



Mini Review

Managing Dental Extractions in Patients on Antiplatelet Therapy: A Comprehensive Approach

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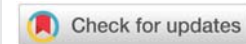
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Abstract

Dental extractions in patients under antiplatelet therapy present a unique set of challenges, primarily due to an increased risk of bleeding during and after the procedure. These medications are vital for preventing cardiovascular events but impair platelet function, potentially complicating oral surgical interventions. This article explores the interaction between antiplatelet drugs and dental procedures, focusing on practical strategies, evidence-based guidelines, and clinical considerations to ensure patient safety and optimize outcomes. It provides an in-depth review of current literature and practical recommendations for dental professionals.

Introduction

Antiplatelet medications, including aspirin and P2Y12 inhibitors like clopidogrel and ticagrelor, are essential in managing cardiovascular conditions such as myocardial infarction and stroke [1]. Their mechanism of action, which inhibits platelet aggregation, effectively reduces the risk of thrombotic events. However, these same properties can complicate surgical procedures, including dental extractions, by prolonging bleeding time and affecting hemostasis.

For dental practitioners, managing these patients requires balancing the risks of perioperative bleeding against the potentially severe consequences of discontinuing antiplatelet therapy, such as thrombotic events. A detailed understanding of the pharmacological effects of these medications and a multidisciplinary approach is crucial to ensuring the best outcomes for patients.

Mechanisms of action of antiplatelet drugs

Antiplatelet drugs exert their effects by targeting specific pathways in the platelet activation process. Understanding these mechanisms is essential for tailoring patient care:

- 1. Aspirin:** This widely used medication irreversibly inhibits cyclooxygenase-1 (COX-1), reducing thromboxane A2 production, a key molecule in platelet aggregation. The irreversible effect persists for the lifespan of the platelet, approximately 7–10 days.
- 2. P2Y12 Inhibitors:** Clopidogrel, prasugrel, and ticagrelor prevent ADP-induced platelet activation by blocking the P2Y12 receptor. While clopidogrel and prasugrel cause irreversible inhibition, ticagrelor's effects are reversible and shorter-acting.

Bleeding risks in dental extractions

Patients on antiplatelet therapy face an increased likelihood of prolonged bleeding during dental extractions due to the impaired function of platelets. While this can pose challenges, evidence suggests that these risks are generally manageable with appropriate interventions and do not warrant therapy discontinuation in most cases.

Common clinical presentations of bleeding:

- Persistent minor bleeding or oozing from the surgical site



- Formation of hematomas in the extraction area
- Prolonged clotting times leading to delayed healing

A systematic review by Napeñas, et al. (2013) found that significant bleeding complications in dental patients taking antiplatelet medications are rare and can be effectively controlled with local measures [2].

Guidelines for managing antiplatelet therapy during dental procedures

Should antiplatelet therapy be discontinued?

Leading professional organizations, including the American Heart Association (AHA) and the European Society of Cardiology (ESC), advise against routinely discontinuing antiplatelet therapy for minor dental procedures like extractions. The risk of thrombotic events due to therapy interruption often outweighs the risk of procedural bleeding [3].

One common misconception is that a short discontinuation period of 4–5 days for aspirin will sufficiently reduce bleeding risk. However, this approach is ineffective because aspirin irreversibly affects platelets, and their lifespan in the bloodstream is approximately 7–10 days. Stopping aspirin for less than this duration does not allow sufficient recovery of functional platelets, rendering the discontinuation both ineffective for bleeding control and unnecessarily risky for thrombotic complications [4].

Key recommendations:

1. **Aspirin monotherapy:** Aspirin should generally be continued as the risks of discontinuation are significant.
2. **Dual Antiplatelet Therapy (DAPT):** For patients on both aspirin and a P2Y₁₂ inhibitor, consultation with a cardiologist is essential. In most cases, therapy should remain uninterrupted.
3. **Local hemostasis:** Techniques such as suturing, application of topical agents (e.g., collagen sponges, oxidized cellulose), and antifibrinolytic rinses should be employed to manage bleeding effectively.

Strategies for bleeding management

Preoperative preparation:

- Perform a thorough medical history review, including the indication for antiplatelet therapy and cardiovascular risk factors.
- Coordinate care with the patient's cardiologist to determine the necessity of therapy adjustment for high-risk procedures.
- Avoid scheduling afternoon appointments for extractions, as lying down soon after the procedure (e.g., for sleep) can increase the risk of postoperative bleeding.

Intraoperative techniques:

- Consider conscious sedation with nitrous oxide: administering nitrous oxide for conscious sedation can significantly reduce the patient's stress and anxiety during the procedure, leading to better cooperation and reduced cardiovascular responses. Evidence suggests that nitrous oxide sedation effectively reduces procedural anxiety and enhances patient cooperation during dental treatments [5].
- Use minimally invasive surgical methods to reduce tissue trauma.
- Apply local anesthetics with vasoconstrictors: The use of anesthetics containing vasoconstrictors, such as epinephrine, is strongly recommended. This not only minimizes blood flow at the surgical site but also prevents the potential for an endogenous adrenaline surge, which could occur if the patient experiences stress or anxiety upon seeing excessive bleeding. Such an adrenaline surge would pose a greater cardiovascular risk than the controlled use of vasoconstrictors.
- Compress the area immediately after extraction to promote clot formation.

Postoperative care:

- Prescribe antifibrinolytic agents such as tranexamic acid to enhance clot stability. Gauze pressure, tranexamic acid-soaked gauze, sponges, glue, calcium sulfate, plant extract Ankaferd Blood Stopper, epsilon-aminocaproic acid, and tranexamic acid. In patients treated with vitamin K antagonists, tranexamic acid mouthwash significantly reduced bleeding compared to placebo [6,7].
- Advise patients to avoid activities that could dislodge the clot, such as vigorous rinsing or using straws.
- Schedule follow-up visits to monitor healing and manage any delayed bleeding.

Evidence supporting therapy continuation

Multiple studies affirm the safety of continuing antiplatelet therapy during dental procedures:

1. **Lee JK [8]:** assesses that if the patient is on aspirin alone, it is recommended that the initial treatment site be limited, that is, extract only a single tooth or limit the subgingival scaling to three teeth, so that bleeding can be assessed before further procedures. For procedures with anticipated higher bleeding complications, staged treatment with active engagement of local hemostatic measures such as suturing and packing should be considered [8].
2. **Patel, et al. [9]:** Demonstrated that patients on dual antiplatelet therapy (DAPT) did not experience severe bleeding complications when local measures were applied [9].



3. **Morimoto, et al. [10]:** Showed that the use of tranexamic acid significantly reduced postoperative bleeding in patients undergoing oral surgery on antiplatelet medications [10].
4. **Jaiswal P, et al. [11]:** Concluded that the use of tranexamic acid mouth rinse after extraction is an effective way to control bleeding in patients who are under antiplatelet therapy at therapeutic INR level is a secure and allowable method of minimizing postextraction oozing [11].

Conclusion

Discontinuing antiplatelet therapy, even for short periods, is generally unnecessary and potentially harmful. The prolonged effect of medications like aspirin on platelet function means that short-term discontinuation fails to significantly reduce bleeding risks but introduces the possibility of life-threatening thromboembolic complications. Conversely, bleeding risks during dental extractions are manageable with proper local hemostatic measures and surgical techniques.

For dental practitioners, understanding the pharmacology of antiplatelet drugs and adhering to current guidelines is essential. The priority should always be patient safety, which, in these cases, means maintaining antiplatelet therapy to prevent cardiovascular events while addressing bleeding risks locally. Close collaboration between dental and medical teams ensures the best outcomes for patients in this delicate balance.

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