How Thin is Too Thin?
Management of anticoagulation for endoscopy

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DISCLOSURES

Melissa Teitelman- None

Kimberly Hodulik- None

Objectives

- Discuss management of anticoagulants before and after elective procedures
- Review various pharmacologic properties of available anticoagulants
- Discuss management of anticoagulants with GI bleeding

What to consider

- The bleeding risk of the procedure
- The risk of thromboembolic event with interruption of antithrombotic agents
- Urgency of procedure
- Effect of antithrombotic agents on bleeding risk

Acosta et al. Gastrointest Endosc 2016; 83(1):3-16

Procedural bleeding risk

- Low risk
  - Diagnostic EGD, colon, FS
  - ERCP with stent or dilation without sphincterotomy
  - Enteroscopy, balloon assisted enteroscopy
  - VCE
  - EUS without FNA
  - APC
  - Barrett's ablation
  - Polypectomy <1cm
- High risk
  - Polypectomy (>1cm)
  - Panc or bil Sphincterotomy
  - Tx of varices
  - PEG placement
  - EUS with FNA
  - Therapeutic balloon assisted enteroscopy
  - Endoscopic hemostasis
  - PEJ
  - EMR or submucosal
  - Pneumatic/bougie dilations
  - RFA
  - POEM

Acosta et al. Gastrointest Endosc 2016; 83(1):3-16
Abraham et al. Am J Gastroenterol 2022;117:542

High risk thromboembolic situations

Antiplatelet therapy

- DES <12 months
- Bare metal stent <1 month
- ACS and bare metal stent <12 months
- High risk of stent occlusion

Anticoagulant therapy

- MV prosthesis
- Caged ball/tilting disc aortic valve prosthesis
- CVA/TIA within 6 months
- Recent VTE (<3 mos)
- Severe thrombophilia

***The absolute risk of embolic event in patients whose anticoagulation is interrupted for 4-7 days is approx 1%

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Elective procedures

- Warfarin
  - Continue anticoagulation for low bleeding risk procedures
  - Interrupt anticoagulation for high risk procedure- no bridging unless mechanical heart valve
- DOACs – interrupt
- Dual antiplatelet therapy- interrupt P2Y12 inhibitor while continuing aspirin
- Aspirin monotherapy- continue
- Other antiplatelet monotherapy- review with cardiologist before interruption

Abraham et al. Am J Gastroenterol 2022;117:542

Urgent procedures anticoagulant therapy

- Acute GI bleed: hold anticoagulant
- Do not delay EGD if serious GI bleeding and INR <2.5
- After hemostasis for high risk stigmata: consider UFH

Acosta et al. Gastrointest Endosc 2016; 83(1):3-16

Urgent procedures

- Warfarin
  - Suggest against FFP or Vitamin K
  - Suggest PCC if needed
- DOACs
  - Suggest against PCC, idarucizumab, andexanet alfa
- Aspirin
  - Suggest against interruption
  - If interrupted, resume on day hemostasis is confirmed

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Antiplatelets

- Aspirin
  - Effect lasts 7 days after stop
  - Do not hold
- $P2Y_{12}$ inhibitors- clopidogrel (Plavix), prasugrel (Effient)
  - Effect lasts 5-7 days after stop
  - Hold for 7 days
  - Maximal effect occurs ~3-5 days after resuming
  - Restart within 24 hours
- $P2Y_{12}$ inhibitor- ticagrelor (Brilinta)
  - Effect lasts 3-5 days after stop
  - Hold for 5 days
  - Maximal effect occurs 2 hours after resuming
  - Restart within 24 hours

Douketis et al. CHEST 2022; 162(5):e207-e243

Anticoagulants before procedure

- Warfarin
  - Effect lasts 3-5 days
  - Withhold 5 days prior to procedure
- DOAC - apixaban (Eliquis), edoxaban (Savaysa), rivaroxaban (Xarelto)
  - Effect lasts 12-24 hours
  - Withhold 1 day prior to low bleeding risk procedures
  - Withhold 2 days before high bleeding risk procedures
- DOAC - dabigatran (Pradaxa)
  - Effect lasts 12-24 hours; longer with kidney dysfunction
  - Normal kidney function- withhold 1-2 days before procedures
  - Impaired kidney function- withhold 2-4 days before procedures

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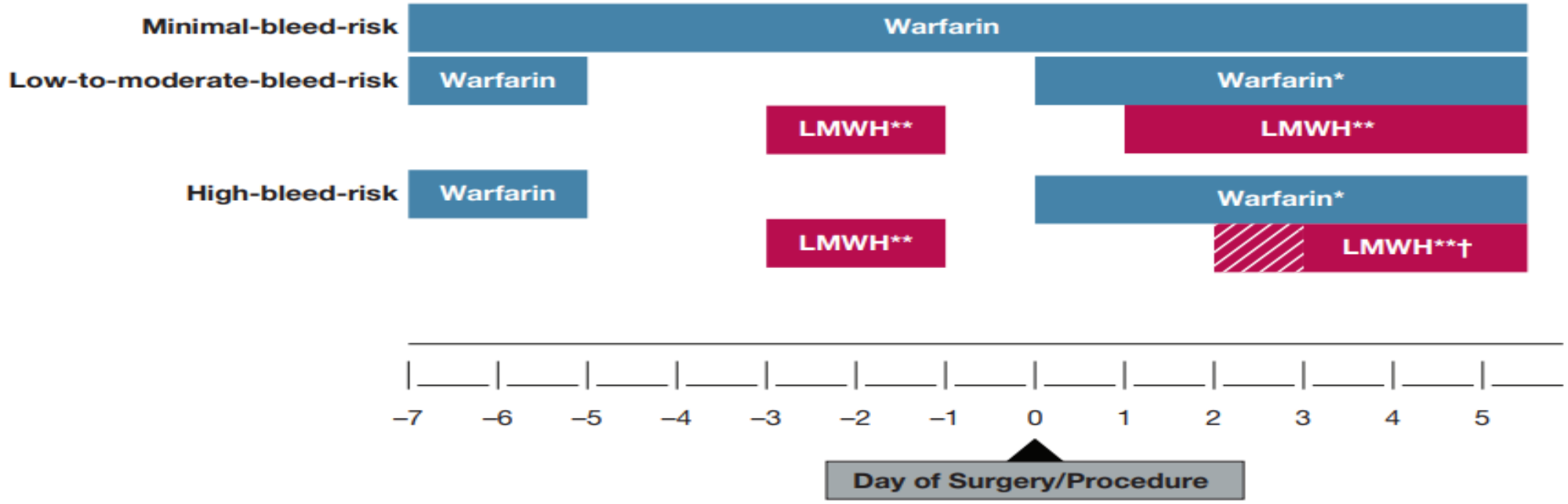
Warfarin Interruption- High thrombotic risk



Legend
*Warfarin can be resumed on the evening of procedure (D0) for most patients, or the day after procedure (i.e., D1) at the patient's usual maintenance dose.
**Bridging suggested for high thrombotic risk populations with full-dose, subcutaneous LMWH (e.g., enoxaparin, 1 mg/kg bid or 1.5 mg/kg daily or dalteparin, 100 IU/kg bid or 200 IU/kg daily), with the last dose given the AM of the day prior to the procedure (i.e., D-1) at half the total daily dose.
†Low-dose LMWH (e.g., enoxaparin, 40 mg daily or dalteparin 5,000 IU daily) can be used for VTE prophylaxis for first 24-72 hours post-procedure, with full dose LMWH resumed 2-3 days post-procedure.

Figure 1 – *Perioperative management of vitamin K antagonists (warfarin). LMWH = low-molecular-weight heparin.*

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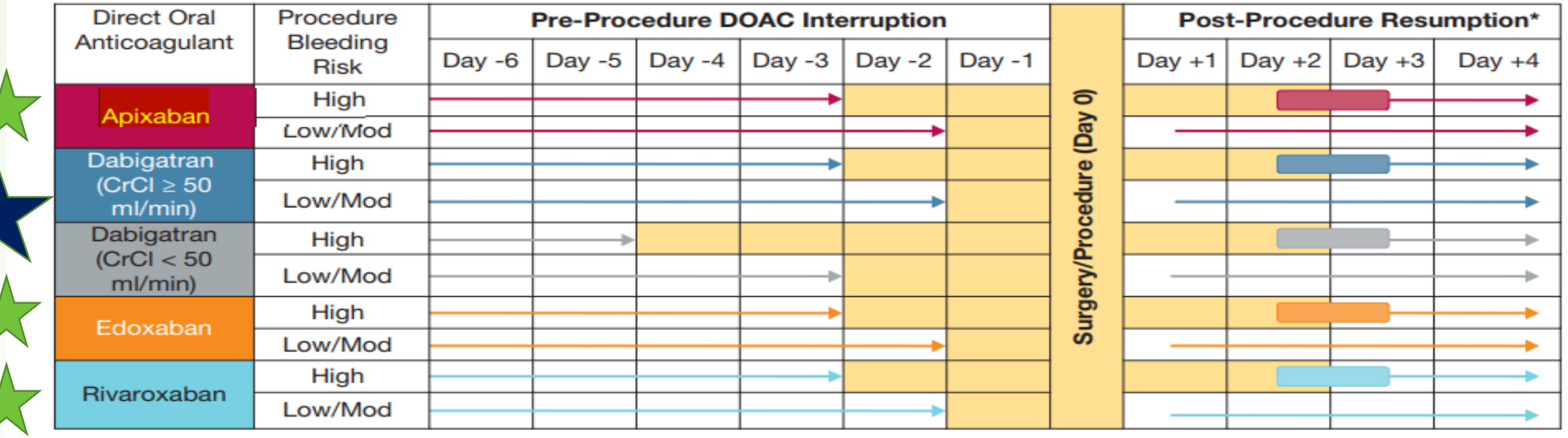
DOAC Interruption- Evidence



No DOAC administered that day

*DOAC can be resumed ~24 hours after low/moderate-bleed-risk procedures, and 48-72 hours after high-bleed-risk procedures. In selected patients at high risk for VTE, low-dose anticoagulants (i.e., enoxaparin, 40 mg daily or dalteparin, 5,000 IU daily) can be given for the first 48-72 hours post-procedure.

Figure 2 – *Perioperative management of direct oral anticoagulants (DOACs). CrCl = creatinine clearance.*

Douketis et al. JAMA Intern Med. 2019;179(11):1469-1478
Douketis et al. CHEST 2022; 162(5):e207-e243

Anticoagulant Reversal- Urgent cases

- Warfarin
  - Vitamin k- suggest against
  - FFP- suggest against
  - Prothrombin complex concentrate (PCC (Kcentra)) if needed
- DOAC (apixaban, edoxaban, rivaroxaban)
  - PCC- suggest against
  - Andexanet alfa (Andexxa)- suggest against
- DOAC (dabigatran)
  - Idarucizumab (Praxbind)- suggest against

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Restarting Anticoagulation After Major Bleed

- Consider bleeding vs. thrombotic risk
- Mechanical devices available
  - SCDs
  - IVC filter for prolonged cessation
- Anticoagulation- can start low, go slow
  - Titrate heparin
  - Prophylaxis -> therapeutic dosing

CME/MOC

- Which of the following procedures is high risk for bleeding?
  - A. Barrett's ablation
  - B. Colonoscopy with cold snare of 8mm polyp
  - C. EUS
  - D. Balloon dilation of Schatzki's ring.

CME/MOC

- Patient with ongoing multiple large episodes of hematemesis, takes warfarin for AFib, INR 4.5, what do you want to give the patient to reverse INR?
- A. vitamin K
- B. FFP
- C. PCC
- D. idarucizumab

CME/MOC

- Should patients with atrial fibrillation on warfarin be bridged with enoxaparin for a colonoscopy?
  - A. Yes – lovenox bridge
  - B. No bridge needed
  - C. No bridge, place on aspirin
  - D. Needs cardiology consult