

Dental Management of Patients on Chronic Oral Anticoagulants: A Review

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ABSTRACT

Anticoagulants are prescribed to prevent and manage arterial and venous thrombi. These drugs have are associated with risk of increased bleeding time and also post-operative hemorrhage. Dental surgeons are always in dilemma on continuing the anti-platelet drugs on patients taking them while performing minimal procedures involving surgery orally. We present a review of frequently used anticoagulants focusing on the management of these patients while carrying minor oral surgical procedures.

Key words: Anticoagulants, Bleeding, Cardiovascular risk, Dental extraction, Oral Surgery, Thromboembolism

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INTRODUCTION

In spite of the advantages with anticoagulants, they are associated with the risks of bleeding during oral surgical procedures. Therefore, dental surgeons advise such patients on antiplatelet therapy while treating for minor dental procedures to stop using drugs especially before extractions which might affect them to thromboembolic complications. Till now even after few studies on these drugs and dental procedures, dentists are in a dilemma whether to continue or stop anticoagulants during extractions [1].

Amusingly, studies have failed to reveal excessive or prolonged post-operative hemorrhage aspects of anti-platelet drugs following simple dental extractions in comparison to those controls who are not taking anticoagulants [2,3]. Studies have shown the inherent risks after unduly stopping anti-coagulant therapy [4,5].

WHO introduced International Normalized Ration (INR) in 1983 to draft a standard calibration of the prothrombin time and consequently optimal range related to therapeutic anticoagulants therapy was established. This approach led to the diminution in patient's anticoagulation points

and a simultaneous decline in the morbidity caused from iatrogenic haemorrhage [6].

Till now there is a lack of clear guidelines to oral maxillofacial surgeons and general practitioners related to the management of the individual's undergoing anticoagulant therapy and who are need of dento alveolar [7]. Recently a survey carried out revealed that dentists have knowledge about managing patients who are subjected to the schematic anticoagulants treatment and were significantly lacking the noesis regarding the latest anticoagulants medicines. Furthermore, most dentists overestimate the haemorrhage risk, thus there is a need of programmes pertaining to educating the doctors and dental fraternity through continuing dental education programmes and orient them in this setting [8].

Hence we present this review with an aim to establish a holistic approach based on the latest evidence obtained from the patients undergoing dental treatments and who are on anti-thrombotic management so that it provides a platform for the dental professionals and dental specialist in accurate judgement of the case and taking correct decision without patient getting subjected to risk. for this aim to achieve we carried out a systematic search of literature through Pub med using Anticoagulants, Bleeding, Cardiovascular risk, Dental extraction, Oral Surgery, Thromboembolism, as search terms.

DENTAL PATIENTS RECEIVING ORAL ANTICOAGULANT THERAPY

Vitamin K Antagonists (VKA)

Vitamin K antagonists (VKA) are agents that reduce the action of vitamin K, thereby reduce blood clotting. VKA are shown to be effective preventive or therapeutic agents for arterial and venous Thromboembolism. Sometimes these drugs cause haemorrhage, which may be life threatening. The most commonly used VKA is warfarin [9].

American College of Chest Physicians (ACCP) current guidelines on the management of the anti-thrombotic therapy patient prior to the operation recommends the dental doctors that surgery without VKA pause and with co delivery of prohemostatic medicines [10]. The British protocols also suggest that the VKA must not be pause in most of the cases that are in need of dental surgery [11]. Predominantly the studies revealed that most of cases show same rates of post-operative haemorrhage after dental surgical procedure in both patients who are asked to stop the anticoagulants and patients continuing this medicines [12,13].

Hence on basis of the useable proof stopping usage of VKA before dental procedures is not suggested for treatments that are rarely causes bleeding and for the cases whose INR levels are ≤ 3.5 24 hours prior to the planned intervention. However if INR is ≥ 3.5 , there is a need for adjusting dosage of anticoagulants and at the same time it is advised to postpone the procedure till the patient's INR becomes less than 3.5 [14,15].

Direct Oral Anticoagulants (DOAC)

Recently four direct oral anticoagulants (DOACs), dabigatran, rivaroxaban, apixaban and edoxaban, are been in usage, also termed as new/novel oral anticoagulants or non-vitamin K oral anticoagulants (NVKA). These drugs directly blocks a certain protein which is important part of coagulation procedure; while VKAs hinder clotting factors synthesis which are vitamin K dependent [16,17]. Currently, there are no precise evidence-based guidelines available for managing patients receiving DOACs. Heidbuchel et al. suggested that minimal surgical procedures with a minimum bleeding risk like dental extractions doesn't warrant the stoppage

of DOACs in patients with kidney functioning under normal parameters [18,19].

However in patients taking DOACs and for whom dental procedures pose higher risk of bleeding complications, for them it is suggested to postpone the morning dose of once-daily agents (rivaroxaban, edoxaban) on the day when the dental procedure is to be carried out, and pass over single dose of twice daily medications (apixaban, dabigatran). If haemostasis is obtained, DOACs is suggested to be restarted six-to-eight hours after the procedure is completed. As these drugs have a shorter time to achieve peak plasma concentration, restarting the drugs after achieving haemostasis presents an immediate regaining of anticoagulation after the intervention [20].

Studies recommending discontinuation of antiplatelet therapy

Daniel et al found that continuing aspirin caused post-operative bleeding and advised discontinuation for 7-10 days before surgical procedures [21]. Few authors suggested to stop anticoagulants only for 3 days will be sufficient. Scully and Wolf, Little et al. and Burger et al. recommended to stop using antiplatelets to avoid the risks of post-operative bleeding [22-24].

Elad et al. noticed severe bleeding and life threatening hemorrhagic shock in patients who are on double antiplatelet therapy (100 mg aspirin and 75 mg clopidogrel /day) subsequently following the non-surgical periodontal therapy [25]. Several studies have documented bleeding risk in patients taking antiplatelet drugs undergoing cardiac surgeries [26,27].

Studies recommending continuation of antiplatelet therapy

Bajkin et al. summarised that individual undergoing single or dual antiplatelet medicines therapy can take up the procedures of extractions safely without stopping drugs and recommended to take local haemostatic measures to control post-operative bleeding [28]. Verma et al. stated that stopping aspirin before simple tooth extraction is not needed as they did not notice any post-operative bleeding in their patients [29].

Olmos-Carrasco et al. also did not observed any hemorrhagic complications, after dental

extractions without withdrawal of double antiplatelet therapy [30]. The American College of Chest Physicians recommended continuation of antiplatelet drugs perioperatively in patients who need operation within 6 weeks of placement of a metal stent or 6 months of placement of a drug-eluting stent. They observed the occurrence of acute myocardial infarction in such patients after withdrawal of antiplatelet therapy [31].

Girotra et al. concluded that there was no necessity to stop antiplatelet therapy, but suggested a need for measures to control haemorrhage in individual with dual antiplatelet therapy [32]. Hanken et al., stated that aspirin prolongation in patients who undergo dental osteotomies has no effect on the occurrence of post-operative bleeding and must not be interrupted [33]. Nooh, et al. reported that patients on 81 mg ASA daily may perhaps undergo dental extraction without any bleeding risks [34].

Van Diermen et al. suggested not stopping oral antithrombotic agents even in patients who are taking dual antiplatelet therapy, in simple dental procedures [35]. Broekema et al. from their prospective study summarised that dentoalveolar surgery is secure in individuals being regaled with anticoagulants drugs [36]. Many other studies have recommended that teeth extraction may be proceed with safety without discontinuation of antiplatelet therapy [37,38].

Oral surgery considerations

Minor oral surgical procedures such as simple extractions (<3 teeth), supragingival scaling, gingival surgeries, crown and bridge placement, may be safely carried out without altering the antiplatelet medication dose. In cases where there is a need to remove more than three teeth, it is advisable to carry out multivisit procedure with 2-3 teeth removal at a time. Scaling and gingival surgeries should mainly be restricted to a limited area to assess if bleeding is problematic [39,40].

Management of post-operative bleeding

Dental surgery is a non-compartment procedure, and bleeding in the oral cavity is immediately visible and can therefore be treated without delay [41]. All patients who are on anticoagulants should be deemed to have drug-induced altered platelet function. Studies showed the occurrence of an increased bleeding if two antiplatelet drugs used combined than with monotherapy.

It is advisable to remove granulation tissue in extraction sockets before placing hemostatic agents as it is a frequent source of post-extraction bleeding [42].

Local haemostatic measures

Commonly used haemostatic measures include application of pressure (biting firmly on gauze for 30 minutes), hemostatic matrix like oxidized regenerated cellulose, absorbable gelatin sponge, or collagen with figure of eight sutures applied to the extraction socket. They have no intrinsic coagulation factors or activities but are designed to stimulate clot formation by providing a 3-dimensional scaffold used for clot organization. Other agents include topical thrombin, bone wax (ostene), 4.8% tranexamic acid mouthwash, HemCon Dental Dressing (chitosan-based agent), hemostatic solutions (aluminum solution), tannic acid, and fibrin glue. Recently newer local hemostatic agents are in usage such as zeolite (QuikClot), chitosan-based agents (N-acetyl glucosamine polymer), and poly-N-acetyl glucosamine agents. Patients are strictly advised to follow the post-operative instructions for the maintenance of the blood clot [43,44].

CONCLUSION

Patients on anticoagulation therapy should be treated the same as healthy patients, and the dentist should have sufficient knowledge about various local measures for hemostasis.

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