

Periprocedural Anticoagulation Guidelines

No changes in anticoagulants:

The following procedures require NO modification or withholding of anticoagulants prior to procedure:

- Facet joint injections
- Other joint injections
- Arthrograms
- Pseudoaneurysm injection
- Thyroid fine needle aspiration
- PICC line placement
- IVC filter retrieval

Special Considerations

Nerve root injection: We do NOT need to check an INR if the patient follows the protocol and holds Coumadin (warfarin) for 5 days

Breast core biopsy: Please consider as category 2, but also hold the following:

- Aspirin for 3 days
- NSAIDs for 3 days

Category 1: Procedures with Low Risk of Bleeding

Vascular

- Dialysis fistulagrams
- Venogram
- Central line placement
- IVC filter placement
- Non-tunneled venous or dialysis catheter placement

Non-vascular

- Drain catheter exchange (biliary, nephrostomy, abscess drain)
- Superficial lymph node FNA or biopsy
- Superficial abscess drainage or aspiration
- Paracentesis

Warfarin (Coumadin): Hold for 3-5 days, check INR<2.0 for non-outpatients

Aspirin, aggranox: Do not withhold

Lovenox: Withhold 1 dose or 12 hours before procedure

Clopidogrel (Plavix): Withhold for 5 days

Prasugrel (Effient): Withhold for 5 days

Ticlopidine (Ticlid): Withhold for 5 days

NSAIDs: Do not withhold

Pletal: Withhold for 2 days

Fohdaparinux (Arixtra): Do not withhold

Rivaroxaban (Xarelto): Do not withhold

Apixiban (Eliquis): Do not withhold

Edoxaban (Savaysa): Do not withhold

Dabigatran (Pradaxa): Do not withhold

Platelets: Correct if below 50,000

Category 2: Procedures with Moderate Risk of Bleeding

Vascular

- Angiography*
- Cerebral angiogram*
- Venous interventions*
- Chemoembolization/radioembolization*
- Uterine fibroid embolization
- Transjugular liver biopsy
- Tunneled dialysis cath (Permcath), Tunneled Groshong, Porta Cath

Non-vascular

- Thoracentesis
- Abdominal abscess drainage, Abdominal Aspira drain
- Chest tube, Chest Aspira drain
- Biopsy (excluding superficial, lung, liver, and renal)
- Percutaneous cholecystostomy
- Gastrostomy tube – initial placement
- Lumbar puncture (LP), myelogram, discogram
- Selective nerve root injection
- Epidural steroid injection – caudal

Warfarin (Coumadin): Hold for 5 days, check INR<1.5 for non-outpatients

Aspirin, Aggrenox: Do not withhold

Lovenox: Withhold 1 dose or 12 hours before procedure

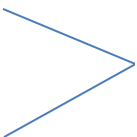
Clopidogrel (Plavix): Withhold for 5 days, except asterisk above*

Prasugrel (Effient): Withhold for 5 days, except asterisk above*

Ticlodipine (Ticlid): Withhold for 7 days, except asterisk above*

NSAIDs: Do not withhold

Pletal: Withhold for 2 days

Fondaparinux (Arixtra):		If GFR>60: Hold for 3 days If GFR<60: Hold for 5 days
Rivaroxaban (Xarelto):		
Pixiban (Eliquis):		
Edoxaban (Savaysa):		

Dabigatran (Pradaxa): Same as Xarelto

Platelets: Correct if below 50,000

Category 3: Procedures with Significant Bleeding Risk, Difficult to Detect/Control

Vascular

- TIPSS

Non-vascular

- Kyphoplasty and vertebroplasty
- Epidural steroid injection – direct
- Percutaneous lung, renal, and liver biopsy
- RFA or Microwave ablation
- Biliary intervention or drainage, first placement
- Nephrostomy tube placement
- EVAR embolization – CT guided

Warfarin (Coumadin): Hold for 5 days, check INR<1.5

Aspirin, Aggrenox: Hold for 5 days

Lovenox: Withhold 2 doses or 24 hours before procedure

Clopidogrel (Plavix): Withhold for 5 days

Prasugrel (Effient): Withhold for 5 days

Ticlodipine (Ticlid): Withhold for 7 days

NSAIDs - Hold as follows:

Short-acting: Hold for 24 hours (Ibuprofen, Diclofenac, Ketoprofen, & Indomethacin)

Intermediate-acting: Hold for 2-3 days (Naproxen, sulindac, diflunisal, celecoxib)

Long acting: Hold for 10 days (Meloxicam, nabumetone, piroxicam)

Pletal: Withhold for 2 days

Fondaparinux (Arixtra), Rivaroxaban (Xarelto), Apixiban (Eliquis), Edoxaban (Savaysa):

- If GFR>60: hold for 3 days
- If GFR<60: hold for 5 days

Dabigatran (Pradaxa): Same as Xarelto

Platelets: Correct if below 50,000

Intravenous anticoagulants:

Category 1:

Heparin: Stop 1 hour before procedure, check PTT

Abciximad (ReoPro): Withhold 12-24 hours before, PTT<50s

Eptifbatide (Integrilin): Withhold immediately before procedure

Tirofiban (Aggrastat): Withhold immediately before procedure

Argatroban (Acova): Do not withhold

Bivalirudin (Angiomax): Do not withhold

Category 2:

Heparin: Stop 1 hour before procedure, check PTT

Abciximad (ReoPro): Withhold 24 hours before, PTT<50s

Eptifbatide (Integrilin): Hold 4 hours

Tirofiban (Aggrastat): Hold 4 hours

Argatroban (Acova): Defer procedure, otherwise hold 4 hours

Bivalirudin (Angiomax): Defer procedure, otherwise:

- If GFR > 60, hold 2-3 hours
- If GFR < 60, hold 3-5 hours

Category 3:

Heparin: Stop 2-4 hours before procedure, check PTT

Abciximad (ReoPro): Withhold 24 hours before, PTT<50s

Eptifbatide (Integrilin): Hold 4 hours

Tirofiban (Aggrastat): Hold 4 hours

Argatroban (Acova): Defer procedure, otherwise hold 4 hours

Bivalirudin (Angiomax): Defer procedure, otherwise:

- If GFR > 60, hold 2-3 hours
- If GFR < 60, hold 3-5 hours

DISCLAIMER:

The information included in this document is intended to assist in general patient scheduling.

Individual patient management can be tailored at the discretion of the attending physician.

Please consult directly with the attending radiologist for any anticoagulant which cannot be stopped according to guidelines to receive permission to schedule procedure.

Patients with history of coronary intervention must check with their cardiologist before holding aspirin and/or Plavix. This is extremely important as these patients have increased risk of cardiac event and death if their anticoagulation is changed.

References:

JVIR 2012; 23:727-736 “Consensus Guidelines for Periprocedural Management of Coagulation Status and Hemostasis Risk in Percutaneous Image-Guided Interventions”

JVIR 2013; 24:641-645 “Addendum of New Anticoagulants to the SIR Consensus Guidelines”

UW Health, 2/2013 “Periprocedural Anticoagulation – Adult – Inpatient and Ambulatory – Clinical Practice Guideline”

UW Health, 4/1/13 “Coagulation Guidelines for Invasive Procedures – University of Wisconsin Department of Radiology Abdominal Imaging Division”
<https://www.radiology.wisc.edu/fileShelf/forReferring/coagulationGuidelines.pdf>

American College of Radiology ACR Appropriateness Criteria, Radiologic Management of Inferior Vena Cava Filters, <https://acsearch.acr.org/docs/69342/Narrative>