NHS
Greater Glasgow and Clyde

CLINICAL GUIDELINE

Anticoagulants and Antiplatelets for ELECTIVE / NON-EMERGENCY Percutaneous Procedures, Diagnostics

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Approval Group:	Diagnostics Clinical Governance Group

Important Note:

The Intranet version of this document is the only version that is maintained.
Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

NHS Greater Glasgow & Clyde

DIAGNOSTIC & INTERVENTIONAL RADIOLOGY DEPARTMENT

Perioperative Management of Anticoagulants and Antiplatelets for ELECTIVE / NON-EMERGENCY Percutaneous Procedures in Diagnostic and Interventional Radiology

Umberto Pisano, Andrew Christie, Andrew Downie (June 2020)
- 1st Review, June 2022 – Next Review June 2024 -

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	
Dialysis access 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	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	
	Subcutaneous port device	
	Transjugular liver biopsy	
	IVC filter removal	

*** 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.**

- **THESE INSTRUCTIONS ARE FOR NON-EMERGENCY CASES in adult patients.** 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 – IR -, ext. **83644**).
- In addition to laboratory testing, a **dedicated bleeding history*** is required, 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.

**Bonhomme F, Boehlen F, Clergue F, de Moerloose P. Preoperative hemostatic assessment: a new and simple bleeding questionnaire. Can J Anaesth. 2016 Sep;63(9):1007-15*

	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 ANTIPLATELETS

AGENT	CLASS	LOW - MODERATE BLEEDING RISK	HIGH BLEEDING RISK
ASA	COX1 inhibitor	not needed	not needed
ASA + Dipyridamole	COX1 and phosophodiesterase inhibitor	not needed	2 days
Other NSAIDS	COX1-COX2 inhibitors	not needed	Not needed
Cilostazole	Phosophodiesterase inhibitor	not needed	not needed
	PERIPHERAL VASCULAR INTERVENTIONS in CLI		
Clopidogrel	ADP receptor antagonist	not needed	not needed
	OTHER VASCULAR & NON-VASCULAR INTERVENTIONS		
Clopidogrel	ADP receptor antagonist	2 days*	5 days
Prasugrel	ADP receptor antagonist	5 days*	7 days`
Ticagrelor	ADP receptor antagonist	5 days*	7 days
Tirofiban	GP IIb / IIIa inhibitor	-	24 hours
Eptifibatide	GP IIb / IIIa inhibitor	-	24 hours
Abciximab	GP IIb / IIIa inhibitor	-	24 hours
Cangrelor	ADP receptor antagonist	*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 ANTICOAGULANTS

AGENT	CLASS	LOW - MODERATE BLEEDING RISK	HIGH BLEEDING RISK
Bivalirudin	Thrombin (IIa) inhibition	4 hours	4 hours
UFH	Antithrombin III activation, cleavage of activated clotting factors	4 hours	6 hours
LMWH	Antithrombin III activation	12 hours	24 hours
	THERAPEUTIC LMWH FOR VTE		
LMWH	Antithrombin III activation	24 hours	24 hours
	RENAL IMPAIRMENT (<30 ml /min)		
LMWH	Antithrombin III activation	24 hours	48 hours
Rivaroxaban	Factor Xa inhibition	24 hours	48 hours
Apixaban	Factor Xa inhibition	24 hours	48-72 hours
Edoxaban	Factor Xa inhibition	24 hours	48-72 hours
Dabigatran	Thrombin (IIa) inhibition	48 hours	72 hours
Fondaparinux	Antithrombin III activation	48 hours	72 hours
Warfarin	Vitamin K inhibitor	5 days	5 days
Argatroban	Thrombin (IIa) inhibition	*Discuss with Haematology*	*Discuss with Haematology*

UFH = unfractioned heparin. LMWH = low molecular weight heparin, i.e. dalteparin, tinzaparin and enoxaparin.

suggested RESUMPTION after intervention

AGENT	LOW - MODERATE BLEEDING RISK	HIGH BLEEDING RISK
ASA	immediate	immediate
ASA + Dipyridamole	immediate	immediate
NSAIDS*	immediate	immediate
Cilostazole	immediate	immediate
	PERIPHERAL VASCULAR INTERVENTIONS in CLI	
Clopidogrel	discuss with vascular surgery team prior to commencing / restarting	
	ALL OTHER INTERVENTIONS	
Clopidogrel	immediate	immediate
Prasugrel	immediate	24 hours
Ticagrelor	immediate	24 hours
Tirofiban	-	-
Eptifibatide	-	-
Abciximab	-	-

suggested RESUMPTION after intervention

AGENT	LOW - MODERATE BLEEDING RISK	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*

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