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. Originator: Dr. Peter B. Lockhart, DDS

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 prior to 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 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

1. Background. Upwards of 5 million people in the United States take anticoagulants to prevent stroke and embolism. Anticoagulation drugs are grouped into two groups: those for direct factor Xa inhibition (rivaroxaban, apixaban) 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, 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 on outpatients and these patients will be seen in dental offices.

2. Mechanism and Patients of Concern. Warfarin inhibits the biosynthesis of vitamin K-dependent coagulation proteins (factors II – prothrombin, 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 or angina; renal dialysis; cerebrovascular accidents; pulmonary embolism; or deep-vein thrombosis.

3. Monitoring Anticoagulation. The efficacy of warfarin therapy is monitored by a blood test called 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. Given the fluctuations in the INR level in some patients, this laboratory test should ideally be performed within several hours of surgery.

4. PT/INR levels may persist for 3–4 days after the last dose of warfarin.

4. Patient Management.  
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 for oral bleeding. Any debate concerning ceasing or tapering of the warfarin dosage for dental procedures revolves around the potential risk for excessive bleeding after the procedures 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 up to 3.5, with some experts stating it is safe up to 4.0.

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 therapeutic range (while on anticoagulation therapy) pose significant health risks (thromboembolic) to the patient. The
consequences of these events may occur during dental/oral care.

2. Risk assessment: Barring concurrent comorbid conditions (e.g., liver or renal disease) or use of other specific drugs (e.g., antiplatelet agents, NSAIDS, antibiotics) or more invasive oral surgery, there is minimal risk of excessive bleeding at this level of anticoagulation. It is unclear to what extent these recommendations should be altered, if any, with the use of the newer anticoagulants. Regional nerve blocks (e.g., inferior alveolar nerve), should be done with caution. 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.

3. 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.

4. Drug/food interactions. Some drugs or foods can interfere with INR levels in patients on warfarin, including OTC medication and herbal treatments. These generally fall into four categories:
   1. Medications that alter vitamin K absorption/synthesis in the GI tract (e.g., antibiotics);
   2. Medications that alter warfarin metabolism through up regulating or down regulating the cytochrome P450 system;
   3. Enhanced effect with use of medications which alter platelet function (e.g., nonsteroidal anti-inflammatory drugs and antiplatelet agents) via decreased platelet function or GI toxicity;
   4. 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 major considerations in the dental management of these patients to include:
   1. identifying patients taking warfarin and other anticoagulants
   2. understanding the levels of INR test results and their impact on the potential for bleeding during and following dental procedures
   3. development of an action plan if a bleeding emergency occurs during/immediately after an invasive dental procedure
   4. the importance of having an INR lab result within 24 hours of highly invasive procedures
   5. having knowledge of comorbid conditions (i.e., liver, kidney, platelet disorders, acute infection) or other medications that can also affect coagulation and clotting
   6. understanding of local hemostatic measures that can be implemented for these patients
   7. understanding potential drug interactions
8. The AAOM recognizes that, for patients on warfarin, at each appointment the dental care provider should inquire as to and record:
   1. informed consent prior to invasive procedures
   2. any change in medications since last appointment
   3. medical history update with attention to comorbid conditions
   4. at initial visit: reasons for warfarin/anticoagulant use (medical condition)
   5. recent INR levels; date and time test was performed
   6. if specific invasive procedures are performed, standard procedural notes should include local hemostatic measures used, coagulation status post procedure, and post-operative instructions

7. The AAOM suggests that a medical consultation should be obtained when the nature or reason for anticoagulation is unclear, if the INR level is significantly elevated, or if contemplating ceasing or reducing the warfarin dosage.

8. The AAOM recognizes that concern over an INR test result that is too high, too low or that was performed more than 24 hours before the invasive procedure can be a reason for deferral of care.

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

References

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