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ANTIPLATELET THERAPY AND DENTAL PROCEDURES: SHOULD MEDICATION BE DISCONTINUED? AN INTEGRATIVE REVIEW

TERAPIA ANTIPLAQUETÁRIA E PROCEDIMENTOS ODONTOLÓGICOS: DEVE-SE SUSPENDER A MEDICAÇÃO? UMA REVISÃO INTEGRATIVA

TERAPIA ANTIPLAQUETARIA Y PROCEDIMIENTOS DENTALES: ¿DEBE SUSPENDERSE LA MEDICACIÓN? UNA REVISIÓN INTEGRATIVA

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ABSTRACT

Objective: To evaluate the available evidence regarding the dental management of patients receiving antiplatelet therapy. **Methods:** An integrative review was conducted through searches in PubMed/MEDLINE, Scopus, and Web of Science using terms related to antiplatelet therapy and dental procedures. Clinical studies, reviews, and clinical guidelines addressing bleeding risk and clinical management were included. **Results:** Most dental procedures present low to moderate bleeding risk and can be performed without discontinuation of single or dual antiplatelet therapy. When bleeding occurs, it is typically mild and can be controlled with local hemostatic measures such as suturing, compression, and absorbable agents; tranexamic acid may be considered as an adjunctive measure when clinically appropriate. Patients receiving dual antiplatelet therapy require individualized assessment, particularly following recent coronary stent placement. **Conclusions:** Current evidence supports maintaining antiplatelet therapy during most dental procedures, emphasizing careful planning, atraumatic surgical techniques, and appropriate local hemostatic strategies.
Keywords: Antiplatelet therapy; Dental procedures; Hemorrhage; Dual antiplatelet therapy; Tooth extraction.

RESUMO

Objetivo: Avaliar as evidências disponíveis sobre o manejo odontológico de pacientes em uso de terapia antiplaquetária. **Métodos:** Foi realizada uma revisão integrativa por meio de buscas nas bases PubMed/MEDLINE, Scopus e Web of Science, utilizando termos relacionados à terapia antiplaquetária e aos procedimentos odontológicos. Foram incluídos estudos clínicos, revisões e diretrizes clínicas que abordaram o risco de sangramento e o manejo clínico. **Resultados:** A maioria dos procedimentos odontológicos apresenta baixo risco de sangramento e pode ser realizada sem interrupção da terapia antiplaquetária simples ou dupla. Quando ocorre, o sangramento é geralmente leve e pode ser controlado com medidas hemostáticas locais, como sutura, compressão e agentes absorvíveis; o ácido tranexâmico pode ser considerado como medida adjuvante quando clinicamente apropriado. Pacientes em terapia antiplaquetária dupla requerem avaliação individualizada, após colocação recente de stent coronariano. **Conclusões:** As evidências atuais apoiam a manutenção da terapia antiplaquetária durante a maioria dos procedimentos odontológicos, com ênfase em planejamento adequado, técnicas cirúrgicas atraumáticas e uso apropriado de medidas hemostáticas locais.
Palavras-Chave: Terapia antiplaquetária; Procedimentos odontológicos; Hemorragia; Terapia antiplaquetária dupla; Exodontia.

RESUMEN

Objetivo: Evaluar la evidencia disponible sobre el manejo odontológico de pacientes en tratamiento con terapia antiplaquetaria. **Métodos:** Se realizó una revisión integrativa mediante búsquedas en PubMed/MEDLINE, Scopus y Web of Science, utilizando términos relacionados con la terapia antiplaquetaria y los procedimientos dentales. Se incluyeron estudios clínicos, revisiones y guías clínicas que abordaron el riesgo de sangrado y el manejo clínico. **Resultados:** La mayoría de los procedimientos dentales presentan un riesgo de sangrado bajo a moderado y pueden realizarse sin interrumpir la terapia antiplaquetaria simple o dual. Cuando ocurre sangrado, generalmente es leve y puede controlarse mediante medidas hemostáticas locales, como suturas, compresión y agentes absorbibles; el ácido tranexámico puede considerarse como medida adyuvante cuando sea clínicamente apropiado. Los pacientes en terapia antiplaquetaria dual requieren una evaluación individualizada, especialmente después de la colocación reciente de un stent coronario. **Conclusiones:** La evidencia actual respalda el mantenimiento de la terapia antiplaquetaria durante la mayoría de los procedimientos dentales, con énfasis en una planificación adecuada, técnicas quirúrgicas atraumáticas y el uso apropiado de medidas hemostáticas locales.
Palabras clave: Terapia antiplaquetaria; Procedimientos dentales; Hemorragia; Terapia antiplaquetaria dual; Extracción dental.

INTRODUCTION

Antiplatelet agents are widely prescribed for the prevention of thromboembolic events in patients with cardiovascular diseases, including coronary artery disease, cerebrovascular disease, and peripheral arterial disease[1,2]. These medications, particularly acetylsalicylic acid and P2Y12 receptor inhibitors such as clopidogrel, prasugrel, and ticagrelor, play a fundamental role in reducing the risk of myocardial infarction, ischemic stroke, and stent thrombosis[2]. Consequently, an increasing number of patients receiving antiplatelet therapy require dental treatment, making the management of bleeding risk a frequent concern in clinical dental practice[1,3].

Historically, temporary discontinuation of antiplatelet therapy prior to dental procedures was commonly recommended to minimize intraoperative and postoperative bleeding[3,4]. However, growing evidence has demonstrated that interruption of antiplatelet agents may significantly increase the risk of thrombotic complications, including myocardial infarction, stroke, and potentially fatal stent thrombosis[3,5]. These thromboembolic events are often associated with higher morbidity and mortality than bleeding complications related to dental procedures, which are typically manageable with local hemostatic measures[4-6].

Current clinical guidelines increasingly emphasize that most dental procedures are associated with low bleeding risk and can be safely performed without discontinuation of single or dual antiplatelet therapy[7,8]. Studies have shown that postoperative bleeding in patients maintained on antiplatelet therapy is generally mild and controllable using local hemostatic strategies such as pressure, suturing, hemostatic agents, and tranexamic acid[7-10]. Therefore, the decision to suspend antiplatelet medication should be carefully balanced against the risk of thrombotic events, particularly in patients with recent coronary stent placement or high cardiovascular risk[10-13].

Despite these recommendations, uncertainty persists among dental practitioners regarding the management of patients receiving antiplatelet therapy, especially those undergoing invasive procedures such as extractions, periodontal surgery, and implant placement[14,15]. Variability in clinical practice highlights the need for clear, evidence-based guidance to support decision-making and improve patient safety[14-16].

Therefore, this review aims to evaluate current evidence regarding antiplatelet therapy in dental patients, discuss bleeding risk associated with common dental procedures, and provide practical clinical recommendations for safe dental management without unnecessary interruption of medication.

METHODS

Study design and objective

This study was conducted as an integrative review to synthesize the available evidence regarding the dental management of patients receiving antiplatelet therapy, with particular emphasis on bleeding risk, continuation or interruption of antiplatelet medication, and strategies for preventing and controlling bleeding during dental procedures.

Search strategy

Electronic searches were conducted in PubMed/MEDLINE, Scopus, and Web of Science up to December 2025. The search strategy combined terms related to antiplatelet therapy, dental procedures, and bleeding, using the Boolean operators AND and OR. The main terms included “antiplatelet therapy,” “aspirin,” “clopidogrel,” “ticagrelor,” “prasugrel,” “dual antiplatelet therapy,” “dentistry,” “dental procedures,” “tooth extraction,” “oral surgery,” “dental treatment,” “bleeding,” “hemorrhage,” and “hemostasis.” Search strategies were adapted to the characteristics of each database.

Eligibility criteria

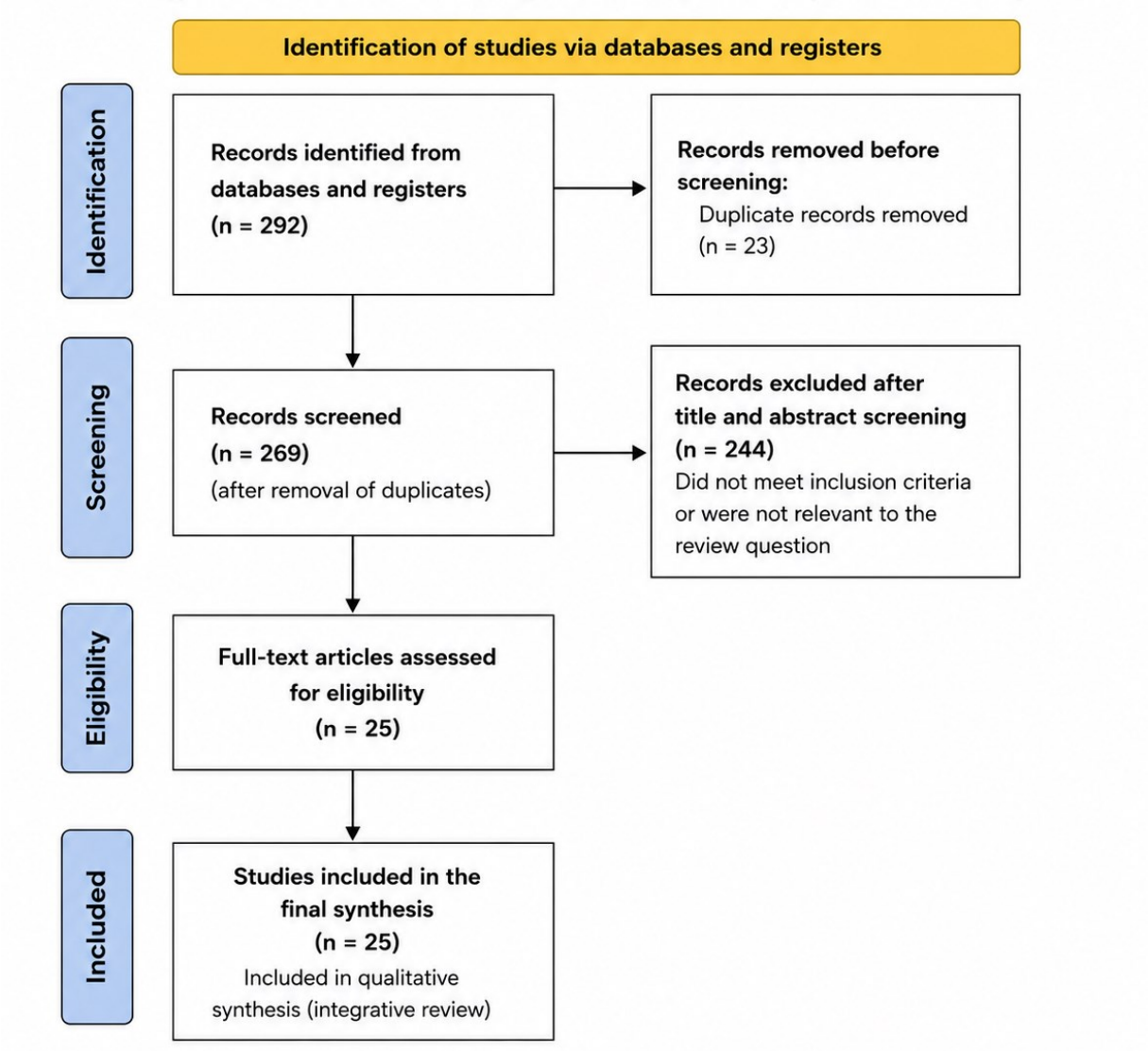
Studies published in English or Portuguese were considered eligible when they addressed the management of patients receiving antiplatelet therapy undergoing dental procedures and provided information regarding bleeding risk, continuation or interruption of antiplatelet medication, or strategies for bleeding control. Clinical studies, systematic reviews, narrative

reviews, and clinical guidelines addressing these topics were considered for inclusion. Studies unrelated to dental procedures or antiplatelet therapy were excluded. No restriction on publication year was applied.

Study selection and data synthesis

The initial search identified 292 records. After removal of duplicates, 269 records remained for title and abstract screening. Following title and abstract screening, 25 studies were selected for full-text assessment and included in the final integrative synthesis. The included evidence was analyzed descriptively according to the main topics addressed in the literature, including bleeding risk associated with dental procedures, management of single and dual antiplatelet therapy, local hemostatic measures, and clinical considerations regarding thrombotic and hemorrhagic risk. The study selection process is presented in Figure 1, which summarizes the identification, screening, eligibility assessment, and inclusion of the studies in the final integrative review.

Figure 1. Flowchart of the study selection process according to PRISMA (2020) for antiplatelet therapy in dental patients. 2025.



Source: The authors.

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Eligibility Criteria

The following eligibility criteria were established: full-text articles addressing the use of Atraumatic Restorative Treatment (ART) from the perspective of dental surgeons (DSs) working in Primary Health Care (PHC), particularly within the Brazilian Unified Health System (SUS), published in English or Portuguese. No time restriction was imposed in order to increase the sensitivity of the search and capture the evolution of the topic over time. Studies that were not directly related to the topic, did not include dental surgeons as participants, or consisted of editorials or opinion articles were excluded.

The study selection process was conducted in stages, beginning with the screening of titles and abstracts, followed by a full-text review of potentially eligible articles. Duplicate studies were identified and counted only once in the final sample.

Data extraction was performed by organizing the information in a reference management software, including author, year of publication, study design, objectives, and main findings. Subsequently, the data were organized into thematic categories established through a critical reading of the included studies. These categories covered aspects such as professionals' profiles, training in ART, its use in daily clinical practice, knowledge of the technique, perceptions of its applicability in public health services, and assessments of its effectiveness.

RESULTS

Antiplatelet drugs and mechanism of action

Antiplatelet agents are commonly prescribed to prevent arterial thrombotic events by inhibiting platelet aggregation through different pharmacological mechanisms[13]. These medications are widely used in patients with coronary artery disease, cerebrovascular disease, peripheral arterial disease, and particularly in those who have undergone percutaneous coronary intervention with stent placement[13-15]. Understanding their mechanisms of action and therapeutic regimens is essential for dental professionals because these factors influence bleeding risk and clinical management during dental procedures[15].

Acetylsalicylic acid (ASA) is one of the most widely used antiplatelet agents[16]. It irreversibly inhibits cyclooxygenase-1 (COX-1), thereby reducing the synthesis of thromboxane A2, a potent mediator of platelet aggregation and vasoconstriction[16,17]. Because platelets are anucleate cells, the antiplatelet effect persists throughout their lifespan, although platelet function gradually recovers as new platelets are produced[16,17].

P2Y12 receptor inhibitors include clopidogrel, prasugrel, and ticagrelor[18]. These agents inhibit adenosine diphosphate (ADP)-mediated platelet activation by blocking the P2Y12 receptor on platelet membranes[18,19]. Clopidogrel and prasugrel produce irreversible platelet inhibition, whereas ticagrelor acts reversibly and has a shorter duration of platelet inhibition[19]. P2Y12 inhibitors may be prescribed alone or in combination with ASA as dual antiplatelet therapy (DAPT), particularly after acute coronary syndromes and coronary stent placement[18-20].

DAPT provides greater antithrombotic protection than single-agent therapy but may be associated with an increased risk of bleeding during invasive dental procedures[20]. The duration of DAPT depends on the clinical indication, type of coronary intervention, and individual cardiovascular risk. Patients with recent acute coronary syndrome or coronary stent placement may be at particularly high risk of thrombotic complications if antiplatelet therapy is interrupted[21].

Other antiplatelet agents, such as ticlopidine and dipyridamole, are less frequently used but may still be encountered in dental practice[21,22]. Therefore, careful assessment of the patient's medication regimen, indication for antiplatelet therapy, and cardiovascular history is essential before dental treatment[22,23].

Overall, the type of antiplatelet agent and whether therapy is administered as single or dual treatment should be considered when assessing bleeding and thrombotic risks. These factors should be evaluated together with the invasiveness of the planned dental procedure and the patient's individual cardiovascular risk[21,23].

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Bleeding risk associated with dental procedures

Dental procedures vary considerably in their potential for bleeding, and the invasiveness of the procedure should be considered when managing patients receiving antiplatelet therapy[24]. Most routine dental interventions are associated with low bleeding risk and can generally be performed without interruption of antiplatelet medication[23,24].

Low-risk procedures include supragingival scaling, restorative treatments, infiltrative local anesthesia, endodontic therapy, and simple extractions of one to three teeth[24,25]. In these situations, clinically significant bleeding is uncommon, and when postoperative bleeding occurs, it can generally be managed with local measures such as pressure, suturing, and topical hemostatic agents[22-24].

Procedures associated with greater tissue trauma, such as multiple tooth extractions, periodontal surgery, implant placement, and subgingival scaling and root planing, may present a higher bleeding potential[18,22]. However, the available evidence indicates that continuation of antiplatelet therapy does not generally result in severe or uncontrollable hemorrhagic complications[23,24]. Careful surgical technique and appropriate local hemostatic measures are therefore important in reducing and managing bleeding in these situations[24,25].

More extensive surgical procedures, including large flap procedures, bone grafting, orthognathic surgery, and other interventions involving greater tissue trauma, may require individualized assessment of both bleeding and thrombotic risk[22,23]. In patients receiving dual antiplatelet therapy, treatment planning should take into account the indication for therapy, cardiovascular risk, and extent of the planned procedure[21,23].

Studies comparing continuation and interruption of antiplatelet therapy before dental procedures have generally reported that clinically significant bleeding is uncommon and can be controlled with local measures[1,2,20]. Conversely, interruption of antiplatelet therapy may expose patients to thrombotic complications, particularly when treatment is prescribed for recent coronary events or coronary stent placement[3,20].

Therefore, assessment of bleeding risk should not be based solely on the antiplatelet medication[4]. The type and extent of the dental procedure, the patient's cardiovascular history, the antiplatelet regimen, and the availability of local hemostatic measures should all be considered when planning treatment[8,9].

Should antiplatelet therapy be discontinued before dental procedures?

The decision to discontinue antiplatelet therapy before dental procedures has traditionally been influenced by concerns regarding intraoperative and postoperative bleeding[24]. However, the available evidence indicates that bleeding following most dental procedures is generally localized and can be effectively managed with local hemostatic measures, whereas interruption of antiplatelet therapy may expose patients to potentially serious thrombotic complications[4,25].

For patients receiving single antiplatelet therapy, particularly acetylsalicylic acid (ASA), the available evidence generally supports continuation of medication during dental procedures[5,6,25]. Clinical studies have reported that maintaining ASA therapy does not substantially increase clinically significant bleeding after dental extractions and other commonly performed procedures[20,21,23]. When bleeding occurs, it is generally controlled with measures such as direct pressure, suturing, and topical hemostatic agents[12,22].

Clopidogrel monotherapy can likewise generally be continued during dental procedures[1,2,25]. Although some studies report a modest increase in bleeding compared with individuals not receiving antiplatelet therapy, most bleeding events are manageable with local measures and rarely require additional intervention[12,13]. Particular caution is warranted when clopidogrel is prescribed following coronary intervention or other conditions associated with high thrombotic risk[6,8].

The management of patients receiving dual antiplatelet therapy (DAPT) requires greater individualization. DAPT may be associated with a higher incidence of postoperative bleeding than single antiplatelet therapy or no antiplatelet therapy; however, reported bleeding events are generally manageable with appropriate local hemostatic measures[16,17]. At the same time, premature interruption of DAPT, particularly soon after coronary stent placement or acute

coronary syndrome, may substantially increase the risk of stent thrombosis and other major cardiovascular events[15,17].

Current dental and cardiovascular recommendations therefore generally favor continuation of antiplatelet therapy for most dental procedures, rather than routine discontinuation[13,25]. When a procedure with substantial bleeding potential is planned, the decision should be individualized according to the extent of the procedure, the indication for antiplatelet therapy, the patient's thrombotic risk, and the availability of effective local hemostatic measures[18,21]. Any consideration of interruption, particularly of DAPT, should involve consultation with the patient's treating physician or cardiologist[18].

Accordingly, the available evidence does not support routine discontinuation of antiplatelet therapy before dental procedures[5,9]. Instead, treatment planning should prioritize appropriate assessment of thrombotic and bleeding risks, minimally traumatic surgical techniques, and effective local hemostatic management[9].

Local hemostatic measures for patients on antiplatelet therapy

Local hemostatic measures are central to the management of bleeding in patients receiving antiplatelet therapy who undergo dental procedures[16,17]. Because bleeding following dental procedures is generally localized, appropriate intraoperative and postoperative measures can usually provide effective hemostatic control without interrupting antiplatelet medication[18,19].

Mechanical pressure with sterile gauze is one of the simplest and most widely used measures for achieving initial hemostasis[2,20]. Sustained pressure promotes clot stabilization and is often sufficient following simple extractions and minor oral surgical procedures. Suturing of the surgical site may provide additional stabilization of the clot and is particularly useful when multiple extractions or more invasive procedures are performed[13,14].

Local hemostatic agents may be used when additional bleeding control is required[16,18]. Absorbable materials, including oxidized regenerated cellulose, collagen-based materials, gelatin sponges, and other topical agents, can be placed directly at the surgical site to support clot formation and stabilization[22,23]. Evidence from studies of patients receiving antithrombotic therapy supports the use of local hemostatic measures, although the comparative effectiveness of individual agents varies and the evidence is heterogeneous[22].

Tranexamic acid (TXA) may be considered as an adjunctive local hemostatic measure, particularly in procedures with a greater risk of postoperative bleeding[23,24]. It inhibits fibrinolysis and can be administered locally in different formulations, including mouthwash or topical application[24,25]. Evidence from dental studies supports a reduction in postoperative bleeding with topical TXA, although much of the available evidence has been generated in patients receiving anticoagulant rather than antiplatelet therapy[18,19]. Therefore, its use in patients receiving antiplatelet therapy should be considered as an adjunct to, rather than a replacement for, conventional local hemostatic measures[20,21].

Additional measures include performing atraumatic surgical procedures, limiting the surgical field when appropriate, staging extensive treatment, and providing clear postoperative instructions[16,17]. In patients receiving dual antiplatelet therapy, clinicians should be aware that bleeding may be prolonged and should ensure that adequate local hemostatic measures are available[12,13].

Overall, local hemostatic management represents a fundamental component of dental care for patients receiving antiplatelet therapy[4,5]. The available evidence and current clinical guidance support the use of local measures to control bleeding while avoiding routine interruption of antiplatelet medication[5,6].

Management of patients receiving dual antiplatelet therapy

Dual antiplatelet therapy (DAPT), typically consisting of acetylsalicylic acid combined with a P2Y12 inhibitor such as clopidogrel, prasugrel, or ticagrelor, is commonly prescribed for patients with acute coronary syndromes and following coronary stent placement[8,10]. Patients receiving DAPT require particular attention in dental practice because dual platelet inhibition may increase the risk of postoperative bleeding compared with single antiplatelet therapy or no antiplatelet therapy[9].

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Evidence from dental studies indicates that bleeding following minor oral surgical procedures in patients receiving DAPT may occur more frequently than in patients receiving single antiplatelet therapy or no antiplatelet therapy[2,3]. However, the absolute increase in bleeding risk appears to be limited in many clinical settings, and reported bleeding episodes have generally been controlled with local measures such as pressure, suturing, and topical hemostatic agents[4,5].

The potential bleeding risk associated with DAPT must be balanced against the risk of thrombotic complications resulting from premature interruption of therapy[3,4]. This consideration is particularly important in patients with recent coronary stent placement or acute coronary syndrome, in whom interruption of antiplatelet therapy may increase the risk of stent thrombosis and other major cardiovascular events[2,3]. Therefore, routine discontinuation of DAPT before dental procedures is not recommended[6,8].

For patients receiving DAPT who require dental treatment, procedures should be planned according to the extent of surgical trauma and the patient's individual cardiovascular risk[12,14]. When clinically appropriate, treatment may be limited to a smaller surgical field or staged over more than one appointment. Adequate local hemostatic measures should be available, particularly when extractions or other invasive procedures are anticipated[15,16].

Elective dental treatment may be postponed when the patient is considered to be at particularly high thrombotic risk, such as shortly after coronary stent placement or acute coronary syndrome[22,23]. If interruption of DAPT is being considered because of the anticipated bleeding risk of a dental procedure, the decision should be discussed with the prescribing physician or cardiologist rather than made solely by the dental practitioner[4,6].

A thorough medical history should document the indication for DAPT, the antiplatelet agents being used, the timing and type of coronary intervention when applicable, relevant cardiovascular conditions, and concomitant medications that may influence bleeding risk[19,20]. This information allows the dental team to individualize treatment planning and determine whether medical consultation is warranted[4,8].

Overall, current evidence supports the continuation of DAPT for most dental procedures, provided that the bleeding risk is appropriately assessed and effective local hemostatic measures are employed[4,6]. The presence of DAPT should therefore be considered a factor requiring greater preparation and individualized risk assessment, rather than an automatic indication for discontinuation of therapy[6].

Clinical decision-making and risk assessment

Clinical decision-making for patients receiving antiplatelet therapy should be based on an individualized assessment of both bleeding and thrombotic risk[22]. This assessment should consider the type and combination of antiplatelet medications, the indication for therapy, the patient's cardiovascular history, concomitant medications and medical conditions, and the nature and extent of the planned dental procedure[22,23].

The bleeding risk associated with a dental procedure should be considered together with patient-specific factors that may further influence hemostasis[23]. A history of previous bleeding, hepatic or renal dysfunction, hematologic disorders, and concomitant medications that may affect hemostasis should be considered during preoperative assessment[23,24].

Thrombotic risk is particularly relevant in patients receiving antiplatelet therapy following acute coronary syndrome or coronary stent placement. In these patients, premature interruption of therapy may increase the risk of serious cardiovascular events[24]. Therefore, the indication for antiplatelet therapy and, when relevant, the timing and type of coronary intervention should be documented before invasive dental treatment[24,25].

For procedures associated with a greater potential for postoperative bleeding, treatment planning may include limiting the initial surgical area, staging extensive or complex procedures, and ensuring that appropriate local hemostatic measures are available[23,25]. Suturing and packing should be strongly considered when clinically appropriate, particularly in patients receiving dual antiplatelet therapy[22,24].

In patients considered to have a particularly high thrombotic risk, elective invasive dental treatment may be postponed when clinically feasible[1,22]. If modification or interruption of

antiplatelet therapy is being considered because of the anticipated bleeding risk, this decision should not be made solely by the dental practitioner and should involve consultation with the prescribing physician or cardiologist[22,24].

Overall, safe dental management of patients receiving antiplatelet therapy depends on balancing the bleeding potential of the planned procedure against the individual thrombotic risk associated with treatment interruption[1,23]. The available evidence and current clinical guidance support a conservative approach based on continuation of antiplatelet therapy for most dental procedures, appropriate surgical planning, and effective local hemostatic management, with medical consultation when patient-specific factors or the complexity of the procedure warrant it[25].

The main clinical recommendations are summarized in Table 1. Clinical decision-making for patients receiving antiplatelet therapy is illustrated in Figure 2.

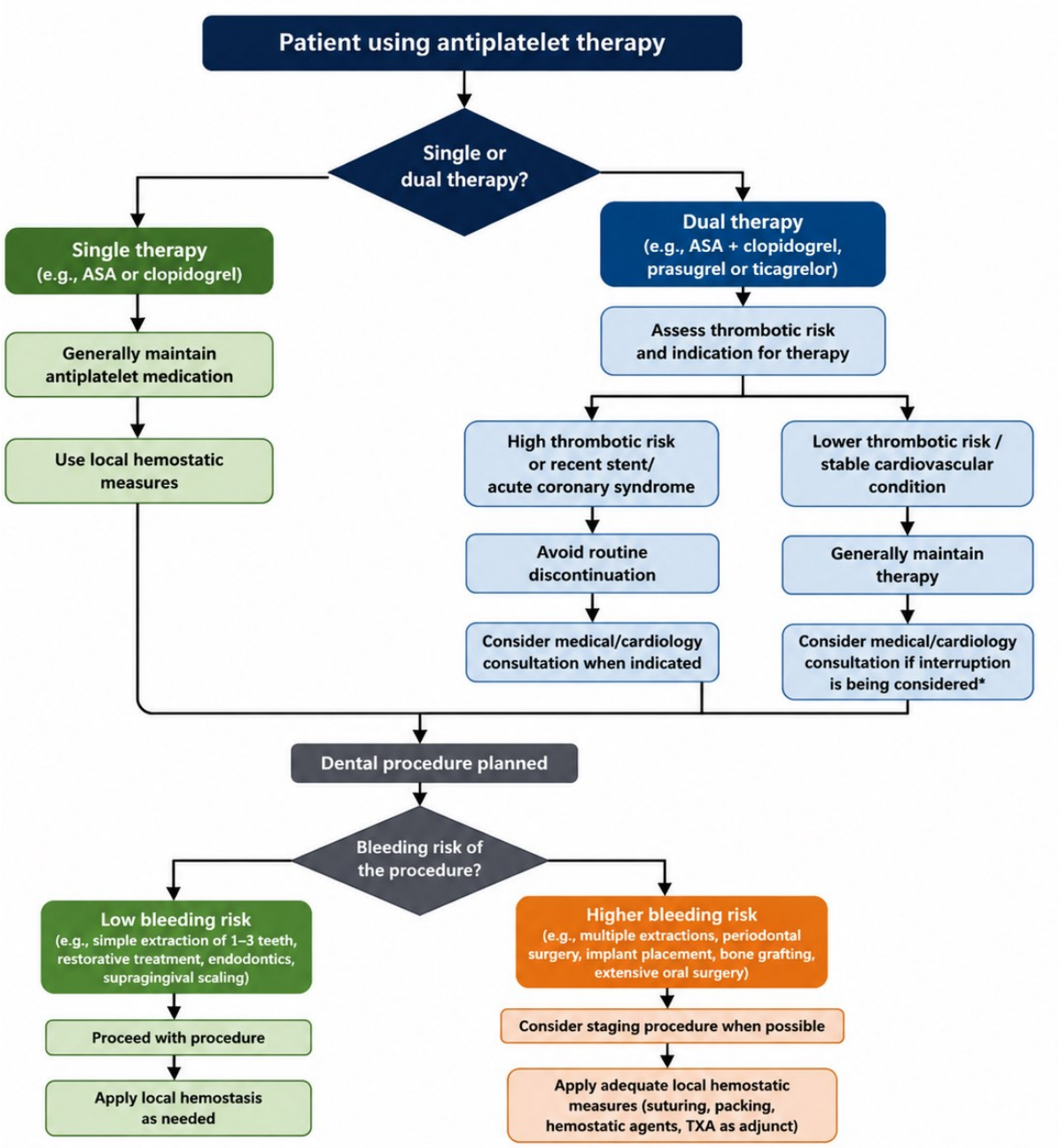
Table 1. Clinical recommendations for dental management of patients receiving antiplatelet therapy. 2025.

Clinical situation	Recommended approach	Clinical rationale
Single antiplatelet therapy	Generally maintain medication	Bleeding is usually manageable with local hemostatic measures
Dual antiplatelet therapy	Generally maintain therapy; individualize according to thrombotic and procedural risk	Interruption may increase thrombotic risk, while bleeding risk may be increased
Simple extraction	No routine interruption of antiplatelet therapy	Bleeding is generally localized and controllable with local measures
Multiple extractions	Consider staging procedures and use local hemostatic measures	Greater surgical trauma may increase bleeding potential
Recent coronary stent or acute coronary syndrome	Avoid interruption; seek medical/cardiology consultation when necessary	Interruption may carry substantial thrombotic risk
Procedures with greater bleeding potential	Individualize treatment and consider staging when appropriate	Reduce surgical trauma and facilitate hemostatic control
Postoperative bleeding	Apply local compression, suturing, packing and/or topical hemostatic agents	Local measures are generally effective for bleeding control
Tranexamic acid	Consider as an adjunct when clinically appropriate	May contribute to local hemostatic control

Source: Research data.

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Figure 2. Clinical decision-making for dental procedures in patients receiving antiplatelet therapy. 2025.



Legend: ASA, acetylsalicylic acid; TXA, tranexamic acid.
Source: Research data.

The characteristics and main findings of the 25 sources included in the integrative review are summarized in Table 2.

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Table 2. Characteristics and main findings of the 25 sources included in the integrative review for dental procedures in patients receiving antiplatelet therapy. 2025.

Author / year	Study design	Sample	Antiplatelet therapy	Dental procedure	Main findings
Lillis et al., 2011	Prospective comparative study	643 patients; 111 on antiplatelet therapy	Aspirin, clopidogrel, or DAPT	Dental extractions	DAPT increased immediate bleeding risk, but all bleeding was controlled with local hemostatic measures; no late bleeding occurred.
Brennan et al., 2008	Randomized, double-blind, placebo-controlled trial	36 patients	Aspirin 325 mg/day	Single-tooth extraction	Aspirin did not significantly increase oral or cutaneous bleeding time or postoperative bleeding.
Bajkin et al., 2012	Prospective comparative study	213 patients	Aspirin, oral anticoagulant, or combined therapy	Tooth extractions	Combined anticoagulant–aspirin therapy was evaluated for postoperative bleeding; bleeding events were defined by prolonged or clinically significant bleeding.
SDCEP, 2022	Clinical guideline	Not applicable	Anticoagulants and antiplatelet drugs	Dental procedures	Recommends individualized bleeding-risk assessment and practical local hemostatic management without routine interruption of antiplatelet therapy.
American Dental Associa-tion, 2022	Clinical guidance	Not applicable	Anticoagulants and antiplatelet drugs	Dental procedures	Provides clinical recommendations for dental management, emphasizing assessment of bleeding and thrombotic risk.
Fathi et al., 2025	Systematic review and meta-analysis	15 observational studies; 3,101 participants; ~2,300 implants	Mixed antithrombotic therapy, including antiplatelets	Dental implant placement	Bleeding risk was higher in the overall antithrombotic group, but sensitivity analysis attenuated the association; all bleeding was managed locally.
Katz et al., 2025	Retrospective/ observational study with machine-learning analysis	2,000 procedures	Antiplatelet monotherapy, dual and triple therapy; mixed antithrombotic s	Dental extractions	Machine-learning models and clinical assessment were evaluated for prediction of postoperative bleeding risk.
Dipalma et al., 2025	Systematic review	28 studies	Antiplatelet therapy	Dental procedures	Discontinuation may increase thrombotic risk without clearly reducing bleeding; evidence remains heterogeneous and guidelines vary.
Lee et al., 2024	Retrospective cohort study	537 patients	Anticoagulants ; antiplatelet-related evidence included in the broader antithrombotic context	Periodontal surgery, extraction, implant surgery	Postoperative bleeding occurred in 6.5%; bleeding risk was associated with medication type and procedural characteristics.
Boccatond a et al., 2023	Systematic review/network meta-analysis	8 RCTs	Antithrombotic therapy, including antiplatelets	Dental surgery	Bleeding episodes were generally mild; local hemostatic measures were effective and no thromboembolic complications were reported.

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Napeñas et al., 2013	Literature review	15 studies	Single and dual antiplatelet therapy	Invasive dental procedures	DAPT showed a tendency toward more immediate bleeding, but no clinically significant increase in postoperative complications; local hemostasis was sufficient.
Krishnan et al., 2008	Comparative clinical study	82 patients; 57 on aspirin	Aspirin	Single/multiple extractions	No significant or prolonged bleeding occurred; pressure packing achieved satisfactory hemostasis.
Morimoto et al., 2008	Prospective clinical study	270 patients; 87 on antiplatelet therapy	Antiplatelet therapy ± warfarin	513 teeth / 306 extraction occasions	Postoperative hemorrhage was uncommon; local hemostatic measures were effective.
Girotra et al., 2014	Prospective randomized study	1,121 patients; 546 on antiplatelet therapy	Aspirin, clopidogrel, DAPT	Minor oral surgical procedures	Prolonged bleeding was more frequent with DAPT, but all cases were controlled locally; DAPT required more intensive hemostatic measures.
Park et al., 2012	Prospective clinical study	100 patients	Multiple antiplatelet agents	Dental extractions	Dental extractions were safely performed without stopping antiplatelet therapy; bleeding was controlled with local measures.
Bajkin et al., 2015	Prospective clinical study	160 antiplatelet patients + 105 controls	Aspirin, clopidogrel, ticlopidine, DAPT	Simple dental extractions	Postoperative bleeding was rare and did not differ significantly among groups; local hemostasis was effective.
AlAgil et al., 2024	Systematic review/meta-analysis	35 studies; 23 included in meta-analysis	Aspirin, non-aspirin single therapy, DAPT	Dental extraction	Aspirin monotherapy did not significantly increase bleeding; non-aspirin therapy and DAPT showed higher bleeding risk, particularly immediate bleeding.
Katz et al., 2024	Systematic review	11 studies; 864 patients	Antiplatelets and anticoagulants	Dental extractions	PRF provided adequate hemostasis; evidence was heterogeneous and meta-analysis was not possible.
Ockerman et al., 2020	Systematic review/meta-analysis	16 studies	DAPT, SAPT, or no antiplatelet therapy	Minor oral surgery	DAPT increased relative bleeding risk, but absolute differences were small; all reported bleeding was controlled locally and DAPT interruption was not advised.
Zabojszcz et al., 2019	Meta-analysis	2,637 patients	Aspirin, clopidogrel, DAPT	Dental extractions	Overall bleeding incidence was 1.59%; DAPT increased immediate bleeding risk, with substantial heterogeneity.
Lu et al., 2016	Retrospective cohort study	1,271 patients; 183 on antiplatelets	Aspirin, clopidogrel, DAPT	Dental extractions	Extractions performed without stopping antiplatelet therapy showed manageable postoperative bleeding.
Akhlaghi et al., 2017	Case-crossover study	38 patients	Aspirin or clopidogrel	Tooth extraction	No significant difference in bleeding severity between extraction with continued therapy and extraction after 5-day interruption.
Doganay et al., 2018	Retrospective study	222 patients	Aspirin, clopidogrel, ticagrelor, DAPT	Tooth extraction/min or oral surgery	Evaluated perioperative bleeding across different antiplatelet regimens; clinically significant bleeding was uncommon.

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Owattanapanich et al., 2019	Systematic review/meta-analysis	4 cohort studies	Primarily oral anticoagulants	Dental procedures	Local tranexamic acid may reduce postoperative bleeding in anticoagulated patients; evidence specific to antiplatelet therapy remains limited.
Krishnan et al., 2021	Prospective study	DAPT patients and controls	DAPT	Tooth extraction	DAPT was associated with more immediate bleeding, but bleeding complications were manageable with local hemostatic measures.

Source: Research data.

DISCUSSION

The findings of this integrative review indicate that the management of patients receiving antiplatelet therapy during dental treatment should be guided by a balance between procedural bleeding risk and the patient's individual thrombotic risk[1,4,12]. Across the available evidence, routine discontinuation of antiplatelet therapy before most dental procedures is not supported[6,7,23]. Instead, appropriate surgical planning and local hemostatic measures appear to provide an effective approach for controlling bleeding while avoiding unnecessary exposure to thrombotic complications[2,23,25].

For patients receiving single antiplatelet therapy, particularly acetylsalicylic acid or clopidogrel, the evidence generally supports continuation of medication during dental procedures[2-4]. Although postoperative bleeding may occur, reported events are predominantly localized and can usually be controlled with conventional measures such as compression, suturing, and topical hemostatic materials[5,6,8,22]. This supports the concept that the presence of antiplatelet therapy alone should not be considered an indication for postponing or modifying routine dental treatment[9,13].

The situation is more complex in patients receiving dual antiplatelet therapy[10,11]. DAPT may increase the likelihood of postoperative bleeding compared with single antiplatelet therapy or no antiplatelet therapy; however, the available dental literature indicates that most reported bleeding events can be managed with local measures[14,15,24]. At the same time, interruption of DAPT may carry substantial thrombotic consequences in patients treated after acute coronary syndrome or coronary stent placement[15-17]. Therefore, the increased bleeding potential associated with DAPT should be interpreted within the broader clinical context rather than used as an isolated reason for discontinuing therapy[1,6,18,20].

An important implication of these findings is that the dental procedure itself is a major determinant of bleeding management[19,22,23]. Simple procedures generally require only routine local hemostatic measures, whereas more extensive procedures may benefit from treatment staging, limitation of the surgical field, atraumatic technique, and preparation of additional hemostatic resources[20,21,24]. This approach allows clinicians to address bleeding risk without unnecessarily altering systemic antiplatelet treatment.

Local hemostatic management therefore represents a central component of care[24,25]. Mechanical compression, suturing, absorbable hemostatic materials, and other topical agents can be incorporated according to the extent of the procedure and the patient's clinical characteristics[3,4,8]. Tranexamic acid may also be considered as an adjunct in selected situations, although the evidence supporting its use is heterogeneous and should not be interpreted as demonstrating superiority over all other local hemostatic strategies[9,12,19].

The findings also highlight the importance of individualized preoperative assessment[3,4,9]. The indication for antiplatelet therapy, type and combination of agents, history of coronary intervention, cardiovascular risk, concomitant medications, previous bleeding, and relevant systemic conditions should be considered before invasive dental treatment[22,23,25]. When interruption of therapy is being considered, particularly in patients receiving DAPT or those with a recent coronary intervention, communication with the prescribing physician or cardiologist is warranted[17,19,21].

Despite the overall consistency of the evidence favoring continuation of antiplatelet therapy for most dental procedures, the available literature presents important heterogeneity in study designs, patient populations, antiplatelet regimens, dental procedures, and definitions of

postoperative bleeding[4,8,10]. Consequently, the findings should not be interpreted as a universal protocol applicable to every clinical situation. Rather, they support a risk-based approach in which the extent of the dental procedure and the patient's thrombotic risk are evaluated together[9,17,18].

From a clinical perspective, these findings reinforce the need for collaboration between dental and medical professionals, particularly when patients present with complex cardiovascular histories or require DAPT[21,23]. Clear documentation of the indication for antiplatelet therapy and careful communication with the prescribing physician can reduce unnecessary medication interruption and improve the safety of dental care[12-14].

Overall, the evidence supports a shift from medication-centered decision-making toward risk-based dental management[4,18,19]. For most dental procedures, maintaining antiplatelet therapy while using appropriate local hemostatic strategies appears to be the most consistent approach with the available evidence[1,2,9]. Exceptions should be considered on an individual basis, particularly when the planned procedure has substantial bleeding potential or when the patient's cardiovascular risk is particularly high[3,9,10].

Despite the consistency of the available evidence regarding the safety of maintaining antiplatelet therapy during most dental procedures, some limitations should be considered[12,18,24]. The included studies showed methodological heterogeneity regarding study design, sample size, antiplatelet regimens, dental procedures, definitions of bleeding, and local hemostatic protocols, which limits direct comparison of their findings[18,21,25]. In addition, much of the available evidence is derived from observational studies and small clinical series, particularly for dual antiplatelet therapy and newer P2Y12 inhibitors[6,8,12]. Further well-designed prospective studies with standardized definitions of bleeding severity and standardized hemostatic protocols are needed to strengthen the evidence and support more precise risk stratification[2,6].

CONCLUSION

The available evidence supports maintaining antiplatelet therapy for most dental procedures, as bleeding events are generally mild and can be effectively managed with appropriate local hemostatic measures. Clinical decisions should be individualized according to the bleeding risk of the planned procedure and the patient's thrombotic risk, particularly in those receiving dual antiplatelet therapy or with recent coronary stent placement. Routine interruption of antiplatelet medication is therefore not recommended, and any modification of therapy should be considered in consultation with the prescribing physician or cardiologist.

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