

PERIPROCEDURAL ANTICOAGULATION GUIDELINE (BRIDGING THERAPY)^{10/2004}

PATIENT
NAME _____ Date _____ Surgeon _____ Date _____

Periprocedural Anticoagulation is a controversial area with little prospective data and varied consensus opinion. This worksheet is designed to emphasize several points in management decisions: First, there are low risk procedures that can be identified where no interruption of oral anticoagulant therapy (OAC) is needed. Second, it should be emphasized that in those instances with a recent thromboembolic (TE) event (<2-4 weeks) and/or reversible factors, the surgery/procedure should be delayed if possible as the recurrent TE risk will decrease over time with OAC therapy and reversal of risk factors if feasible. Finally, for the majority of patients who fall in between these extreme groups, careful and individualized assessment of TE risk and bleeding risk with incorporation of the patient's involvement is prudent.



Is This a Low Bleeding Risk Procedure?

- | | | | |
|--|---|---|--|
| <u>Dental</u> | <u>GI</u> | <u>Ocular</u> | <u>Dermatological</u> |
| <input type="checkbox"/> Single extraction | <input type="checkbox"/> EGD +/- Bx | <input type="checkbox"/> Cataracts | <input type="checkbox"/> Excision |
| <input type="checkbox"/> Restoration | <input type="checkbox"/> Colonoscopy +/- Bx | <input type="checkbox"/> Video Retinal | <input type="checkbox"/> Moh's Surgery |
| <input type="checkbox"/> Prosthetics | <input type="checkbox"/> ERCP without | <input type="checkbox"/> Trabeculectomy | |

- No:** then proceed to **STEP 2**
- Yes:**
- Discuss mgt strategy with specialist.
 - INR ≤ 1.5 required by specialist, then Proceed to **Step 2**
 - INR < 3.0 ok with specialist (**preferred strategy**), then check INR 48-72hr preprocedure
 - If INR < 3.0 proceed to procedure without holding warfarin
 - If INR > 3.0, hold 1-2 doses of warfarin and proceed when INR < 3.0



Is this a Low Embolic Risk OAC Indication?

- Low Risk Atrial fibrillation (based upon CHADS₂ scoring)
- DVT/PE > 3months ago without ongoing risk factors
- +/- Bileaflet Aortic valve without additional risk factors

- No:** then proceed to **STEP 3**
- Yes:**
- Hold 5 doses of warfarin preprocedure
 - Check INR day before procedure, if INR > 1.7, give 1.25mg PO vitamin K
 - Check INR day of procedure, proceed if: < 1.3 Neurosurgery, major vascular, ocular < 1.5 other surgeries
 - Resume OAC night of surgery





Outline Individualized Risk: Benefit Profile

A. Estimate Relative Thromboembolism Risk:

<u>High TE Risk</u>	<u>Lower TE Risk</u>
<u>VTE (*RF = CA, APS, known hypercoagulable)</u>	
<input type="checkbox"/> < 1mos	<input type="checkbox"/> 1-3mos
<input type="checkbox"/> 1-3mos + RF*	<input type="checkbox"/> >3mos + Ongoing RF
<u>Mechanical Valve (*RF: a fib, EF<30%, prior TE)</u>	
<input type="checkbox"/> CVA <1mos	<input type="checkbox"/> Aortic No RF
<input type="checkbox"/> Mitral +	<input type="checkbox"/> Aortic + RF
<input type="checkbox"/> Bjork Shiley Valve	
<input type="checkbox"/> Dual position mechanical valves	
<u>Atrial Fibrillation +</u>	
<input type="checkbox"/> Hx CVA/TIA	<input type="checkbox"/> Age >75
<input type="checkbox"/> CHF	<input type="checkbox"/> HTN
<input type="checkbox"/> Mitral Stenosis	<input type="checkbox"/> DM
<u>Arterial Embolism</u>	
<input type="checkbox"/> < 1mos	<input type="checkbox"/> 1-3mos
	<input type="checkbox"/> >3mos

B. Estimate Relative Surgical Bleeding Risk:

<u>Lower Bleeding Risk</u>	<u>High Bleeding Risk</u>
<input type="checkbox"/> Lap Choly	<input type="checkbox"/> Major abdominal
<input type="checkbox"/> Lap Hernia	<input type="checkbox"/> Pacemaker insertion
<input type="checkbox"/> Angiography	<input type="checkbox"/> Major Orthopedic
	<input type="checkbox"/> Neurosurgery
	<input type="checkbox"/> Thoracic
	<input type="checkbox"/> Major Vascular
	<input type="checkbox"/> Prostatectomy
	<input type="checkbox"/> Bladder surgery
	<input type="checkbox"/> Polypectomy
	<input type="checkbox"/> Renal Biopsy

C. Identify Patient Specific Bleeding Risk Factors

- None Present
- Age >75
- Renal Insufficiency
- Thrombocytopenia (plt < 50k)
- Concomitant anti-platelet agents
- Worsening liver Function
- Epidural/ Spinal required





Choose AC strategy based upon risk profile and patient preference

- Individual Patient Profile Favors **Full** Peri-procedural anticoagulation
- Patient Prefers **Full** Peri-procedural anticoagulation

- Individual Patient Profile Favors **Conservative** Peri-procedural anticoagulation
- Patient Prefers **Conservative** Peri-procedural anticoagulation

Full Dose Peri-procedural Anticoagulation Strategy

- Day -7 VTE < 2-4 weeks: delay surgery if possible or consider IVC filter
- Cardioembolic event <2-4 weeks: Delay surgery if possible

Otherwise

- Stop antiplatelet medications

- Day -5 Stop warfarin

- Day -3 Clarify eligibility for LMWH. (Not eligible if: no insurance coverage, patient weighs >150kg <45kg, Crcl <30ml/min, or inability to self inject)

LMWH eligible

- Educate about self-injection
 - Begin Enoxaparin 1mg/kg SC q12hr, or
 - Dalteparin 100IU SC q12hr

LMWH ineligible

- Admit to hospital and initiate therapeutic heparin protocol

- Day -1 Last LMWH dose in AM (No PM dose evening before surgery), or
- Check INR. If >1.5, then give 1.25 mg PO Vitamin K

- Day 0 No LMWH in AM, Check INR if >1.5 on Day -1.
- Stop Heparin gtt 6 hours preoperatively. Check APTT 1hour preop. Proceed if APTT <37 seconds
- Proceed to Surgery if INR <1.5
- Resume home warfarin dose in evening if hemostasis was achieved

- Day +1 High TE Risk, + Lower bleeding risk + hemostasis achieved
 - Resume LMWH or UFH as prior to surgery
- High Bleeding Risk or Poor hemostasis + Lower TE risk
 - No AC or prophylactic dose UFH/LMWH
 - UFH 5,000 tid, or Enoxaparin 40mg qd, or Dalteparin 5000IU qd
- High Bleeding Risk or Poor hemostasis + High TE risk
 - Clinical judgement and patient involvement to determine AC approach

- Day +4-5 Stop LMWH/UFH of INR ≥2.0