

2. INITIAL ASSESSMENT AND RESUSCITATION

H. Reversal of Anticoagulants & Antiplatelet Agents

OBJECTIVE: This guideline applies to patients with life-threatening hemorrhage, only. Reversal of anticoagulants and antiplatelet agents is a risk versus benefit decision including, but not limited to:

1. Severity of hemorrhage
2. Stability already demonstrated on serial imaging
3. Type and dose of anticoagulant
4. Indication for anticoagulation and risk of subsequent thromboembolic event

Final decision for anticoagulation reversal is at the discretion of the trauma surgeon, except in cases of isolated hip fractures which the decision of reversal will be at the discretion of the orthopedic surgery attending.

Patients who have taken their most recent oral factor Xa or oral direct thrombin inhibitor dose ≥ 18 hours ago should receive reversal at the discretion of the trauma attending and neurosurgery service. Adjunctive tests, including conventional coagulation assays, anti-factor Xa levels, and ROTEM may help elucidate the presence of ongoing anticoagulant effect.

Anticoagulant	Reversal Agent	Redose Considerations
Unfractionated Heparin	If < 3 hrs from last dose: Protamine 1 mg/100 units of heparin administered (max 50 mg)	May consider for ongoing bleeding and post-treatment aPTT > 30 with Protamine 0.5 mg/100 u of heparin given in the last 3 hours.
Enoxaparin (Lovenox) Dalteparin (Fragmin)	If < 8 hrs from last dose: Protamine 1 mg per 1 mg enoxaparin (max 50 mg) If 8-12 hrs from last dose: Protamine 0.5 mg per 1 mg enoxaparin (max 50 mg)	May consider for ongoing bleeding and elevated post-treatment anti-factor Xa with Protamine 0.5 mg/1 mg of enoxaparin.
Dabigatran (Pradaxa)	< 2 hrs since ingestion: consider activated charcoal Idarucizumab 2.5 mg IV push x2 q15 min (5 mg total dose)	May consider for ongoing bleeding and post-treatment aPTT > 30.
Argatroban Bivalirudin	None	

Abixaban (Eliquis) and Rivaroxaban (Xarelto)	< 2 hrs since ingestion: consider activated charcoal < 18 hrs since last dose: <i>Follow Andexanet Alfa screening form in Cerner to order piggyback and infusion.</i> Administer prothrombin complex concentrate (PCC) 25 units/kg (max 2,500 units) for ongoing bleeding and post-treatment unfractionated heparin anti- factor Xa level > 0.5. DO NOT ADMINISTER Andexanet Alfa to patients that have already received PCC. If patient does not meet WMC screening criteria for Andexanet Alfa, may consider PCC 50 units/kg (max 5,000 units)	The role of additional doses is unclear in this population. Repeat dosing of Andexanet Alfa has not been studied.
Edoxaban Betrixaban	< 2 hrs since ingestion-consider activated charcoal PCC 50 units/kg (max 5,000 units)	
Warfarin (Coumadin)	< 2 hrs since ingestion: consider activated charcoal IF INR HAS NOT RESULTED, DO NOT WAIT FOR INR Vitamin K 10 mg IV ; Administer 25 units/kg PCC and recheck INR. INR 2 - < 4: 25 units/kg (max 2,500 units) INR 4 - 6: 35 units/kg (max 3,500 units) INR > 6: 50 units/kg (max 5,000 units)	If ongoing bleeding and repeat INR > 1.5, may administer additional PCC dosed by INR.

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