

Community Health Network
Perioperative Management of Antithrombotic Therapy – P&T Guidelines

Interventional Radiology Procedures

Procedures with LOW risk of bleeding, easily detected and controllable:

- Vascular
 - Dialysis access interventions
 - Venography
 - Central line removal
 - IVC filter placement
 - PICC line placement
- Nonvascular
 - Drainage catheter exchange (biliary, nephrostomy, abscess catheter)
 - Thoracentesis (standard)
 - Paracentesis (standard)
 - Superficial aspiration and biopsy (excluding intrathoracic and intraabdominal sites) – includes thyroid, superficial lymph node, core biopsy of breast)
- Superficial abscess drainage
- Peripheral joint aspiration or injection

Most low risk procedures DO NOT require the discontinuation of anticoagulant or antiplatelet therapy.

Oral Antiplatelet Agents

Drug	Discontinue (yes/no)	Time of Last Preprocedure Dose	Time of First Dose Post Procedure
Aspirin (any dose)	No		
Clopidogrel (Plavix)	No	6 day	1 day
Prasugrel (Effient)	No	8 day	1 day
Ticagrelor (Brilinta)	No	6 day	1 day

Oral Anticoagulant Agents

Drug	Discontinue (yes/no)	Time of Last Preprocedure Dose	Time of First Dose Post Procedure
Warfarin (Coumadin)	Possible to continue	4-5 days (check INR 24 hrs prior) Recommend INR ≤ 2	May resume on evening of procedure
Dabigatran (Pradaxa)	Possible to continue	CrCl > 50 ml/min: 48 hours	24 hours

		CrCl ≤ 50 ml/min: 72 hours	
Rivaroxaban (Xarelto)	Possible to continue	48 hours	24 hours
Apixaban (Eliquis)	Possible to continue	48 hours	24 hours
Betrixaban (Bevyxxa)	Possible to continue	No current recommendations: consider 72 hours based on clinical judgement	24 hours
Edoxaban (Savaysa)	Possible to continue	24 hours	24 hours

Parenteral Anticoagulant Agents

Drug	Discontinue (yes/no)	Time of Last Preprocedure Dose	Time of First Dose Post Procedure
Unfractionated heparin (<u>prophylaxis</u>)	No		
Unfractionated heparin (<u>treatment</u>)	Possible to continue	Stop infusion 4 hours prior	4 hours
Enoxaparin (Lovenox) (<u>prophylaxis</u>)	No		
Enoxaparin (Lovenox) (<u>treatment</u>)	Possible to continue	24 hours	24 hours
Fondaparinux (Arixtra) (<u>prophylaxis</u>)	Possible to continue	24 hours	24 hours
Fondaparinux (Arixtra) (<u>treatment</u>)	Possible to continue	24-48 hours	24 hours
Argatroban	Possible to continue	Half-life 39-51 minutes Hemostasis returns to normal 2 to 4 hrs after discontinuation; may take longer in patients with hepatic impairment	4 hours
Bivalirudin (Angiomax)	Possible to continue	Half-life 25 minutes; extended in renal impairment up to 3.5 hrs in dialysis patients Coagulation times return to baseline approximately 1 to 2 hrs after	4 hours

		discontinuation	
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Procedures with MODERATE risk of bleeding:

- Vascular
 - Angiography, arterial intervention with access size up to 7F
 - Venous interventions
 - Chemoembolization
 - Uterine fibroid embolization
 - Tunneled central venous catheter
 - Transjugular liver biopsy
 - Subcutaneous port device
- Nonvascular
 - Intraabdominal chest wall, or retroperitoneal abscess drainage or biopsy
 - Lung biopsy
 - Transabdominal liver biopsy (core needle)
 - Percutaneous cholecystostomy
 - Gastrostomy tube (initial placement)
 - Radiofrequency ablation (straightforward)
 - Spinal procedures (vertebroplasty, kyphoplasty, lumbar puncture, epidural injection, facet block)
 - Lithotripsy
 - Prostate core biopsy
 - Fallopian tube recanalization

Want INR ≤ 1.5, platelets > 50,000 in last 72 hours for inpatients, 30 days for outpatients

Oral Antiplatelet Agents

Drug	Discontinue (yes/no)	Time of Last Preprocedure Dose	Time of First Dose Post Procedure
Aspirin (any dose)	No		24 hours
Clopidogrel (Plavix)	Yes	5 days	24 hours
Prasugrel (Effient)	Yes	7-10 days	24 hours
Ticagrelor (Brilinta)	Yes	5 days	24 hours

Oral Anticoagulant Agents

Drug	Discontinue (yes/no)	Time of Last Preprocedure Dose	Time of First Dose Post Procedure
Warfarin (Coumadin)	Yes	5-7 days	May resume evening of procedure

		check INR 24 hours prior, need INR < 1.5	
Dabigatran (Pradaxa)	Yes	CrCl > 50 ml/min: 48 hours CrCl ≤ 50 ml/min: 96 hours	48 hours
Rivaroxaban (Xarelto)	Yes	48 hours	48 hours
Apixaban (Eliquis)	Yes	48 hours	48 hours
Betrixaban (Bevyxxa)	Yes	Elimination half-life 19-27 hours Duration of 72 hours No current recommendations. May consider 72 hours based on clinical judgement.	48 hours
Edoxaban (Savaysa)	yes	CrCl > 50 ml/min: 24 hours CrCl ≤ 50 ml/min: 48 hours	48 hours

Parenteral Anticoagulant Agents

Drug	Discontinue (yes/no)	Time of Last Preprocedure Dose	Time of First Dose Post Procedure
Unfractionated heparin (prophylaxis)	Yes	8 hours	May resume evening of procedure
Unfractionated heparin (treatment)	Yes	Stop infusion 4-6 hours prior (PTT goal ≤ 56 sec)	6 hours
Enoxaparin (Lovenox) (prophylaxis)	Yes	24 hours	24 hours
Enoxaparin (Lovenox) (treatment)	Yes	24 hours	48-72 hours
Fondaparinux (Arixtra) (prophylaxis)	Yes	24 hours	24 hours
Fondaparinux (Arixtra) (treatment)	Yes	24 hours	48 hours
Argatroban	Yes	Half-life 39-51 minutes Hemostasis returns to normal 2 to 4 hrs after discontinuation; may take longer in patients with	12 hours

		hepatic impairment	
Bivalirudin (Angiomax)	Yes	Half-life 25 minutes; extended in renal impairment up to 3.5 hrs in dialysis patients Coagulation times return to baseline approximately 1 to 2 hrs after discontinuation	48-72 hours

Procedures with HIGH risk of bleeding, difficult to detect or control:

- Vascular
 - Transjugular intrahepatic porto-systemic shunt & arterial > 7 fr
- Nonvascular
 - Renal biopsy
 - Biliary interventions (new tract)
 - Nephrostomy tube placement
 - Radiofrequency ablation (complex)

Want INR < 1.5, platelets > 80,000 in last 72 hours for inpatients, 2 weeks for outpatients

Oral Antiplatelet Agents

Drug	Discontinue (yes/no)	Time of Last Preprocedure Dose	Time of First Dose Post Procedure
Aspirin (low dose)	Possible to continue if 81 mg Hold doses > 81 mg	5 days	24 hours if adequate hemostasis achieved
Aspirin (non-low dose)	Yes	7-10 days	24-48 hours
Clopidogrel (Plavix)	Yes	7-10 days	24-48 hours
Prasugrel (Effient)	Yes	7-10 days	24-48 hours
Ticagrelor (Brilinta)	Yes	7-10 days	24-48 hours
NSAIDs	Yes	4-5 days	24-48 hours

Oral Anticoagulant Agents

Drug	Discontinue (yes/no)	Time of Last Preprocedure Dose	Time of First Dose Post Procedure
Warfarin (Coumadin)	Yes	6-7 days Check INR 24 hours prior, need INR < 1.5	24 hours
Dabigatran (Pradaxa)	Yes	CrCl > 50 ml/min: 72 hours CrCl ≤ 50 ml/min: 96 hours	48-72 hours
Rivaroxaban (Xarelto)	Yes	24 hours	48-72 hours
Apixaban (Eliquis)	Yes	48 hours	48-72 hours
Betrixaban (Bevyxxa)	Yes	Elimination half-life 19-27 hours Duration of 72 hours No current recommendations. May consider 72 hours based on clinical judgement.	48-72 hours
Edoxaban (Savaysa)	Yes	CrCl > 50 ml/min: 48 hours CrCl ≤ 50 ml/min: 72 hours	48-72 hours

Parenteral Anticoagulant Agents

Drug	Discontinue (yes/no)	Time of Last Preprocedure Dose	Time of First Dose Post Procedure
Unfractionated heparin (<u>prophylaxis</u>)	Yes	8 hours	May resume evening of procedure
Unfractionated heparin (<u>treatment</u>)	Yes	Stop infusion 4-6 hours prior (PTT goal ≤ 56 sec or per current therapeutic range)	48-72 hours
Enoxaparin (Lovenox) (<u>prophylaxis</u>)	Yes	24 hours	24 hours
Enoxaparin (Lovenox) (<u>treatment</u>)	Yes	24 hours	48-72 hours
Fondaparinux (Arixtra)	Yes	24-48 hours	24 hours

(prophylaxis)			
Fondaparinux (Arixtra) (treatment)	Yes	48-72 hours	48-72 hours
Argatroban	Yes	Half-life 39-51 minutes Hemostasis returns to normal 2 to 4 hrs after discontinuation; may take longer in patients with hepatic impairment	48-72 hours
Bivalirudin (Angiomax)	Yes	Half-life 25 minutes; extended in renal impairment up to 3.5 hrs in dialysis patients Coagulation times return to baseline approximately 1 to 2 hrs after discontinuation	48-72 hours

Approved by the Pharmacy & Therapeutics Committee, September 2018

References:

- Douketis JD, et al. Perioperative management of antithrombotic therapy: Antithrombotic Therapy and Prevention of Thrombosis, 9th ed: American College of Chest Physicians evidence-based clinical practice guidelines. Chest 2012;141(2)(Suppl):e326S-e350S.
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- Malloy, PC, et al. Consensus Guidelines for Periprocedural Management of Coagulation Status and Hemostasis Risk in Percutaneous Image-guided Interventions. J Vasc Interv Radiol 2009; 20:S240-S249.