surgery, two problems may be singled out to be taken care of in parallel:

- underlying/basic disease, as the risk disease, and
- oral anticoagulant therapy.

Conflicting opinions in the literature as to these problems have caused case-by-case and routinized management of oral surgery patients on OAT. The problem is complex and the reasons for that are multiple, most common being differing recommendations related to the underlying disease by doctors in charge; insufficient education of the patients as to their disease and anticoagulant therapy; and insufficient collaboration of dentists and specialists in charge (7,8).

Significance of team approach

Dental management of patients on OAT is a complex process, requiring the engagement of a team of doctors. The team should comprise: a specialist in charge, transfusiologist, and dentist. In the team approach to the issue, the underlying condition (disease) is carefully considered, the use of appropriate anticoagulants is planned, their mechanism of action is considered, and OAT effects are controlled via appropriate laboratory tests. The duty of a dentist in such a team is to suggest the most acceptable methods and agents inducing local anesthesia and local hemostasis (8,9).

Dental procedures in patients on OAT

The whole concept of the adopted doctrine of approach to the high risk group of patients on OAT is based on the presumption that dental

procedures should not provoke the transition of compensated into decompensated disease phase or, in other words, the latent disease phase into manifest, full-blown disease (9).

The risk of significant bleeding in patients on OAT and with stable INR within the therapeutic limits (2-4) is very low, while the risk of thrombosis can be markedly elevated in patients temporarily withdrawn from anticoagulant therapy. We should therefore bear in mind the attitude that oral anticoagulants should not be stopped in most of the patients planned for outpatient dental surgery intervention, including tooth extraction (10).

Dentists should not disrupt with their therapeutic interventions the continuity of administered OAT, the OAT being of vital importance for these patients. Patients on OAT should be managed in dental clinics or hospitals with departments of oral surgery or maxillofacial surgery.

Patient admission

The duty of a dentist is to obtain valid patient history on admission, regardless of the apparent or real simplicity of the problem. The data related to the risk disease and possible use of medication(s) are thus provided. A dentist has to be able to recognize anticoagulant agents; if the findings indicate that the patient at hand is on OAT, adequate patient preparation for dental intervention should be undertaken. If these are the patients who have not been examined for a long time, or the underlying disease has progressed, the intervention should be planned and performed with the approval of the physician treating the underlying disease. If these are well controlled patients, with fresh findings (not older than 24 hours) of the indicants of anticoagulant effect (INR) within the therapeutic values (from 2.0 to 4.0), bleeding can be possibly managed using local therapeutic measures of hemostasis. However, in these cases as well, consulting the physician treating the underlying disease is more than just desirable; these consultations should be realized whenever it is feasible. Modern technologies employed in the practice of telemedicine may be of particular assistance in that regard, enabling rapid and simple distant medical consultations between doctors (11).

Choice of the method of anesthesia

Painlessness of a dental intervention is one of the cornerstones of trust between patients and their dentists, and a prerequisite for successful completion of mostly painful or discomforting dental interventions. Elimination of pain is therefore a must, accomplished in most cases using local anesthesia, while in a smaller number of cases general anesthesia is used.

Local anesthesia is the primary method of choice, representing one of the safest and simplest methods in obtaining reversible painlessness in dentistry practice. Before the use of local anesthesia it is necessary to check if the patient is prepared for dental surgery and whether the INR values are within the therapeutic limits (2.0-4.0). Values exceeding the upper limit may lead to the risk of prolonged hemorrhage, even when only giving local anesthesia. Due to the injury of tissues, larger and smaller blood vessels encountered by the needle, prolonged internal bleeding may occur, leading to the formation of smaller or larger haematomas and other possible consequences as well (obstruction of airways, etc.).

With appropriate preparation and proper monitoring of vital functions even in most serious cases, complicated oral surgery interventions may be done reasonably safely in general anesthesia (9).

Choice of the method of hemostasis

Dental surgery interventions in patients on OAT carry a certain degree of risk, possible hemorrhage or thromboembolic complications. It is vital that a dentist should be well acquainted with the procedures of premedication of high risk patients, being able to adequately apply them. If a patient is properly prepared before dental surgery, and hemorrhage occurs after the intervention, it can be almost always stopped using the standard methods of hemostasis (9). A bleeding patient should be carefully examined and relaxed. If the wound is in question, as mostly is, the loose coagulum from the wound surface should be removed, the wound should be examined, left to dry a bit, and artificial hemostasis is then applied. The methods and tools of local hemostasis may be combined – a number of patients on OAT may require special, systemic measures of hemostasis to be applied in hospital environment.

The following measures to reduce the risk of bleeding are recommended in patients on OAT undergoing oral surgery intervention (10):

- Use of oxidized cellulose (Surgicel) or collagenous sponges and sutures.
- Washing of the mouth cavity with 5% tranexamic acid four times a day in the period of two days (generally, tranexamic acid is rarely available in primary practice of dentistry).

Procedure of dental surgery intervention

The complete procedure of dental surgery intervention should consist of the steps presented below (1-10):

A. Preparation before intervention:

- Individual health education activity;
- OAT should not be withdrawn neither before, nor after the intervention;
- INR result values have to be within the range 2.0-4.0 on the extraction day. It is thus recommended to check INR 72 hours before extraction, and adjust OAT so as to be within the range 2.0-4.0 on the extraction day (10).

- Antibiotic therapy in the prevention of bacterial endocarditis, prescribed by a cardiologist (it usually consists of amoxicillin, ampicillin, clindamycin and azithromycin (12)).

- Written approval by the specialist treating the underlying risk disease.

B. Intervention:

- Choice of anesthesia method (local anesthesia is preferred as the safest and simplest approach, or some of the sedation techniques accompanying local anesthesia);

- Dental surgery procedure (planned based on the risk disease, OAT, and patient age);

- Choice of hemostasis method (since pathologic hemorrhage is in question, with a frail and delicate blood coagulum, chemical and biologic resorptive tools are desirable, soaked in an antifibrinolytic and locally applied, and as required, other means and methods of local hemostasis may be used). The use of systemic chemostatics (eg. vitamin K, etc.) by dentists is contraindicated.

C. Post-surgical course:

- Antibiotic therapy (prescribed according to the dentist's assessment, consulting the physician in charge of the management of underlying disease);

- Antiinflammatory agents (NSAIDs and COX-2 inhibitors should not be prescribed as analgesics or antipiretics, which refers especially to brufen and aspirin);

- Measures of local hemostasis (all the methods and tools of local hemostasis may be used, with the priority of resorptive hemostatics combined with antifibrinolytics; systemic hemostasis undertaken by a dentist is not permitted);

- Bleeding episodes lasting up to four hours of oral surgery intervention should be managed using the measures of local hemostasis; if the period of time is exceeded, support from a hematologist or transfusiologist should be sought, who would stop the bleeding employing the systemic measures of hemostasis.

Conclusion

Based on the literature data and years of clinical experience with the patients on OAT for their original disease, the paper presents a short overview of the dental treatment of this high risk patient population. Due to the presence of a twofold problem in patients with risk diseases on OAT, the awareness of dentists should be constantly

at a very high level, and the recommendations related to patient admission, preparation for intervention, dental surgery itself, and post-surgical management the should be closely abided by.

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Disclaimer of responsibility

All the advices and information presented in the paper are believed to be true at the moment of sending the paper for publication. Neither the author nor publisher can accept any legal responsibility for the content and completeness of the guidelines and recommendations.

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STOMATOLOŠKI PACIJENTI NA ORALNOJ ANTIKOAGULANTNOJ TERAPIJI

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Oralna antikoagulantna terapija (OAT) se koristi više od pola veka u terapiji i prevenciji tromboembolijskih oboljenja. Zbog nezgodnih manifestacija koje mogu pratiti oralnu antikoagulantnu terapiju prilikom stomatološko-hirurških intervencija, stomatolozi moraju biti dobro upoznati sa njenim karakteristikama, ali i merama koje treba sprovesti kod zdravstvenog zbrinjavanja pacijenata na OAT. Ovaj rad ima za cilj da pruži kratak osvrt na postupke i mere koje stomatolog treba da ima u vidu kada zbrinjava pacijenta koji je na OAT. *Acta Medica Medianae* 2013;52(1):48-51.

Ključne reči: OAT, stomatologija, antikoagulantna terapija, oralna hirurgija