General Considerations for Antiplatelet and Anticoagulant Therapy (STEMI)

Agent	Mechanism	Duration	Bolus Dose	Maintenance Dose	Reversal	Renal Factors	Special note
UFH	Thrombin inactivation Prevents conversion of fibrinogen to fibrin	1 – 2 hours	60U/kg IV (maximum of 4000U) 50-70U/kg IV if GP IIb/IIIa inhibitor is on board 60-100U/kg IV if no GP IIb/IIIa inhibitor is on board	12U/kg/h (maximum 1000U/h)	Protamine: Immediately – 1mg/100U of UFH 1 hour after UFH = 0.5mg/100U UFH 2 hours after UFH = 0.25mg/100U UFH	None	If GP IIb/IIIa is not going to be used OR a switch is to be made to bivalirudin then additional boluses given in the Cath lab should maintain ACT > 250
Enoxaparin	Factor Xa inhibition	1 hours; longer if GFR is low	30mg IV if younger 75y/o	If <75y/o: 1.0mg/KG SQ Q12H with first dose given 15min after IV bolus If >75y/o: 0.75mg/kg SQ Q12H	Protamine: 1mg IV/ 1 mg Enoxaparin with 60-75% reversal	Do not use if: SCr>2.5mg/dL in men OR SCr > 2.0mg/dL in women	If last SQ dose was given 8-12hours earlier then administer 0.3 mg/kg IV No additional dose given if last dose was less than 8hours prior
Fondaparinux	Factor Xa inhibition	2-3 hours	2.5mg IV if SCr <3.0mg/dL	2.5mg SQ Q24H	Consider rFVIIa	Do not use if: CrCl <30 mL/min and SCr > 3.0mg/dL	Can supplement with anti-IIa anticoagulant (UFH/bivalirudin)
Bivalirudin	Directly inhibits thrombin	2 hours; longer if GFR is low	0.75mg/kg IV	1.75mg/kg/h with stopping of infusion at the end of procedure	None	Reduce dose to 1mg/kg/h with CrCl <30 mL/min Or 0.25mg/kg/h if patient is on dialysis	Make sure that antiplatelet treatment with aspirin and athienopyridine have been administered
Eptifibatide	IIb/IIIa receptor blocker	4 hours	Two 180mcg IV doses 10min apart	1.0mcg/kg/min IV for 12-24 hour	None	CrCl<50ml/min: Clearance reduced by 50% and steady-state plasma levels double	May cause severe acute thrombocytopenia
Abciximab	Antibody-mediated IIb/IIIa receptor blocker	0.5hour, will experience mild effect for 7 days	0.25mg/kg IV	0.125 mcg/kg/min (maximum 10mcg/min) for 12 hour	Platelet transfusion can help reverse	None	May cause severe acute thrombocytopenia
Tirofiban	IIb/IIIa receptor blocker	4 hours	25mcg/kg IV	0.15 mcg/kg/min for 24 hour	None	CrCl ≤60 mL/min: Decrease post loading dose infusion by 50% to 0.075 mcg/kg/min IV	May cause severe acute thrombocytopenia

BMC2 PCI-VIC Best Practice Protocols. Available here: https://bmc2.org/system/files/private/best-practice-protocols-5-20-14.pdf. Accessed September 4, 2015
Gharacholou, S. "Pre PCI hospital antithrombotic therapy for ST elevation myocardial infarction: striving for consensus". *J Thromb Thrombolysis* 2012 Jul;34(1):20-30 Accessed September 23, 2015

This tool is a part of the Bleeding Risk Toolkit available through the ACC Quality Improvement for Institutions program on CVQuality.ACC.org.

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Drug-Drug Interactions and Recommended Management in Interventional Cardiology

Drug Interaction	Mechanism	Recommendation
Oral anticoagulants and procedural anticoagulants	Pharmacodynamic; potential to inhibit multiple clotting factors and maintain a minimal level of hemostasis; increases bleeding risk	For elective procedures, hold oral anticoagulant in a time frame consistent with pharmacological offset For urgent or emergent procedures, consider use of hemostatic agents (fresh frozen plasma, factor products) if necessary; consider radial access as preferential for cath
Parenteral anticoagulants and procedural anticoagulants	Pharmacodynamic; potential to inhibit multiple clotting factors and maintain a minimal level of hemostasis; increases bleeding risk	Maintain consistent use of anticoagulant throughout ACS to PCI spectrum. Develop an institution-specific protocol that allows for anticoagulant switching to occur in time frames based on pharmacological and clinical evidence
Dual antiplatelet therapy and oral anticoagulants	Pharmacodynamic; inhibition of platelet and clotting factor driven thrombosis; increases risk of bleeding	Evaluate indication for chronic use of both dual antiplatelet therapy and oral anticoagulant For warfarin—target INR of 2.0–3.0, use low-dose aspirin (75–81 mg daily) and consider gastric protection with PPI No data regarding the risk of bleeding with more potent $P2Y_{12}$ inhibitors (prasugrel, ticagrelor) or with newer oral anticoagulants (apixaban, dabigatran, Rivaroxaban)

Dunn, Steven. "Drug–Drug Interactions in Cardiovascular Catheterizations and Interventions" *J Am Coll Cardiol Intv*. 2012;5(12):1195-1208 Available here http://interventions.onlinejacc.org/article.aspx?articleid=1485711. Accessed September 15th, 2015

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