WHAT YOU WILL LEARN IN THIS SEGMENT:

- What is INR?
- Do you stop Coumadin before extractions or not?
- If not, how many teeth can be removed per appointment?
- Which “local measures” are best?
- Does INR pertain to Plavix or Pradaxa?

One way to manage blood.

Leech Therapy in Reconstructive Maxillofacial Surgery

Alexander Grin, DDS, PhD*; Andrew Michelson, DDS, PhD; Jeremy Hinderer, DDS; Alan Schneider, DDS, PhD

Results: Our series has confirmed the excellent and predictable healing after methylene blue therapy for local and microvessel anastomosed flaps in the case of venous congestion.

Conclusion: Leech therapy should be considered as a reliable additional procedure and an advantage in maxillofacial and plastic reconstructive surgery to remedy complications resulting from a hemodynamic imbalance or venous insufficiency in the immediate postoperative period.

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Hemostatic Management of Tooth Extractions in Patients on Oral Antithrombotic Therapy

Conclusion: A sufficient hemostasis can be obtained in most cases of tooth extraction under antiaggregant therapy with aspirin (INR < 1.5) and anticoagulant drugs. Moreover, appropriate local hemostatic methods can be successful when postoperative hemorrhage occurs.

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71 y.o. man. On Coumadin because of atrial fibrillation. MI nine years ago. Has a pacemaker. Current INR 2.3 (bleeding takes 2.3X as long to stop) checked 1/mo.) LL paresthesia from previous mandibular block.
Most of the studies to go ahead with oral surgery are based on no more than 3 simple extractions. No studies involved more than 5 teeth.

Prothrombin time (PT) is a blood test that measures how long it takes blood to clot. (Normal: 11-15 sec.)

International normalized ratio (INR): Normal is 1.0-1.4

Warfarin is commonly used for patients with a history of atrial fibrillation (AF) to prevent cerebrovascular complications. The current evidence-based recommendations do not support the discontinuance of warfarin before dental extractions. Further, intravenous recombinant tissue plasminogen activator (rt-PA) is used for patients with acute ischemic stroke, and achieving hemostasis in patients with recent dental extractions undergoing thrombolysis can be challenging. This article will provide a review of stroke prevention with oral anticoagulation and the dental management of acute stroke patients undergoing thrombolysis with recent tooth extraction. A case report of a patient who received rt-PA for an ischemic stroke after discontinuing warfarin prior to a single tooth extraction will be presented.
Case Report

An 88-year-old male presented to the University of Michigan emergency department with difficulty speaking. His wife reported he had awakened with normal neurologic function and a meal with him at 7:30 am, he could not speak and his wife called 911. On arrival, the acute stroke team was activated.

r-PA (recombinant tissue Plasminogen Activator) – Protocol when stroke within the last three hours.

Summary:

Stopped Coumadin 5 days later, 1 tooth extracted 12 hours later Coumadin re-started 2 days after surgery, had a stroke - INR only 1.3
Treated for stroke
Had uncontrollable bleeding from the socket
Stent placed to hold in hemostatic agent

OTHER NOTES FROM THE COMPENDIUM ARTICLE:

* Certain antibiotics can decrease Vit. K absorption, limit the production of 4 clotting factors, and increase the INR (thin the blood).

* Avoid NSAIDs (increase bleeding but not the INR)

FROM DENTAL LITERATURE...

- Consult with the physician to discuss any treatment with Coumadin, platelet-altering meds (such as Plavix and/or aspirin), Pradaxa, or other similar meds.

- Inform the physician that: 1) only minor oral surgery will be done (only a few simple extractions), 2) local measures will be used, and 3) you don’t feel it is necessary to alter the anticoagulation regimen.

COUMADIN AND AMOXICILLIN?

Another case report describes a patient receiving both warfarin and amoxicillin who exhibited persistent bleeding that was unusually nonresponsive to tranexamic acid rinses following a tooth extraction. The authors of this report...
COUMADIN AND ACETAMINOPHEN?

Patient on Warfarin (INR 2.3)
Luxator? Thin bur?

Patient on Warfarin (INR 2.3)
Do the surgery, but... use local measures.
Don’t stop the Coumadin.
Don’t do more than 3 simple extractions.

Lula C. Smith
Lula B. Smith passed away peacefully, with her children by her side on Sunday morning, June 27, 2005 in the Mountain View Hospital. She had suffered a stroke on Friday.

Age: 79
14 extractions
Stopped Coumadin 4 days before
Massive stroke
Dental work Thursday, stroke Friday
died Sunday.
SAFEST TREATMENT:
1. DON’T TAKE THE PATIENT OFF BLOOD THINNERS.
2. DON’T EXTRACT MORE THAN 3-5 TEETH AT ONE APPT.
3) USE THINGS TO STOP BLEEDING (LOCAL MEASURES).
4) Don’t do the case if they are beyond the therapeutic range (INR over 3). Refer or talk to physician.

BONE BLEEDING (CONT.)
Bony artery (nutrient canal)
- Crush adjacent bone into the bleeding orifice with a hemostat or periosteal elevator
- Apply bone wax into the bony bleeding source

This product will resorb in 1-2 weeks to glucose and Saline. It is FDA approved for oral cavity use.

Or laser...
PLAVIX VS. COUMADIN

- Plavix: not influenced by the INR or vitamin K
  - Impairs platelet function (anti-platelet drug)
  - Also anti-platelet: Aspirin, Plavix, Ticlid, Aggrenox
- Mainly for arteries (fast flowing blood, where platelets attach to rough surfaces...)
- Doesn’t play much of a role in preventing venous clots

ANECDOCTAL PLAVIX SITUATIONS...

1. Iowa dentist with mentally compromised patient.
   - Two premolar extractions
   - Tried to call him that night – no answer
   - Found dead from exsanguination the next day by family
2. Illinois dentist – did one extraction on a patient.
   - Went to emergency room that night
   - Physician criticized the dentist for not giving proper tx
   - Went to emergency room that night and had blood transfusions

The patient taking antiplatelet drugs: A review with dental management considerations
By Mary A. Auerwein, DMD
Published in General Dentistry, May-June 2003
Pg. 380-394

Table 2. Dental management considerations for patients taking antiplatelet drugs.

- Schedule procedures early in the morning or early in the week
- Limit scaling and periodontal surgery to small areas until bleeding potential has been determined
- Remove one to three teeth at a time or by quadrant
- Use local anesthesia with vasoconstrictors, by local injection or oral agent
- Avoid regional blocks if possible, aspirin during injection
- Do not stop aspirin, NSAIDs, or thienopyridines monotherapy prior to dental surgery
- Patients taking combined antiplatelet therapy may stop clopidogrel and continue aspirin on the advice of their physicians
- Give patients specific preoperative care instructions
- Use local hemostatic methods, including suture, resorbable collagens, and hemostatic gauze, collagen plugs
- Use nonresorbable suture
- Avoid pain relievers containing aspirin or NSAIDs: acetaminophen
- Use transient, and or topical hemostatic agents

60 y.o. patient in poor health.
Six maxillary teeth to be removed – involving some bone removal.

Forgot the Plavix!
Anticoagulated patient.

**HOW IS THE PRADAXA DIFFERENT FROM COUMADIN?**

- **Coumadin:** prevents the activation of 4 clotting factors that depend on Vitamin K.
- **Pradaxa** is a thrombin inhibitor. Thrombin is one of many clotting factors in the body necessary for coagulating blood


**Problems with Coumadin:**
- Constant monitoring and dose adj.
- Food interactions
- 3-5 days to reach therapeutic levels
- Do surgery but INR must be under 3.
- May need bridging for more major surgery
- **But**
  - Low cost, have an antidote: vitamin K

**Advantages:**
- Safe and effective
- No monitoring
- Acts against only 1 clotting factor
- Limited drug interactions
- Peak blood level within 2 hrs.
- Half life is only 11 hrs.

**Recommendations for dental surgery:**
- Consult with the physician
- Can continue taking the medicine with only a few extractions
- Use local measures
- For more teeth or if not "simple":
  - May want to stop 24 hrs. prior, do surgery, start again in 24-48 hrs. if "hemostatic" (not oozing...)
  - Half life is short & onset is quick (like heparin).

**Pradaxa:**
- Problems: 2/day dosing, dyspepsia, limited use if renal disease, high cost, no antidote.

**More for the general dentist.**
- Gelfoam
- hemostatic gauze
- Surgicel
- Colla-tape or Colla-Plug
- electrocautery
- tea bag (wrapped in gauze)
- bone wax
- Hemcon
- burnish bone if blood is spurting
- avoid traumatic surgery if possible (releasing incisions, bone removal...)

**More for the oral surgeon.**
- Amicar
- Tranexamic acid rinse (more potent and less expensive than Amicar)
- Bovine thrombin
- fibrin glues
- vitamin K injections
- Avitene

Surgery on Monday morning:
Her cardiologist wants her not take the Pradaxa on Sunday or Monday. He wants her back on it Tuesday evening, the day after the surgery. Follow-up questions can be with the PA, Greg.
HERBAL SUPPLEMENTS AND BLEEDING

Potential anticoagulant effect:
- Garlic
- Ginger
- Gingko
- Ginseng
- Guarana
- Feverfew

May also increase the risk of bleeding:
- CoQ10
- Vitamin E

The dental report noted that drinks such as Red Bull non-sweet energy drink products that usually contain significant amounts of caffeine. Many other such as Monster Energy Drink®, Red Bull and Hyper Energy drink contain, in addition to the caffeine, ginseng, and guarana seed extract. Active ingredients of ginseng, known as ginsenosides, are known to inhibit platelet aggregation which could increase the risk of bleeding.

Tranexamic Acid:
- A man-made form of the amino acid, lysine
- Prevents the breakdown of blood clots
- Works for Coumadin, Plavix, and aspirin
- Also used with hemophiliacs
- Can be given IV or used as a rinse
- Rinse 4 times/day for 2-5 days

Abstract
We carried out a placebo-controlled, double-blind, randomized study of the hemostatic effect of tranexamic acid mouthwash after oral surgery in 10 patients receiving anticoagulant agents because of the presence of cardiac valve surgery, a prosthetic cardiac valve or a vascular prosthesis. Surgery was performed with no change in the level of anticoagulant therapy, and treatment with the anticoagulant agent was continued after surgery. Before and after surgery, the oral field was rinsed with 10 ml of a 4.8 percent aqueous solution of tranexamic acid (an inhibitor of fibrinolysis) and in 10 patients with a placebo solution. In 7 patients, patients were instructed to rinse their mouths with 10 ml of the assigned solution for two minutes four times a day. There were no significant differences between the two treatment groups in the incidence or severity of postoperative bleeding complications, including the largest amount of bleeding in patients who were being treated with anticoagulant therapy.