

## **A Summary of Current Perspectives On Dental Procedures in Anticoagulated Patients<sup>1,2,3</sup> Stanford Anticoagulation Clinic**

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Controversy still exists about whether dental treatments can be safely performed while the patient is taking warfarin therapy or if the warfarin needs to be reduced or stopped entirely.

- The majority of dental clinical literature does not support that the oral anticoagulant regimen be altered or discontinued before most dental procedures, including oral surgery.
- Current recommendations from the JADA based on review of published trial data are as the followings:
  - No alteration of anticoagulation is necessary for INR that is in therapeutic range (INR 2-4), given that local hemostatic measures are used.
  - Anticoagulation alteration is required if INR is >4.
  - INR >5 is contraindicated for surgical procedure.
- The benefit and risk evaluation of bleeding vs. thrombosis need to be carried out before making any decision regarding the anticoagulation therapy.

### **Algorithm for dental care of patients receiving anticoagulant therapy:**

- **Referred to a dental hospital or hospital based oral/maxillofacial surgeon when:**
  - Patient has one of the following medical conditions:
    - Liver impairment and/or alcoholism
    - Renal failure
    - Thrombocytopenia, hemophilia or other disorder of hemostasis
  - Patients is currently receiving a course of cytotoxic (chemotherapy) medication
  - Emergency Treatments such as open-fracture reduction or orthognathic surgery.
- **For *NON-urgent* dental care of anticoagulated patients:**
  - I. Patient Assessment prior to any dental procedure:*
    - Determined:
      - Name of the primary care physician
      - Reason for warfarin therapy
      - Duration of therapy
      - Frequency of monitoring
      - Stability of therapy.
    - Evaluate the dental treatment needs:
      - Types of therapy required
      - Potential for hemorrhage
      - Presence of local factors that ↑potential for hemorrhage
      - Block anesthesia requirement
      - Number visits

- If a patient on a short course of warfarin therapy ( $\leq 6$  months):
  - For Non-urgent elective treatment such as extractions or surgical procedures:
    - can be delayed until the warfarin course has completed.
  - Urgent elective treatment such as carious teeth or periodontal disease:
    - Obtain an INR within 24 hours but not more than 72 hours before the procedure.
    - Then, assess the safety of the dental treatment based on the INR.
- If patient on a long course of warfarin therapy ( $> 6$  months):
  - Obtain an INR within 24 hours but not more than 72 hours before the procedure
  - Then, assess the safety of the dental treatment based on the INR.

## *II. Evaluate Safety of Dental Treatment For Patients with Warfarin:*

### **a. Procedures involved low risk of bleeding:**

- Examination, Radiographs, Study Models
- Safety profile based on INR:
  - INR  $<1.5-3.5$  :
    - Safe to proceed in a routine manner.
  - INR  $>3.5$ :
    - Can be safely perform with judicious use of local hemostatic measures\*\* in many instances

### **b. Procedures involved low-moderate risk of bleeding:**

- Examples:
  - Simple restorative dentistry
  - Supragingival prophylaxis
  - Complex restorative dentistry
  - Scaling and root planning
  - Endodontics
- Safety profile based on INR:
  - INR  $<1.5-3$ :
    - Safe to proceed in a routine manner.
  - INR  $>3$ :
    - Not advised to do procedures. Need to refer to physician for adjustment of warfarin therapy.

### **c. Procedures involved moderate risk of bleeding:**

- Examples:
  - Simple extraction up to 3 teeth
  - Curettage
  - Gingivoplasty
  - Removal of single bony impaction
  - Crown and bridge procedure
- Safety profile based on INR:
  - INR  $<1.5-3.5$ :
    - Can be safe to proceed with judicious use of local hemostatic measures in some instances.

- INR > 3.5:
  - Not advised to do procedures. Need to refer to physician for adjustment of warfarin therapy.

**d. Procedures involved moderate-high risk of bleeding:**

- Examples:
  - Gingivectomy
  - Apicoectomy
  - Minor periodontal flap surgery
  - Placement of single implant
- Safety profile based on INR:
  - Not sufficient scientific data to draw a conclusion for any INR values.
  - Not advised to do procedures. Need to refer to physician for adjustment of warfarin therapy and evaluate all factors for risk assessment.

**e. Procedures involved high risk of bleeding:**

- Examples:
  - Full-mouth/Full-arch extractions
  - Extensive flap surgery
  - Extraction of multiple bony impactions
  - Multiple implant placement
- Safety profile based on INR:
  - Not sufficient scientific data to draw a conclusion for any INR values.
  - Not advised to do procedures. Need to refer to physician for adjustment of warfarin therapy and evaluate all factors for risk assessment.

**\*\* Local hemostatic measures included:**

- Gelatin sponges with silk sutures
- Systemic, irrigant, and mouthrinse forms of **tranexamic acid**
- Vasoconstrictors in local anesthetic
- Atraumatic surgical techniques

**Three Options for Alteration of anticoagulation status:**

- Option 1:
  - After consult with physician → 2-3 day cessation of warfarin therapy → determine INR:
    - If INR is unacceptable, defer an additional day → repeat INR → perform dental treatment only when INR is in an acceptable range → Resume warfarin therapy on the evening of the same day of dental procedure.
    - If INR is acceptable → perform dental treatment → Resume warfarin therapy on the evening of the same day of dental procedure.
- Option 2:
  - After consult with physician with an unacceptable INR:
    - Discontinue warfarin therapy several days before surgery (or other dental treatment) and substitute heparin anticoagulant therapy or Low molecular weight heparin (LMWH).
    - Heparin then can be discontinued 6-8 hours before surgery or Low molecular weight can be discontinued the day before surgery,

- Warfarin or heparin or LMWH can be readministered shortly (12-18 hours) after surgery.
- Option 3: **(Not Recommended)**
  - After consult with physician, stop warfarin therapy for 4-5 days before performing dental treatment. Warfarin is then resumed after the dental treatment.
  - Not recommended because ↑risk of thrombotic complications due to underlying disease.

### **Drug-to-Drug Interaction Considerations:**

- Be cautious with antibiotic choice for endocarditis prophylaxis in patients who are on warfarin and undergoing dental treatment.
  - A single **Amoxicillin** dose of 3 g dose given for endocarditis *prophylaxis* has not been shown to produce a clinically relevant interaction. Patient requiring a course of amoxicillin should be advised to be vigilant for any signs of ↑bleeding.
  - **Clindamycin** does not interact with warfarin when given as a single dose for endocarditis *prophylaxis*.
    - Clindamycin is restricted to specialist use for *treatment* and should not be used routinely for dental infections due to its serious side effects.
    - There is a single case report of an interaction between warfarin and a course of clindamycin.
  - **Metronidazole** interacts with warfarin and should be avoided whenever possible.
    - If have to use metronidazole, warfarin dose may need to be ↓by 1/3 to 1/2. Consult with physician or anticoagulation clinic.
  - **Erythromycin** interacts with warfarin unpredictably only in certain individuals. Patient should be advised to be vigilant for any signs of ↑bleeding.
- Be cautious with the choice of analgesic medications for pain control:
  - Avoid **NSAIDs or salicylates** due to ↑risk of bleeding
  - Careful monitor patient's INR if patient's is on **COX-2 inhibitors (coxibs)**.
  - May use **Tylenol** for short term pain reliever.

### **References:**

1. Herman W, Konzelman Jr. J, and Sutley S. Current perspectives on dental patients receiving coumarin anticoagulant therapy. JADA 1997 Mar;128:327-335.
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3. Randall C. Surgical management of the primary carew dental patient on warfarin. North West Medicines Information Centre 2004 Mar:2-15.