



NHS Greater Glasgow & Clyde

DIAGNOSTIC & INTERVENTIONAL RADIOLOGY DEPARTMENT

Perioperative Management of Anticoagulants and Antiplatelets in Adults undergoing NON-EMERGENCY Percutaneous Procedures

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Update January 2025 – PLEASE REFER TO COMPLEMENTARY WRITTEN DOCUMENT FOR ADDITIONAL DETAILS AND ACRONYMS

LOW BLEEDING RISK	MODERATE BLEEDING RISK	HIGH BLEEDING RISK
NON-VASCULAR INTERVENTIONS		
Superficial biopsy / drainage (extra-thoracic and extra-abdominal)	Intra-abdominal and retroperitoneal biopsy or drainage (excluding liver or spleen)	Hepatic, or splenic, or any other renal parenchymal biopsy or drainage
Drainage catheter replacement (e.g., nephrostomy exchange†)	Lung biopsy	Biliary intervention (new tract)
Oesophageal / Colonic stenting	Pleural drainage catheter insertion	Complex tumour ablation procedure*
	Decompressive nephrostomy in hydronephrotic kidney	Lumbar puncture, myelography, epidural injection
	Simple tumour ablation procedure*	
	Percutaneous cholecystostomy tube (original placement and exchanges)	
	Gastrostomy tube placement (original placement and exchanges)	
	Biliary tube exchange	
	Vertebroplasty, kyphoplasty	
	Retrograde or antegrade ureteric stenting (old tract)	
VASCULAR INTERVENTIONS		
Arteriovenous fistula / graft intervention (excluding central veins)**	Arterial intervention with access size up to 7 F	TIPSS, BRTO
Venography	Venous intervention (plasty / stenting, including central veins)	Complex / bilateral iliac angioplasty / stenting
Central line removal	Trans-arterial bland and chemoembolization	Visceral artery angioplasty / stenting
IVC filter placement	Uterine fibroid embolization	Pulmonary arteriovenous malformation embolisation
PICC placement	Prostate artery embolization	EVAR, FEVAR, TEVAR
Varicocele embolization	Tunnelled central venous catheter insertion or exchange **	Complex IVC filter removal***
	Subcutaneous venous port insertion	
	Transjugular liver biopsy	
	IVC filter removal	

- **THESE INSTRUCTIONS ARE FOR NON-EMERGENCY CASES** in adult patients. They do not apply to neurointerventional radiology procedures. For emergency interventions, (e.g., haemorrhages, drainages in septic patients), case-by-case discussion with radiologist is required.
- When suspending antiplatelets and / or anticoagulants, the risks of **thrombosis** and **embolism** (stroke, coronary disease and in-stent thrombosis, venous thrombosis, pulmonary embolism, etc.) need to be considered for each patient. *When in doubt, please contact the Radiology Department* (Duty Diagnostic, ext. **83570/1**; Duty Interventional Radiology, ext. **83644**).
- In addition to laboratory testing, a **dedicated bleeding history** is recommended to highlight abnormalities that might not be detectable via conventional testing (haemophilia, von Willebrand, Bernard-Soulier, Glanzmann, etc.).
- **While some operators might be willing to go ahead even without suspension of anticoagulants / antiplatelets**, these local guidelines represent a consensus regarding required discontinuation in patients undergoing image-guided procedures in elective and non-emergency cases.

	LOW BLEEDING RISK	MODERATE BLEEDING RISK	HIGH BLEEDING RISK
LAB TESTING BEFORE PROCEDURE			
INR	< 2.0	consider correction if > 1.5	consider correction if > 1.5
aPTT	< 35 seconds	consider correction if > 35 sec	consider correction if > 30 sec
Platelet	> 50 x 10 ⁹ / L	consider transfusion if < 50 x 10 ⁹ / L	consider transfusion if < 50 x 10 ⁹ / L
Hb	> 80 g / L	consider transfusion if < 80 g / L	consider transfusion if < 80 g/L

REQUIRED DISCONTINUATION of ANTIPLATELET		
AGENT	LOW BLEEDING RISK	MODERATE - HIGH BLEEDING RISK
ASA	not needed	not needed
ASA + Dipyridamole	not needed	2 days
Other NSAIDS	not needed	Not needed
Cilostazole	not needed	not needed
ARTERIAL INTERVENTIONS in CLI		
Clopidogrel	not needed	not needed
OTHER VASCULAR & NON-VASCULAR INTERVENTIONS		
Clopidogrel	2 days*	5-7 days
Prasugrel	5 days*	7 days
Ticagrelor	5 days*	7 days
Tirofiban	Discuss with Haematology	24 hours
Eptifibatide	Discuss with Haematology	24 hours
Abciximab	Discuss with Haematology	24 hours
Cangrelor	Defer procedure	Defer procedure

ASA = acetylsalicylic acid, i.e., aspirin. CLI = critical limb ischaemia. Please refer to text for rest of acronyms
*if the procedure has low-bleeding risk, the operator might choose not to suspend the antiplatelet

REQUIRED DISCONTINUATION of ANTICOAGULANT		
AGENT	LOW BLEEDING RISK	MODERATE – HIGH BLEEDING RISK
Bivalirudin	4 hours	4 hours
UFH	4 hours	6 hours
LMWH	12 hours	24 hours
THERAPEUTIC LMWH FOR VTE		
LMWH	24 hours	24 hours
RENAL IMPAIRMENT (creatinine clearance <30ml /min)		
LMWH	24 hours	48 hours
Rivaroxaban*	24 hours	48 hours
Apixaban	24 hours	48-72 hours
Edoxaban	24 hours	48-72 hours
Dabigatran	48 hours	72 hours
Fondaparinux	48 hours	72 hours
Warfarin	2-3 days	5 days
Argatroban	Discuss with Haematology	Discuss with Haematology

UFH = unfractionated heparin. LMWH = low molecular weight heparin, i.e., dalteparin, tinzaparin and enoxaparin.
*Rivaroxaban used for prevention of major cardiovascular events (2.5mg BD) in patients undergoing low-bleeding risk procedures might be continued at the operator discretion.

suggested RESUMPTION after intervention		
AGENT	LOW BLEEDING RISK	MODERATE - HIGH BLEEDING RISK
ASA	Immediate, if no concern	Immediate, if no concern
ASA + Dipyridamole	Immediate, if no concern	Immediate, if no concern
NSAIDS*	Immediate, if no concern	Immediate, if no concern
Cilostazole	Immediate, if no concern	Immediate, if no concern
ARTERIAL INTERVENTIONS in CLI		
Clopidogrel	discuss with vascular surgery team prior to commencing / restarting	
OTHER VASCULAR & NON-VASCULAR INTERVENTIONS		
Clopidogrel	Immediate, if no concern	Immediate, if no concern
Prasugrel	Immediate, if no concern	24 hours
Ticagrelor	Immediate, if no concern	24 hours
Tirofiban	Discuss with Haematology	Discuss with Haematology
Eptifibatide	Discuss with Haematology	Discuss with Haematology
Abciximab	Discuss with Haematology	Discuss with Haematology

suggested RESUMPTION after intervention		
AGENT	LOW BLEEDING RISK	MODERATE - HIGH BLEEDING RISK
UFH	1 hour	1 hour
Bivalirudin	1 hour	1 hour
Fondaparinux	6 hours	6 hours
LMWH	6 hours	6 hours
Warfarin	12 hours	24 hours
Dabigatran	24 hours	48 hours
Rivaroxaban	24 hours	48 hours
Apixaban	24 hours	48 hours
Edoxaban	24 hours	48 hours
Argatroban	Discuss with Haematology	Discuss with Haematology

†Conventional nephrostomy tube replacements **do not** require the suspension of anti-thrombotics.

***Complex** tumour ablation procedures imply the treatment of a lesion in a location near major vessels, or when a large amount of hepatic or non-hepatic parenchyma must be traversed to access the lesion. **Renal cryoablations might require longer discontinuation of antithrombotics.**

Patients with **end-stage renal failure have **high thrombotic risk** of their renovascular access. Consider continuing **both** anticoagulants and antiplatelets for low bleeding risk procedures, and **stopping anticoagulants** but **continuing antiplatelets** for moderate bleeding risk procedures.

*****Complex** venous filter removal includes cases where retrieval is known to be challenging on account of **adverse** anatomical / radiological factors or a previous **failed attempt**.