Review Article

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An Evidence Based Practice Guidelines for Dental Professionals to Manage Anticoagulant Therapy Patients Seeking Dental Care: A Review Article

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Abstract

Patients with specific cardiovascular disorders are commonly treated by anti-coagulant medications. Hence, these anti-coagulant drugs might affect greatly the oral health care procedures and the course of dental treatments, Dental Professionals are therefore responsible to treat such patients in a harmonious way as adequate hemostasis is challenging as part of routine oral surgery and other dental procedures. The objective of this review was to discuss the evidence-based practice guidelines based on available literature to manage patients with anti-coagulants therapy seeking invasive dental procedures. According to the available literature, the evidence-based guidelines for anticoagulants such as Warfarin are well established. However, there is insufficient evidence available for new oral anticoagulants drugs. Nevertheless, risk assessment and the standard INR value should be considered in relevance to consultation with the patient's physician must be taken into an account before any elective surgical procedures. Anticoagulant therapy must not be interrupted in patients undergoing minor surgical procedures. However, Local hemostatic measures are of utmost considerations and are effective in achieving hemostasis.

Keywords: Anticoagulant therapy, Oral surgery, Warfarin, Surgical procedures, Anticoagulant drugs

Introduction

Patients with specific cardiovascular disorders are commonly treated with anti-coagulant medications. Hence, these anti-coagulant drugs might affect greatly the oral health care procedures and the course of dental treatments [1]. Dental professionals are therefore responsible to treat such patients in a harmonious way since adequate hemostasis is a challenging part of routine oral surgery and other dental procedures. These anti-coagulant medications are found to be significantly important for patient's health and any alteration in the anticoagulant regimen may potentially cause serious complications. Nevertheless, several medications may affect the clotting mechanism, ultimately end up in compromising hemostasis mechanism

[2].

The most common oral anticoagulant used in the treatment of several cardiovascular disorders is warfarin. However, recently new oral anticoagulants have been introduced as an alternative to warfarin by the Health and Care Excellence (NICE), presently used for patients in the United Kingdom. These oral anticoagulants are divided into two categories: a direct thrombin inhibitor dabigatran etexilate and activated Factor X inhibitors rivaroxaban and apixaban. A new class of oral thienopyridines is also available. Moreover, an appropriate management is required to attain hemostasis in treating patients with these drugs administration to avoid further clinical adverse implications [3,4].

Even though, National guidelines are well-established to manage patients with warfarin administration seeking invasive dental procedures, no such information with sufficient level of evidence is available for these novel therapeutic agents [5]. The objective of this review is to discuss the evidence-based practice guidelines based on available literature to manage patients with anti-coagulants therapy seeking invasive dental procedures.

Discussion

According to the available evidence in the literature, American College of Chest Physicians has established Evidence-Based Clinical Practice Guidelines for managing patients who are receiving anticoagulant or antiplatelet therapy and require an invasive procedure. Perioperative antithrombotic management is based primarily on risk assessment for thromboembolism and bleeding tendency, and recommended approaches were outlined based on the type of cardiovascular disorders and the tendency of thromboembolism formation to simplify patient management and minimizing the unfavorable clinical outcomes during or after the dental procedures [6].

Another study highly recommended the idea of extensive pre-operative assessment in conjunction with the consultation of patient's physician to reduce the risk of serious possible post-operative complications in patients with anticoagulant therapy [7].

Vitamin K antagonist anticoagulants were commonly used drugs by the patients to prevent heart attack and stroke. However, before these patients undergo elective surgical procedures, a decision to continue or interrupt anticoagulation must be made. A balance must be achieved by weighing the risks of postoperative hemorrhage with the continuation of anticoagulation against the risks of stroke or other complications with interruption of anticoagulation.

However, it was found that bleeding after dental surgery when anticoagulation is continued is rarely or never life-threatening. Therefore, there is no need to interrupt lifesaving anticoagulation for dental surgery procedures [8].

Broekema FI, van Minnen B, et al. in 2014, conducted a study involving 206 patients, 103 patients were receiving anticoagulants, and 103 were not taking anticoagulants. Seventy-one were taking thrombocyte aggregation inhibitors and 32 vitamin K antagonists respectively. Patients were treated according to guidelines developed at the Academic Centre for Dentistry Amsterdam (ACTA). A standard postoperative care was recommended to the

patients and those taking vitamin K antagonists used tranexamic acid mouthwash postoperatively. None of the patients developed severe bleed that required intervention. Therefore, it was recommended that treatment with anticoagulants should be continued during dentoalveolar operations provided that the conditions described in the ACTA guidelines are met [9].

Another study by Wahl MJ. (2017), supported that bleeding complications occurring in dental patients receiving anticoagulation therapy, often require local measures for hemostasis. However, embolic complications occasionally have occurred in patients whose anticoagulation therapy was interrupted for dental procedures [10].

When performing dental surgery in patients receiving warfarin for anticoagulation therapy, multiple studies revealed that dental surgery (including extractions) can be performed safely at therapeutic international normalized ratio (INR) levels (INR 3.5) with local hemostatic measures [11].

In 2015, Weltman NJ et al. reported that patients with an INR within the therapeutic range can safely continue taking the regular dose of warfarin before dental extractions. There was no evidence to support or reject the superiority of local hemostatic agents over warfarin discontinuation [12].

A study by Wahl MJ, Pinto A. et al. 2014, strongly supported the idea of continuing warfarin anticoagulation in patients with specific diseases. In this study, the incidence and morbidity of bleeding complications after dental surgery in anticoagulated patients were relatively compared with embolic complications when anticoagulation was interrupted. It was found that over 99 % of patients had no postoperative bleeding that required more than local hemostatic measures. Therefore, it was concluded that the embolic morbidity risk was greater in patients whose anticoagulation was interrupted for dental surgery compared to those whose anticoagulation was continued, even when surgery was extensive [13].

A meta-analysis in 2017 (Shi Q, Xu J. et al.), concluded that OAT (Oral Anticoagulant Therapy) patients were under a higher post-operative bleeding risk compared to those non-OAT patients following minor dental surgery. As long as dental implants surgeries and dental extraction procedures are concerned, the study failed to determine a higher risk of bleeding in the OAT patients when compared to non-OAT patients. However, more well-designed

prospective studies are required for future research [14].

Another study in 2017, by Suresh V, Bishawi M et al. supported the idea that patients with Direct Oral anticoagulant therapy (DOAC) can undergo dentoalveolar procedures safely without further complications. However, few relevant important considerations are required and incorporate into the treatment plan stage such as, when the patient usually receive their dose of DOAC, the time at which the procedure will be performed and when the DOAC is taken postoperatively. Authors suggested that if these factors are taken into an account carefully, an omission of DOAC doses is unlikely to be required for a majority of patients [15]. On the other hand, Minor oral surgical procedures can be performed safely for patients receiving LVAD therapy [16].

A study was conducted to evaluate the incidence of bleeding complications following surgical implant therapy in a group of 50 patients receiving oral anticoagulant therapy (warfarin) without interruption or modifications to their therapy [17].

The intra-operative bleeding control is particularly important in the endodontic surgery because of its delicate and sensitive procedures. Further studies are necessary about this issue from the viewpoint of endodontic surgery [18].

However, more clinical trials are required to establish best evidence-based practice guidance in relevance to DOAC drugs considerations [19].

Mingarro-de-León A. et al. 2014, showed that Local hemostatic measures are suffice for controlling possible bleeding problems resulting from dental treatment [20].

A study by Queiroz SIML, Silvestre VD et al. (2018), emphasized the use of a local hemostatic agent such as a Tranexamic Acid (TA) after dental extraction in patients on warfarin therapy. Therefore, it was found that this method of the local hemostatic agent in Topical form with gauze compression and irrigation was relatively more effective in reducing the time to attain immediate hemostasis and in preventing intermediate hemorrhage [21].

Another study by Ambrogio RI, Levine MH., et al. (2018), supported that Tranexamic Acid (TA) is a safe surgical site hemostatic agent, aiding to improve intraoperative visibility and postoperative hemostasis [22].

Conclusion

The evidence-based guidelines for anticoagulants such as Warfarin are well established. However, there is insufficient evidence available for new oral anticoagulants drugs.

Nevertheless, risk assessment and the standard INR value should be considered in relevance to consultation with the patient's physician must be taken into an account before any elective surgical procedures.

Based on the available literature, anticoagulant therapy must not be interrupted in patients undergoing minor surgical procedures. However, Local hemostatic measures are of utmost considerations and are effective in achieving hemostasis.

Conflict of Interest

The authors display no conflict of interest.

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