

PARTICULARITIES OF STOMATOLOGICAL THERAPY IN PATIENTS WITH CARDIO-VASCULAR PATHOLOGY-REVIEW

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Abstract

High prevalence of cardiovascular diseases in the general population, especially ischemic heart disease, leads to the idea that your dentist practitioner will face frequently in patients with cardiac pathology. Peacock and Carson have also shown that more than half of patients presented at a periodontology clinic had a significant personal pathological history, the most important being cardiovascular diseases and poly-drug allergies. Oral anticoagulant therapy is commonly used, to prevent various thromboembolic events, such as, for example, in patients with heart valve prostheses, heart failure, atrial fibrillation, patients with myocardial infarction or injury to vascular cerebral history or venous thromboembolism (pulmonary embolism and deep vein thrombosis). Tetracyclines, erythromycin, clarithromycin and metronidazole are contraindicated in patients with anticoagulant therapy, because these antibiotics can increase the checker prothrombin. In addition, paracetamol, broad-spectrum antibiotics, cloralhidratul and fluconazole can potentiate the effect of warfarin. Xerostomy is one of the most common oral side effect in patients treated for various cardiovascular diseases and if not transient can cause dental caries or progression. Therefore, an appropriate treatment of xerostomia should be prescribed by the dentist and it includes both the use of fluorides in dental office, and at home to prevent the destruction of tissues, antimicrobial and artificial saliva and course counseling and patient education.

Key words: cardiovascular diseases, systemic symptoms ,oral manifestation

It is known that many diseases have systemic symptoms of oral as the initial manifestation of the disease. In addition, the oral cavity is the gateway, but also the site for various microbial infections that can affect general health. The functions of the body organs in the oro-maxilo facial zone may also be compromised by a variety of drugs used to treat various conditions of the system. Equally, the mouth is "a mirror for the health or disease of the subject, a sentinel or early warning system and an accessible model for the study of other tissues and

organs, and a potential source of pathology affecting other systems and organs. " [1]Cardiovascular diseases are the most common pathology worldwide, the incidence of cardiovascular disease increasing with [2]. World Health Organization statistics showed that, in 1995, cardiovascular disease accounted for 20% of global mortality worldwide (or 14 million deaths). In developing countries, the percentage reported was much higher, with cardiovascular disease accounting for 50% of deaths [3].In the top of cardiovascular mortality are ischemic heart

disease and cerebrovascular disease, and the third place is occupied by heart failure.

In 2003, WHO statistics showed cardiovascular mortality, worldwide, as for 16.7 million deaths. Of these, 7.2 million were attributable to coronary heart disease, 5.5 million accidents attributed to vesicular brain and 3.9 million other cardiovascular disorders, particularly artery hypertension is [4].

Cardiovascular diseases accounted for, also the main causes for discharges from hospital, with an average of 2,557 per 100,000 inhabitants in 2002. Of these, 659 per 100,000 inhabitants were caused by heart disease and 375 per 100,000 inhabitants by strokes, but more than half were due to other forms of chronic heart disease [5].

High prevalence of cardiovascular diseases in the general population, especially ischemic heart disease, leads to the idea that your dentist practitioner will face frequently in patients with cardiac pathology. Peacock and Carson have also shown that more than half of patients presented at a periodontology clinic had a significant personal pathological history, the most important being cardiovascular diseases and poly-drug allergies [6]

In 1984 it was estimated that 2% of adults, which is present at a dental clinic or oromaxillar surgery clinic, had antihypertensive recommended [7,8] this percentage increased, so that, in 1997 it was reported that 13% of the patients who presented to the oro-maxillary surgery clinics in the hospital and 5% of the outpatients received antihypertensive therapy [9]

Therapeutic decision of choice in the medical dental therapy anchored in approaches non and least invasive, carrying

out therapeutical maneuvers, in patients with cardiovascular diseases, can create difficulties to the doctor dentist. The main cardiovascular affections and risks on cardiovascular medication, with profound impact in practicing medical dentistry are: ischemic heart disease, failure, high blood pressure, arrhythmias / disorders of leadership, cardiac pacemakers and implantable defibrillators, valvular heart disease, diseases of congenital cardiac, patient heart transplant, the patient with stents, insufficient cardiac vascular congestive, CVA, sudden death and adult cardiorespiratory resuscitation.

A very important issue is represented by the interaction with cardiovascular medication and local aneesthesia with vasoconstrictor substances, a special attention and a specific therapy behavior needs to be given in the dental therapy to the patients with anticoagulant therapy, antiplatelet, and a managing risk for endocarditis and disease prophylaxis. Potential effects and interactions drug of the main classes of drugs used, for treating various cardiovascular diseases, emphasizes complicated importance of knowledge as a historian disease patient, as a therapeutic scheme current of the dentist, in order to prevent the interaction effects of adverse systemic and oromaxillare of these.

A large number of patients undergoing dental treatment have in the treatment regime drugs that interfere with hemostasis and coagulation, which can cause prolonged bleeding during or after performing surgical procedures. Clinically significant bleeding is uncommon in dental practice, even in patients considered at risk. A review of the medical literature means that 12 studies revealed massive bleeding consequence of dental procedures, patients receiving therapy that

interferes with hemostasis, mainly through the use of warfarin prior to standardization of the prothrombin time, as a test to evaluate this product treatment [10]. Other studies have shown the involvement of other local factors (such as smoking), as factors favoring bleeding.

Management of patients at risk of bleeding consequence of therapy with oral anticoagulants or antiplatelet agents involving a detailed history, determining the specific hemostatic laboratory parameters and, sometimes, consultation with the cardiologist treating the patient [Fig.1].

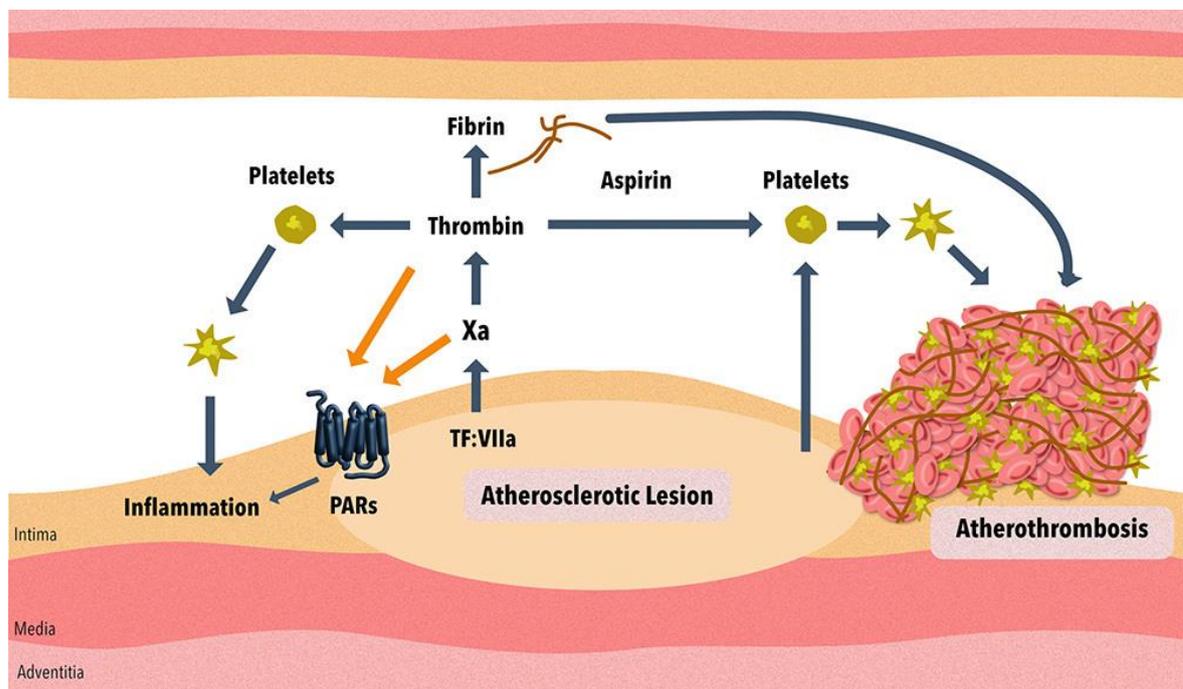


Fig.1 Role of platelets and the coagulation cascade in atherothrombosis and vascular inflammation[11]

The dentist must balance clinically significant bleeding as a consequence of performing an invasive dentomaxillary procedure, with the effects due to the modification of the subject's therapeutic regimen, regarding the anticoagulant or antiplatelet treatment. The individualization of the clinical case in the patient's dental management involves the evaluation of the patient and the application of clinical guidelines.

The patient's history involves identifying in the patient's treatment regimen

the medication that interferes with hemostasis, with data on the dose, route of administration, duration of use of each drug.

Tests needed to evaluate coagulopathy induced by drugs include platelet count in patients receiving chemotherapy, the determination of the International Normalized Ratio (INR), for patients on oral anticoagulant therapy and partial thromboplastin time (aPTT), in patients receiving unfractionated heparin.

In the case of most patients, in order to maintain a therapeutic level of

anticoagulation, it is necessary to maintain the prothrombin time (TP) at values 1.5-2 times higher than the control TP of the laboratory where this parameter is worked. There are patients who need anticoagulation to higher values (TP values of > 2.0 times higher than the control).

Antiplatelet therapy is frequently prescribed to patients with cardiovascular disease and may cause prolonged bleeding, and this should be considered prior to performing any surgical procedure [12]. For example, bleeding complications have been reported frequently in the patient receiving treatment with ticlopidine (Fig.2).

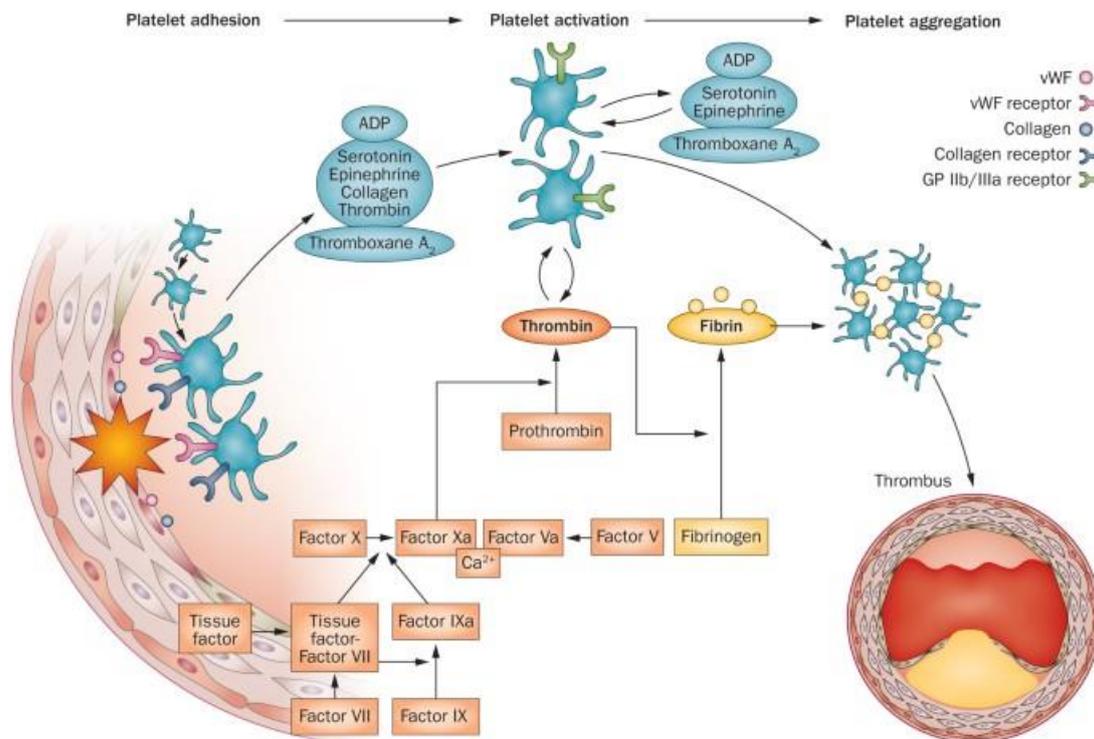


Fig. 2 Novel antiplatelet agents in acute coronary syndrome[12]

Aspirin has been shown to be effective in the prophylaxis of angina pectoris, acute myocardial infarction, stroke, atrial fibrillation and in the prevention of thrombus formation in patients with valve prostheses.

Platelet inhibition due to aspirin begins approximately one hour after ingestion and is irreversible, having the effect on the lifetime of affected platelets (approximately 7-10 days) [13]. It has been shown that a low dose of aspirin, about 80 mg, has this effect on all platelets existing and, at present, it is

unclear whether higher doses or prolonged administration has had an additional role [14].

Nonsteroidal anti-inflammatory drugs, such as ibuprofen, are known to reduce thromboxane A₂ production and interfere with platelet aggregation and have been reported to cause heavy bleeding in patients receiving oral anticoagulant therapy [15]. Unlike aspirin, the antiplatelet effect is reversible, given that the function of platelet cyclooxygenase (COX-1) is restored once the drug is removed from the

circulation. However, certain nonsteroidal anti-inflammatory drugs cause a variable duration of platelet inhibition that extends over 1-3 days after discontinuation of nonsteroidal anti-inflammatory drugs [16] The effect of certain NSAIDs on bleeding time is variable, but the test values assigned, in general, to normal within a few hours after administration of a single dose.

According to current recommendations, the patients were treated with aspirin in the last week prior procedures maxillary invasive, indicating cessation of therapy with the anti-platelet aggregation and delaying specific dental techniques, for a period of five days, during which time it is considered that about 50% from platelet activity will be restored [17].

Oral anticoagulant therapy is commonly used, to prevent various thromboembolic events, such as, for example, in patients with heart valve prostheses, heart failure, atrial fibrillation, patients with myocardial infarction or injury to vascular cerebral history or venous thromboembolism (pulmonary embolism and deep vein thrombosis). [18].

Also, using intravenously administered heparin, for example, to prevent recurrent stroke in patients with atrial fibrillation in hospital. Warfarin is the most prescribed anticoagulant, outpatient. Warfarin interferes with the synthesis of K vitamin, which is required for the formation of thrombin and vitamin K-dependent proteins involved in coagulation, namely factor II (prothrombin), VII, IX, X and other vitamin K-dependent proteins, such as protein S and C[19].

Currently, patients receiving oral anticoagulant therapy are considered to be at

risk of prolonged bleeding, when INR values are greater than 3.5 and when the individuals have various additional coagulopathies. Studies in patients receiving warfarin, with INR values at therapeutic limits versus control, showed that they did not show differences in the incidence of clinically significant bleeding, even under extensive oromaxillary surgery comparing with control subjects [20,21].

However, it is a common recommendation to stop oral anticoagulant treatment 2-3 days before an invasive dento - maxillary procedure, in order to decrease the INR values below the levels of 2.0-2.5 [22,23].

Your dentist needs to know that a variety of medications can interact with anticoagulant therapy. For example, potential interactions have been described with oral miconazole gel [24]

Tetracyclines, erythromycin, clarithromycin and metronidazole are contraindicated in patients with anticoagulant therapy, because these antibiotics can increase the checker prothrombin. Thus, the tetracyclines can decrease the production of K vitamin, interfere with the formation of prothrombin and, as thereby, will potentiate anticoagulation [25]. Metronidazole may inhibit the metabolism of cumadine and, consequently, potentiate the anticoagulant effect, while penicillins may counteract the effect of cumadine [26].

In addition, paracetamol, broad-spectrum antibiotics and fluconazole can potentiate the effect of warfarin[27].

According to the present recommendations, a dentist may only change the dose of anticoagulant in conjunction with the patient's attending cardiologist given that some patients have a higher risk of developing or

thrombosis, or bleeding as compared to the other subjects [28].

Some antibiotics, such as: metronidazole, tetracycline, erythromycin and clarithromycin, grown for protrobine and thus affect coagulation. The current recommendations are not to use these antibiotics in patients receiving anticoagulant therapy [29].

Bleeding during and after surgery in the field of oro-maxilo-facial, in patients with anticoagulant therapy, it may be significant, but the majority of such events are controllable by sealant action.

Unless dentomaxillary therapy is required to last more than 5 days, either the dose of anticoagulant is not changed or the doses are slightly reduced. In case it is useful consultation with the cardiologist treating the patient prior modification doses of anticoagulant.

Adverse effects in the oral cavity of cardiovascular medication

In addition to the adverse systemic effects and the medical interactions possible, cardiovascular medication may cause various side effects in oromaxilar level. The exact incidence of the oral and systemic adverse reactions is not fully known (181, 182). According to the studies, the incidence is higher to women comparing to the men. This aspect should be due to a better reports of cases of outpatients of the women, hormonal and pharmacological factors [30].

Knowing all the possible side effects of cardiovascular medication, both systemic, and local, oromaxilare, enable dentists to guide the patient towards the cardiologist, who will determine whether to prescribe an alternative therapy or continue treatment with

the same therapeutic scheme. For example, blockers of calcium channels can cause very severe gingival hyperplasia, so it is possible that your cardiologist to decide to change the therapeutical class with another [31].

The identification and treatment of oral adverse reactions to cardiovascular medication improves the patient's discomfort, promotes healing and, if drug therapy requires continuation of the same drug, prevents the occurrence of new oro-maxillary lesions and stops the evolution of existing ones. Oro-maxillary side effects associated with cardiovascular medication include xerostomia, gingival hypertrophy, canker sores / oral ulcers, taste disturbances, cheilitis, glossitis, angioedema, lichenoid / lichen planus reactions, epithelial crusts and "scalded mouth" syndrome.

Drugs of proven or suspected to cause these local reactions include all major classes of cardiovascular medications, namely: alpha blockers and beta-blockers, angiotensin-converting enzyme angiotensin, calcium channel blockers, diuretics, antiarrhythmic agents, statins and receptor blockers angiotensin, For example, while the abnormal growth of periodontal tissue associated with inflammation caused by dental plaque, drugs such as nifedipine and amlodipine can cause, also, gingival hyperplasia which may cause the presentation to the dentist for pain or bleeding within the oromaxilofacial zone [32].

Antiarrhythmic medication such as disopyramide or propafenone or antihypertensive therapy such as indoramide and methyl dopa may cause a "dry mouth" sensation. Angiotensin converting enzyme inhibitors and amiodarone can generate an altered taste, often described as "metallic".

Xerostomy is one of the most common oral side effect in patients treated for various cardiovascular diseases and if not transient can cause dental caries or progression. Therefore, an appropriate treatment of xerostomia should be prescribed

by the dentist and it includes both the use of fluorides in dental office, and at home to prevent the destruction of tissues, antimicrobial and artificial saliva and course counseling and patient education(Fig.3).



Fig.3 Clinical aspects of xerostomy [33]

Oral ulcers should be treated to relieve pain and promote tissue healing. Topical application of gel or liquid with octylcyanacrylate or various mouthwash preparations may be useful for this purpose, especially when there are multiple intraoral ulcerations. Also, glossitis, gingivitis and cheilitis require treatment. Gingival hyperplasia decreases the degree of oral hygiene, which is why the patient with this complication may require prophylaxis and specialized education, performed in the dental office.

Therefore, maintaining good oral hygiene and periodontal health, educating the patient on these issues and recommending special devices for oral hygiene, are important components of dental care of the subject with cardiovascular disease .

Vasoconstrictors are used in the dental office as local anesthetics or as hemostatic substances. Local anesthetics with vasoconstrictor substances improve the depth

of anesthesia and its duration and reduce local bleeding [34].

The use of local anesthetics with vasoconstrictor substances in patients with cardiovascular disease remains controversial. Two commonly used vasoconstrictors are epinephrine (adrenaline) and levonordephrine.

Epinephrine (adrenaline) stimulate both receptors alpha and beta adrenergic receptors. Stimulation of the latter increases the heart rate, speed management and contractile force of cardiac contractile. The action of adrenaline causes, also, increasing or decreasing peripheral vascular resistance, with the increase caused by vasoconstriction (alpha activity) and decrease the result of vasodilatation (beta receptor activity) in the veins and the coronary arterioles. Levonordefrine has a more specific action, causing an increase in peripheral vascular resistance and a decrease in heart rate and heart rate [35,36].

It is therefore recommended in patients with mild to moderate heart to administer small doses of local anesthetics, but to ensure deep anesthesia, aspiration continues to prevent intravascular injection.

There are concerns about the safety of using local anesthetics containing vasoconstrictor substances in subjects with arrhythmias, as these compounds can cause atrial and ventricular arrhythmias and even asystole [37,38,39] Most studies show, however, that the use of anesthetics containing vasoconstrictor substances is necessary to obtain deep anesthesia in patients with arrhythmias, but strict monitoring of the amount of vasoconstrictor should be performed.

Although it is considered that most patients can tolerate epinephrine without major complications, the individual response can be highly variable and, therefore, careful monitoring of subjects is dependent [40,41,43]

Studies pertinent conducted indicate a connection between periodontitis and high blood pressure and to treat tooth would be improve blood pressure. This research has combined the best evidence available to examine the link between high blood pressure and periodontitis moderate and severe. In all, experts have included 81 studies in 26 countries. Periodontitis moderate has been associated with a risk of 22% in higher pressure, and the most severe was associated with a risk of 49% higher in hypertension[44,45]. Medium blood pressure has been higher in the case of patients with periodontitis, compared with those without, 4 .5 mmHg higher the systolic and 2 mmHg higher the diastolic pressure. The differences are not negligible. An increase in the average of the blood pressure of 5 mmHg is associated

with a higher risk of 25% of death after a heart attack or after a stroke.

CONCLUSIONS

The patient with various cardiovascular conditions may represent a challenge for the dental practitioner, depending on the condition of base and haemodynamic. The administration of dental treatments with local anesthesia with vasoconstrictor substances represents a major advance in patient safety, although complications that may occur in patients with cardiovascular disease should be considered. That is why the detailed anamnesis of the patient, with the identification of the patient's personal pathological antecedents, his background medication are essential for the management of the case. It is very important the patient's treatment regimen, any allergic reactions he has previously had, to identify potential drug interactions, but also possible side effects. Some patients may require a cardiologic advance, and a new regimen anterior the dental treatment.

Also, if the treatment specific to the cardiovascular disease, like antihypertensive therapy or specific medication heart failure, is omitted by the patient, complications can occur during or postprocedural, in the dental office. That is why it is very important for the dentist to make sure that the patient did not stop his medication suddenly, without the consent of the cardiologist, prior to the presentation at the dentist's office.

Routine measurement of noninvasive parameters (blood pressure, pulse, oxygen saturation) prior to performing a dental procedure.

Patients with various cardiovascular diseases without treatment or suspicion of cardiovascular diseases, with high blood pressure and arrhythmias or conduction defects identified by the dentist will be guided by the family doctor or by a medical or

cardiology clinical profile. Depending on the patient's current history, risk factors and vital signs, the dentist will decide to work with the patient's cardiologist prior to performing invasive oro-maxillo-facial procedures.

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