

Recommended Coagulation Testing for Preoperative Patients

- I. If the patient has no known history of bleeding, no family history of bleeding, and has not received any anticoagulant therapy or antiplatelet medication, then no coagulation screening is suggested. **Neither the bleeding time (BT) or platelet function analysis (PFA) is effective as a screening test in this setting.**
- II. If the patient has a history of excessive bleeding (surgical or otherwise) or a family history of bleeding, then the following tests may be useful:
 - a. PT: will detect vitamin K deficiency, Coumadin effect, advanced liver disease (multiple coagulation factor deficiency)
 - b. PTT: will detect the most common hereditary factor deficiencies (Factor VIII – Hemophilia A; Factor IX – Hemophilia B) and well as clinically insignificant contact factor deficiencies (Factor XII, prekallikrein, and high molecular weight kininogen). The PTT is sensitive to unfractionated heparin **but not low molecular weight heparin.**
 - c. Platelet function analysis (PFA): This will detect intrinsic platelet disorders such as von Willebrand disease, other rare intrinsic platelet defects, and acquired platelet defects secondary to various anti-platelet medications. In the majority of cases, it will distinguish an intrinsic defect from medication effect. However, **this test will not be interpretable if the patient is thrombocytopenic (platelet count <140K) or anemic (Hct <30%)**
- III. If a patient has been on single or multiple anticoagulant therapies, testing specific to the therapy used is appropriate **in the preoperative setting:**
 - a. Patients on Coumadin: PT
 - b. Patients on unfractionated (standard) heparin: PTT
 - c. Patients on low molecular weight heparin (Lovenox, Fragmin) or Arixtra: anti-factor Xa
 - d. Patients receiving significant amounts of any antiplatelet drugs (aspirin, Plavix, Reopro,...): Platelet function analysis (PFA)
- IV. Recommended therapy for various coagulopathies in a bleeding patient:
 - a. Elevated PT
 - i. If secondary to Coumadin, reverse with vitamin K; consider fresh frozen plasma if immediate reversal is required.
 - ii. If secondary to liver disease, give fresh frozen plasma.
 - b. Elevated PTT:
 - i. If secondary to unfractionated heparin, reverse with protamine
 - ii. If secondary to low molecular weight heparin, will only partially reverse with protamine
 - iii. If secondary to a specific factor deficiency (hemophilia), treat with specific factor concentrates.

- iv. If secondary to an intrinsic platelet defect (von Willebrand disease), treat with DDAVP (except for type 2b VWD), plasma concentrates high in VWF (Humate-P, Alphanate), or cryoprecipitate.
- v. If secondary to an acquired, drug-induced platelet defect, consider waiting 12-24 hours and retesting, or transfuse one adult dose of platelets (if patient is bleeding/or emergent surgery is required)