

Madison Radiologists, S.C.

Periprocedural Anticoagulation Guidelines

2023 Revision

Cover sheet
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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.

Changes from previous anticoagulation protocols:

1. There are 2 categories: Low Risk of Bleeding and High Risk of Bleeding (instead of 3 in the previous protocol).
2. Category 1 (low risk) – essentially no anticoagulants or antiplatelets (other than Reopro) are withheld.
3. Category 2 (high risk) again determines various AC holds based on renal function, but rather than using GFR, the request from AC clinic is to use Creatinine Clearance (CrCl) as per guidelines. Lab value should be within 30 days prior to the procedure.
UPDATE: CrCl is not a widely available lab value in many of our hospital settings. We will accept GFR as a substitute. This is updated in the protocol.
4. Based on feedback from the Breast Imaging Section, breast core biopsy is placed in category 2. The society guidelines suggest category 1, which is of benefit to physician discretion if patients cannot go without anticoagulant/antiplatelet medication.
5. Category 1: INR less than 3 and platelets greater than 20K (previous was 2 and 50K, respectively).
6. Category 2: INR 1.5-1.8 (previously less than 1.5). Platelet count greater than 50K, unchanged.
7. NSAIDs are not held in either category 1 or category 2.
8. Cervical facet joint injections are category 2. Thoracic and lumbar facet joint injections are category 1. Caudal and direct ESIs are category 2.
9. There is a guide to resumption of anticoagulant and antiplatelet therapy.

Category 0: Do not hold any anticoagulants or antiplatelets

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

Arthrograms
Bone marrow biopsy
Cholangiogram
Joint injections (except facet joint injections)
Nephrostogram
PICC line placement
Pseudoaneurysm injection
Sinus tract study
Thyroid fine needle aspiration
Upper extremity venogram for mapping

Category 1: Procedures with Low Risk of Bleeding

Vascular:

Central line placement

Diagnostic venography and pelvic/extremity venous intervention

Dialysis fistulagrams and intervention

IVC filter placement and uncomplicated IVC filter removal

Non-tunneled venous or dialysis catheter placement/removal

Transjugular liver biopsy

Non-vascular:

Drain and GI catheter tube exchange (includes G-tube, biliary, nephrostomy, and abscess drains)

Thoracic and lumbar facet joint injections

Non-tunneled chest tube placement

Paracentesis

Superficial lymph node FNA or biopsy

Superficial abscess drainage or aspiration

Category 1: Procedures with Low Risk of Bleeding

Anticoagulants:

Heparin: do not withhold

Enoxaparin (Lovenox): do not withhold

Dalteparin (Fragmin): do not withhold

Fondaparinux (Arixtra): do not withhold

Argatroban (Acova): do not withhold

Bivalirudin (Angiomax): do not withhold

Apixiban (Eliquis): do not withhold

Betrixaban (Bevyxxa): do not withhold

Dabigatran (Pradaxa): do not withhold

Edoxaban (Savaysa): do not withhold

Rivaroxaban (Xarelto): do not withhold

Warfarin (Coumadin): INR less than 3.0 (test result within 48 hours prior to procedure)

Antiplatelets:

Plavix (clopidogrel): do not withhold

Ticagrelor (Brilinta): do not withhold

Prasugrel (Effient): do not withhold

Abciximab (Reopro): hold for 24 hours

Aspirin, Aggrenox: do not withhold

NSAIDs: do not withhold

Cilostazol (Pletal): do not withhold

Platelets: greater than 20,000 (test result within 30 days)

INR: <3 (test result within 48 hours prior to procedure)

Category 2: Procedures with High Risk of Bleeding

Vascular:

Diagnostic arteriography and arterial intervention
Arterial embolization
Arterial intervention: aortic, pelvic, mesenteric
Catheter-directed thrombolysis
Chemoembolization/radioembolization
Complex IVC filter retrieval
TIPSS and TIPSS revision
Tunneled dialysis cath (Permacath), Tunneled Groshong,, Portacath
Uterine fibroid embolization
Venous interventions - thoracic

Non-vascular:

Abdominal abscess drainage, Abdominal Pleurx drain
Biliary intervention or drainage, first placement
Breast core biopsy, stereotactic and US guided
Celiac plexus block
Cervical facet joint injection
Epidural steroid injection (caudal and direct)
EVAR embolization – CT guided
Gastrostomy tube (G-tube) – initial placement
Kyphoplasty and vertebroplasty
Lumbar puncture (LP) **(OK to perform while on aspirin for urgent inpatients)**
Myelogram, discogram
Nephrostomy tube placement, ureteral stent placement, and suprapubic drain placement
Percutaneous cholecystostomy (gallbladder drain)
Percutaneous deep abscess drainage
Percutaneous deep, spine, lung, renal, and liver biopsy
RFA, Microwave ablation, Cryoablation
Selective nerve root injection
Thoracentesis
Tunneled chest tube (Pleurx or Aspira)

Category 2: Procedures with High Risk of Bleeding

Anticoagulants:

IV Heparin: hold 4-6 hours before procedure

SC Heparin: 6 hours after last dose

Enoxaparin (Lovenox): prophylactic dose – hold 1 dose

Enoxaparin (Lovenox): therapeutic dose – hold 2 doses or 24 hours

Dalteparin (Fragmin): hold 1 dose

Warfarin (Coumadin): hold 5 days to INR equal or less than 1.8 (within 48 hours prior to procedure)

Apixiban (Eliquis): CrCl gr than 50ml/min (GFR>60) – hold 4 doses

Apixiban (Eliquis): CrCl less than 50ml/min (GFR<60) – hold 6 doses

Argatroban (Acova): hold 2-4 hours, check aPTT

Betrixaban (Bevyxxa): hold 3 doses

Bivalirudin (Angiomax): hold 2-4 hours, check aPTT

Dabigatran (Pradaxa): CrCl gr than 50ml/min (GFR>60) – hold 4 doses

Dabigatran (Pradaxa): CrCl < 50ml/min (GFR<60) – hold 6-8 doses

Edoxaban (Savaysa): hold 2 doses

Fondaparinux (Arixtra): CrCl gr than 50ml/min (GFR>60) - 2-3 days

Fondaparinux (Arixtra): CrCl less than 50ml/min (GFR<60) - 3-5 days

Rivaroxaban (Xarelto): CrCl gr than 50ml/min (GFR>60) – hold 2 doses

Rivaroxaban (Xarelto): CrCl < 50ml/min (GFR<60) – hold 3 doses

Antiplatelets:

Aspirin, Aggrenox: hold for 3 days minimum. 5 days preferred.

Cilostazol (Pletal): do not withhold

NSAIDs: do not withhold

Plavix (clopidogrel): hold for 5 days

Prasugrel (Effient): hold for 7 days

Ticagrelor (Brilinta): hold for 5 days

Abciximab (Reopro): multidisciplinary discussion

Platelets: greater than 50,000 (test result within 30 days)

INR: <1.8 (within 48 hours prior to procedure)

Category 2: Reinitiation of AC meds

Anticoagulants:

IV Heparin: 6-8 hours

SC Heparin: 6-8 hours

Enoxaparin (Lovenox): 12 hours

Dalteparin (Fragmin): 12 hours

Warfarin (Coumadin): day after procedure (bridge if high thrombosis risk)

Apixiban (Eliquis): 24 hours

Argatroban (Acova): 4-6 hours

Betrixaban (Bevyxxa): 24 hours

Bivalirudin (Angiomax): 4-6 hours

Dabigatran (Pradaxa): 24 hours

Edoxaban (Savaysa): 24 hours

Fondaparinux (Arixtra): 24 hours

Rivaroxaban (Xarelto): 24 hours

Antiplatelets:

Aspirin, Aggrenox: day after procedure

Plavix (clopidogrel): 75 mg = 6 hours; 300-600mg = 24 hours

Prasugrel (Effient): day after procedure

Ticagrelor (Brilinta): day after procedure

References:

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