



AAOM Clinical Practice Statement

Subject: Management of Patients on Warfarin Therapy

The American Academy of Oral Medicine (AAOM) affirms that understanding the appropriate risk assessment and monitoring of patients taking warfarin (Coumadin) is important for safe delivery of dental care and the overall health of the patient.

This Clinical Practice Statement was developed as an educational tool based on expert consensus of the American Academy of Oral Medicine (AAOM) leadership. Readers are encouraged to consider the recommendations in the context of their specific clinical situation, and consult, when appropriate, other sources of clinical, scientific, or regulatory information before making a treatment decision.

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PURPOSE

The American Academy of Oral Medicine (AAOM) affirms that understanding the appropriate risk assessment and monitoring of patients taking warfarin (Coumadin) is important for safe delivery of dental care and the overall health of the patient.

METHODS

This statement is based on a review of the current dental and medical literature related to the importance of safe and effective management of dental patients taking warfarin. A MEDLINE search was conducted by using 15 search terms concerning dental procedures and anticoagulant drugs. Expert opinions and best current practices were relied upon when clinical evidence was not available.

BACKGROUND

More than 5 million people in the United States take anticoagulants to prevent stroke and embolism.¹ Anticoagulation drugs are grouped into two groups: those for direct factor Xa inhibition (rivaroxaban, apixaban, edoxaban) and those used for antithrombin activity (e.g., warfarin, heparin, dabigatran). This

statement covers warfarin (Coumadin), the most commonly used antithrombin medication. Heparin is another antithrombotic that is generally used for immediate anticoagulation, as short-term treatment, or as a bridge to long-term anticoagulation with warfarin. Because it is generally used for hospitalized patients, it is not a consideration for dental outpatients. Low-molecular-weight heparin (e.g., Lovenox), however, is widely used as a once-daily administration for outpatients, who are often encountered in dental offices.

Warfarin inhibits the biosynthesis of vitamin K–dependent coagulation proteins (factors II, VII, IX, and X). It is used both to treat and to prevent thromboembolism. Patients seen in dental offices may be taking warfarin for prophylactic purposes, for example, valvular heart disease or prosthetic heart valves; atherosclerotic vascular disease; history of blood clot; arrhythmias, such as atrial fibrillation or atrial flutter; left ventricular ejection fraction of less than 20%; ischemic heart disease, myocardial infarction, angina; renal dialysis; cerebrovascular accidents; pulmonary embolism; or deep-vein thrombosis.

The efficacy of warfarin therapy is monitored by a blood test, termed the International Normalized Ratio (INR). The target therapeutic level for the INR is dependent on the underlying condition but is usually kept in the range of 2.0 to 3.5.² Given the fluctuations in the INR level in some patients, this laboratory test should ideally be performed within a few days of surgery.³ Elevated prothrombin time (PT)/INR levels may persist for 3 to 4 days after the last dose of warfarin.

Patient management considerations:

1. *INR assessment:* There is still some misunderstanding concerning the upper limit of the INR level for invasive dental procedures and the degree to which it predicts oral bleeding.³⁻⁵ Any debate concerning ceasing or tapering of the warfarin dosage for dental procedures revolves around the potential risk for excessive bleeding after the procedure versus the risk of a thromboembolic event if the anticoagulation therapy is altered. Although the risk is small, adjusting the warfarin dosage downward can have devastating consequences of thromboembolic events. Current literature, including prospective randomized studies, indicates that moderately invasive surgery (e.g., uncomplicated tooth extractions) is safe with an INR level up to 3.5, with some

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experts stating it is safe up to 4.0.⁶⁻¹¹ INR test results that are above or below the therapeutic range for that patient should be brought to the attention of the patient's managing physician. INR levels below the therapeutic range (while on anticoagulation therapy) pose significant health risks (thromboembolic events) to the patient. The consequences of these events may occur during dental or oral care.

- A. Risk assessment: Barring concurrent comorbid conditions (e.g., liver or renal disease) or use of other specific drugs (e.g., antiplatelet agents, nonsteroidal anti-inflammatory drugs, antibiotics) or more invasive oral surgery, there is minimal risk of excessive bleeding at this level of anticoagulation. To what extent these recommendations should be altered, if any, with the use of the newer anticoagulants is not clear.¹² There is a longstanding concern about regional nerve blocks (e.g., inferior alveolar nerve), given the concern about bleeding from an artery or vein in the area, but there is little or no evidence to suggest that this is a valid concern. In general, the risk to the patient from altering the warfarin dosage far exceeds the potential problem of bleeding following dental procedures of this nature.
 - B. Adjuvant measures: Intraoral bleeding from surgical procedures is usually localized and responds well to routine local measures such as gauze pressure and sutures, use of local hemostatic adjuncts such as absorbable gelatin foam or microfibrillar collagen and possibly antifibrinolytic agents.
2. Drug/food interactions: Some drugs or foods can affect INR levels in patients on warfarin, including over-the-counter medications and herbal treatments.¹³ These generally fall into four categories:
 - A. Medications that alter vitamin K absorption/synthesis in the gastrointestinal tract (e.g., antibiotics)
 - B. Medications that alter warfarin metabolism through upregulating or downregulating the cytochrome P450 system
 - C. Enhanced effect with use of medications which alter platelet function (e.g., nonsteroidal anti-inflammatory drugs and antiplatelet agents) via decreased platelet function or gastrointestinal toxicity
 - D. Influence of diet (e.g., herbal, vitamin K intake in vegetables) and smoking

POLICY STATEMENT

1. The AAOM encourages dental care providers to understand the mechanism of action of warfarin, the goals for management (i.e., therapeutic INR levels), and the risk assessment of patients undergoing invasive dental procedures.

2. The AAOM considers the following as major considerations in the dental management of these patients:
 - A. Identifying patients taking warfarin and other anticoagulants
 - B. Understanding the levels of INR test results and their impact on the potential for bleeding during and following dental procedures
 - C. Development of an action plan to be implemented if a bleeding emergency occurs during/immediately after an invasive dental procedure
 - D. The importance of obtaining INR results within a few days of highly invasive procedures
 - E. Having knowledge of comorbid conditions (i.e., liver, kidney, platelet disorders, acute infection) or other medications that can also affect coagulation and clotting
 - F. Understanding of local hemostatic measures that can be implemented for these patients
 - G. Understanding potential drug interactions
3. The AAOM recognizes that for patients on warfarin, at each appointment, the dental care provider should inquire as to and record the following:
 - A. Informed consent before invasive procedures
 - B. Any change in medications since last appointment
 - C. Medical history update with attention to comorbid conditions
 - D. At initial visit: reasons for warfarin/anticoagulant use (medical condition)
 - E. Recent INR levels; date and time test was performed
 - F. If specific invasive procedures are performed, standard procedural notes should include local hemostatic measures used, coagulation status post procedure, and post-operative instructions
4. The AAOM suggests that a medical consultation be obtained when the nature or reason for anticoagulation is unclear, if the INR level is significantly elevated, or if the dentist is contemplating ceasing or reducing the warfarin dosage because of concerns about excessive bleeding and/or inadequate hemostasis for planned dental procedures
5. The AAOM recognizes that concern over an INR test result that is too high can be a reason for deferral of care.
6. If an INR test result is below the intended therapeutic range, the patient's physician should be contacted and given this information. A low INR test result does not preclude an invasive procedure as the risk for oral bleeding is negligible. The concern is that the warfarin dosage be adjusted as soon as possible by their physician to get the INR level back within the normal range.

7. A 24-hour emergency contact should be provided following invasive procedures in case of excessive bleeding.

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