DOAC Bleeding Management (v1.2)

For additional information, visit www.anticoagulationtoolkit.org

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**Bleeding in critical site (examples below)**
- Central nervous system bleeds (intracranial, spinal, intracaudal)
- Pericardial tamponade
- Airway, including posterior epistaxis
- Hemorrhax

**Hemodynamic instability (examples below)**
- Elevated heart rate
- Decrease in SBP >40 mm Hg
- Mean arterial pressure (intra-articular) <65 mm Hg
- SBP <90 mm Hg
- Orthostatic blood pressure changes
- Urine output <0.5 mL/kg/hr

**Overt bleeding with either:**
- Hemoglobin drop of ≥2 g/dL
- Administration of ≥2 U of packed RBCs

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**Specialized Test**
- Dabigatran
- TT, ECT, ECA
- Normal: not clinically relevant
- Results correlate with drug level

**Drug Level Interpretation**
- TT
  - Normal: not clinically relevant
  - Prolonged: may/may not be clinically relevant

**General Test**
- aPTT
  - Normal: likely indicates lower drug level but can’t exclude drug presence
  - Prolonged: clinically relevant

**Drug Level Interpretation**
- PT
  - Normal: does not exclude clinically relevant levels
  - Prolonged: clinically relevant levels

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**Assess for Clinically Relevant Drug Levels**

- If last dose taken at least 24 hr ago in patients with normal renal function, drug levels probably not clinically relevant.
- If patient taking dabigatran, a TT can be used to rule out clinically relevant drug levels. Specialized tests can quantify drug levels.
- Don’t wait for results before administering reversal agents in life-threatening bleeds

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**Bleeding Management**

**All bleeds**
- Critical site or life threatening
- Major Bleeds
- NOT critical site or life threatening
- More serious minor bleeds
- Less serious minor bleeds

**Critical site or life threatening**
- Stop DOAC
- Provide supportive care
- Secure airway and large-bore IV access
- Aggressive volume resuscitation (NS or LR)
- Correct hypothermia and acidosis
- Early involvement of other services (eg. surgery)
- RBC transfusions to achieve Hgb ≥7 g/dL (≥8 g/dL if pt has CAD)
- Platelet transfusion to achieve counts >50 x 10^9/L
- Cryoprecipitate transfusion to maintain fibrinogen >100 mg/dL
- Stop any antplatelets
- Consider surgical/procedural management
- Administer reversal agent
- Consider administration of other services (eg. surgery)

**More serious minor bleeds**
- Stop DOAC
- Provide supportive care
- Secure airway and large-bore IV access
- Aggressive volume resuscitation (NS or LR)
- Correct hypothermia and acidosis
- Early involvement of other services (eg. surgery)
- RBC transfusions to achieve Hgb ≥7 g/dL (≥8 g/dL if pt has CAD)
- Platelet transfusion to achieve counts >50 x 10^9/L
- Cryoprecipitate transfusion to maintain fibrinogen >100 mg/dL
- Stop any antplatelets
- Consider surgical/procedural management
- Administer reversal agent if above not effective

**Less serious minor bleeds**
- Consider continuing DOAC if appropriate indication
- Assess risk/benefits of stopping any antplatelets
- Verify that DOAC is correct and patient taking as directed

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**DOAC Reversal**

**Dabigatran**
- 5 mg idarucizumab IV (two separate 2.5 g/50 mL vials)
  - If bleeding persists and there is laboratory evidence of persistent dabigatran effect after 12-24 hours, a second dose may be reasonable.
  - If idarucizumab not available, administer aPCC (4F-PCC if aPCC not available) 50 units/kg IV (refer to package insert for max units)
  - Activated charcoal (50 g) can be considered if ingested within 2-4 hours
  - Hemodialysis could be considered if drug level is high, especially in patients with poor renal function
  - Fresh-frozen plasma is not recommended for DOAC reversal

**Apixaban, Betrixaban, Edoxaban, Rivaroxaban**
- Apix/Riva: Admin ANDEXXA per package insert
  - Betri/Edox: Admin off-label ANDEXXX (800 mg at 30 mg/min then 8 mg/min for up to 120 min)
  - Admin 4F-PCC 50 units/kg IV (if ANDEXXX not avail/used)
  - If 4F-PCC is not available, consider aPCC 50 units/kg IV (refer to prescribing information for max units)
  - Consider activated charcoal (50 g) if ingested <24 hrs
  - Fresh-frozen plasma is not recommended for DOAC reversal

**4F-PCC= four-factor prothrombin complex; aPCC= activated prothrombin complex concentrate; *Off-label ANDEXXX OR 4F-PCC suggested for Betrix/Edox**

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**Restart DOAC**

- Most patients benefit from restarting anticoagulation after bleeds, but make sure there is still a valid indication.
  - eg. CHA²DS₂-VASC is ≥ 1 (in AF), length of treatment hasn’t been reached (for VTE treatment or post-op prophylaxis).
- Base plan on the balance between bleeding and thromboembolic risks and discussions with other appropriate practitioners (eg. surgeons), the patient, and caregivers.
- Timing of restart: Delay restart if bleeding occurred in a critical site or if patient has a high risk for re-bleeding. Patients with GI bleed should typically wait at least 7-14 days. Patients with intracranial hemorrhage (and no mechanical valve) should wait at least 4 weeks. In patients with moderate to high risk of recurrent VTE without high risk of recurrent bleeding, ASH suggests resuming anticoagulation within 90 days rather than discontinuation.
- Make sure dose is correct based on age, renal function, weight, and indication and address any reversible risk factors such as interacting medications or unnecessary antplatelet therapy.
References


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