

**Recommendations for Anticoagulant Therapy during PCI**

Anticoagulant therapy during PCI is used to prevent the formation of clots in the arteries, on the coronary guidewire and in the catheters; however, they can also increase the risk for vascular complications after the procedure. The following tables from the *2011 ACCF/AHA/SCAI Guideline for Percutaneous Coronary Intervention* provide dosing recommendations for patients undergoing PCI.

Drug	Patient Has Received Prior Anticoagulant Therapy	Patient Has Not Received Prior Anticoagulant Therapy
UFH	<ul style="list-style-type: none"> • IV GPI planned: additional UFH as needed (eg, 2000 to 5000 U) to achieve an ACT of 200 to 250 s • No IV GPI planned: additional UFH as needed (eg, 2000 to 5000 U) to achieve an ACT of 250 to 300 s for HemoTec, 300 to 350 s for HemoChron 	<ul style="list-style-type: none"> • IV GPI planned: 50 to 70 U/kg bolus to achieve an ACT of 200 to 250 s • No IV GPI planned: 70 to 100 U/kg bolus to achieve target ACT of 250 to 300 s for HemoTec, 300 to 350 s for HemoChron
Enoxaparin	<ul style="list-style-type: none"> • For prior treatment with enoxaparin, if the last SC dose was administered 8 to 12 h earlier or if only 1 SC dose of enoxaparin has been administered, an IV dose of 0.3 mg/kg of enoxaparin should be given. • If the last SC dose was administered within the prior 8 h, no additional enoxaparin should be given. 	0.5 to 0.75 mg/kg IV bolus
Bivalirudin	For patients who have received UFH, wait 30 min, then give 0.75 mg/kg IV bolus, then 1.75 mg/kg per h IV infusion.	0.75 mg/kg bolus, 1.75 mg/kg per h IV infusion
Fondaparinux	For prior treatment with fondaparinux, administer additional IV treatment with an anticoagulant possessing anti-IIa activity, taking into account whether GPI receptor antagonists have been administered.	N/A
Argatroban	200 mcg/kg IV bolus, then 15 mcg/kg per min IV infusion	350 mcg/kg bolus, then 25 mcg/kg per min IV infusion

ACT indicates activated clotting time; IV, intravenous; GPI, glycoprotein inhibitor; N/A, not applicable; PCI, percutaneous coronary intervention; SC, subcutaneous; and UFH, unfractionated heparin.



Table 13. Recommendations for Antiplatelet and Antithrombin Pharmacotherapy at the Time of PCI

	COR	LOE	References	Relevant Caveats/Comments
Oral antiplatelet agents				
Aspirin	I	B	301–304,560–563	N/A
P2Y ₁₂ inhibitors	I	A	564–568	<ul style="list-style-type: none"> A loading dose of a P2Y₁₂ inhibitor should be given to patients undergoing PCI with stenting.
• Clopidogrel	I	B	564–566	<ul style="list-style-type: none"> 600-mg loading dose now recommended.
• Prasugrel	I	B	567	<ul style="list-style-type: none"> Contraindicated in patients with prior TIA/CVA: Class III: Harm; LOE: B. Generally not recommended in patients >75 y of age (Section 5.7.2). Consideration of using a lower maintenance dose in patients weighing <60 kg suggested by FDA (Section 5.7.2).
• Ticagrelor	I	B	568	<ul style="list-style-type: none"> Issues of patient compliance may be especially important.
GP IIb/IIIa inhibitors (abciximab, double-bolus eptifibatide, high-bolus dose tirofiban)				
• No clopidogrel pretreatment	STEMI: IIa	A	584–590	<ul style="list-style-type: none"> UA/NSTEMI recommendation applies to those with high-risk features. GPI use in STEMI may be most appropriate in those with large anterior MI and/or large thrombus burden.
	UA/NSTEMI: I	A	613–618	
• Clopidogrel pretreatment	SIHD: IIa	B	619–621	<ul style="list-style-type: none"> IC abciximab administration in STEMI: Class IIb; LOE B. Percatheterization laboratory GPI administration in STEMI: Class III: No Benefit; LOE: B. Recommendations apply to those not at high risk for bleeding complications.
	STEMI: IIa	C	584–590	
	UA/NSTEMI: IIa	B	616,619	
	SIHD: IIb	B	619,622–624	
Antithrombin agents				
UFH	I	C	N/A	<ul style="list-style-type: none"> Dosing based on whether or not GPI was administered.
Bivalirudin	I	B	625,637–645	<ul style="list-style-type: none"> Lower bleeding rates associated with bivalirudin are mitigated when used concomitantly with a GPI.
Enoxaparin	IIb	B	646–650	<ul style="list-style-type: none"> Recommendations apply to administration of IV enoxaparin at the time of PCI for those who have not received prior antithrombin therapy or who have received “upstream” SC enoxaparin therapy for UA/NSTEMI. An additional dose of 0.3 mg/kg IV enoxaparin should be administered at the time of PCI to patients who have received <2 therapeutic SC doses (eg, 1 mg/kg) or received the last SC enoxaparin dose 8 to 12 h before PCI: Class I; LOE B. Patients treated with SC enoxaparin within 12 h of PCI should not receive additional treatment with UFH during PCI (“stacking”): Class III Harm; LOE B.
Anti-Xa inhibitors				
Fondaparinux	III: Harm	C	651,652	<ul style="list-style-type: none"> PCI should not be performed with fondaparinux as the sole antithrombin agent in patients treated with upstream fondaparinux. An additional anticoagulant with anti-IIa activity should be administered.

ACT indicates activated clotting time; COR, class of recommendation; CVA, cerebrovascular accident; FDA, US Food and Drug Administration; GP, glycoprotein; GPI, glycoprotein IIb/IIIa inhibitor; IC, intracoronary; IV, intravenous; LOE, level of evidence; MI, myocardial infarction; N/A, not applicable; PCI, percutaneous coronary intervention; SC, subcutaneous; SIHD, stable ischemic heart disease; STEMI, ST-elevation myocardial infarction; TIA, transient ischemic attack; UA/NSTEMI, unstable angina/non-ST-elevation myocardial infarction; and UFH, unfractionated heparin.