Penn Medicine COVID-19 Clinical Guide: Anticoagulation

Updated 10/26/2021 – **See complete Anticoagulation Guidelines for details –** Latest version on UPHS COVID-19 website (under Critical Care – Pharmacological Management)

Recommendations may evolve rapidly – Do not save file – If printed, update frequently

Background & Rationale

- COVID-19 inpatients demonstrate a hypercoagulable profile
- Data suggest **higher risk of thromboembolic events** in **ICU patients with COVID-19** *despite usual doses of prophylactic LMWH*
- These suggestions are intended to provide guidance, and are not intended to be substituted for clinical judgement
- **VTE pharmacologic prophylaxis is recommended for all COVID-19 inpatients, with standard-intensity recommended for all ICU patients**
- **Intermediate-intensity anticoagulation is no longer routinely recommended prophylactically based on available RCTs**

Pharmacologic Anticoagulation Regimens

Clinical Consideration	Prophylactic/Treatment Intensity: Standard	Intermediate	Therapeutic
CrCl ≥30	LMWH 40mg Q24H	LMWH 0.5 mg/kg Q12H	LMWH 1 mg/kg Q12H
15 ≤ CrCl < 30	LMWH 30mg Q24H OR UFH 5000 Q12H or Q8H	UFH 7500 Q8H	LMWH 1 mg/kg Q24H[a] or UFH bolus + infusion[b] Goal aPTT 60-85 sec
CrCl < 15 -or- on RRT	UFH 5000 Q12H or Q8H	UFH 7500 Q8H	UFH bolus + infusion[b] Goal aPTT 60-85 sec
Spinal/Epidural Anesthesia	UFH 5000 Q12H or Q8H	UFH 5000 Q12H or Q8H	*Discuss choice of agent with Anesthesia*
History or New Diagnosis HIT[c]	CrCl ≥ 30: Fondaparinux 2.5mg Q24h CrCl ≤ 30: Consult Heme	*Consult Hematology*	*Consult Hematology*
On AC Prior to Admission	**Warfarin**: Continue if no critical illness or anticipated procedures **DOAC**: Given ICU risk, switch to therapeutic regimen above per CrCl		

Round enoxaparin doses to nearest syringe; no upper weight limit

a) Consider checking anti-Xa level 4 hours after 3rd dose with assistance of Hematology consult

b) If baseline aPTT elevated, consider Hematology consult (anti-Xa levels needed for dosing)

c) See HIT Diagnostic and Treatment Guidelines in Penn Pathways and online formulary

Prophylaxis & Treatment Recommendations

VTE	Population (location)	Bleed Risk	Treatment/Prophylactic Intensity
Suspected or Proven	**All Patients** (Floor or ICU)	Low	Therapeutic
		High	UFH infusion, goal aPTT 60-85 sec
Not Suspected or Proven	**Floor** (O_2 < HFNC)	Low	Standard*
		High	Consider Standard
	Critically Ill (ICU)	Low	Standard
		High	Standard

- Do not use D-dimer alone to guide therapeutic AC in the absence of clinical suspicion for VTE
- Mechanical ppx should be used for patients unable to receive pharmacologic ppx, & can be used in addition to pharmacologic ppx for high-VTE-risk patients in the ICU
- Withhold pharmacologic prophylaxis & treatment in active or recent bleeding (within 24-48h)

*Given inconsistent data from various trials of therapeutic anticoagulation in COVID-19 floor patients, we favor standard-intensity for most floor patients with COVID-19 infection who do not have diagnosed VTE. However, clinicians, optimally in discussion with their patients, can consider therapeutic anticoagulation given only during the course of the hospital stay in patients who they judge to be at lower risk of bleeding and/or higher risk of thrombosis.

Post Discharge Recommendations

Indication for Therapeutic AC → Continue AC as per usual guidelines

Received Prophylactic AC → Do not routinely use Extended Ppx; Can consider use in select elevated-VTE-risk and low-bleeding-risk patients with CrCl ≥ 30

Extended Out-of-Hospital Prophylaxis:

For patients with elevated VTE risk, LOS≥3 days, low bleeding risk & CrCl ≥ 30

Duration: 30 days starting on the day of discharge

Drug choice: Rivaroxaban 10mg daily or Enoxaparin 40mg daily (not FDA-approved as extended prophylaxis) (see formal guidelines for identified bleeding risk factors)

AC: Anticoagulation; CrCl: Creatinine Clearance; DOAC: Direct Oral Anticoagulant; HIT: Heparin Induced Thrombocytopenia; LMWH: Low Molecular Weight Heparin (Enoxaparin); Ppx: Prophylaxis; RRT: Renal Replacement Therapy; UFH: Unfractionated heparin; VTE: Venous Thromboembolism; LOS: Length of stay