MedStar Health

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COVID-19

This Clinical Practice Guideline (CPG) presents a model of best care based on the available published and internal evidence at the time it was developed. It is not a prescription for every physician or every patient, nor does it replace clinical judgement.

Anticoagulation for COVID19+ ICU Patients

VTE Category	Dose of Anticoagulation for CrCl > 30 ***	Dose Adjustments
High Risk: Confirmed or Suspected: • **Known indication for anticoagulation** • **Newly Diagnosed VTE** • **High Clinical Suspicion for VTE** • **On ECMO or CRRT**	1. Enoxaparin 1 mg/kg SQ Q12h, or 2. Unfractionated heparin (UFH) infusion with anti-Xa goal 0.3 to 0.7 [Preferred in ECMO or CRRT]	○ CrCl 15-29: Enoxaparin 0.5 mg/kg SQ Q12h hours or UFH infusion with anti-Xa goal 0.3 to 0.7 ○ CrCl < 15: Do not use Enoxaparin ○ Known or suspected HIT: Argatroban infusion* or Fondaparinux** SQ Q24h if CrCl ≥30 and low bleeding risk and clinically stable
Moderate Risk: • **Hypercoagulable risk (clinical or lab -e.g. TEG)** • **Moderate clinical suspicion for VTE (unproven)** • **Clotting of central line** • **D-Dimer elevation and hypoxemia out of proportion to clinical pneumonia**	1. Enoxaparin 0.5 mg/kg SQ Q12h or 2. Enoxaparin 1 mg/kg SQ Q24h or 3. UFH infusion with anti-Xa goal 0.1 to 0.3	○ CrCl < 30 or CRRT: UFH 7500 units SQ Q8h ○ Remote HIT: • Consult Hematology • Consider Fondaparinux 5 mg SQ Q24 if CrCl ≥30
Average Risk: • **No known or suspected VTE**	1. Enoxaparin 40 mg SQ Q24h if BMI ≤40 or 2. Enoxaparin 40 mg SQ Q12h if BMI >40	○ CrCl 15-29 and BMI ≤ 40: enoxaparin 30 mg SQ Q24h or BMI > 40: enoxaparin 40 mg SQ Q24h ○ CrCl < 15: UFH 5000 u SQ Q8h ○ BMI > 40 and CrCl < 30: UFH 7500 u SQ Q8h ○ Remote HIT: • CrCl > 30: Fondaparinux 5 mg SQ Q24h • CrCl < 30: SCDs and consult Heme

*See local site argatroban protocol
** Fondaparinux 5 mg SQ Q24 if weight < 50 kg; 7.5 mg Q24 if weight 50-100 kg; 10 mg SQ Q24 if weight over 100 kg
*** Recommended therapy in patients without contraindications to anticoagulation. Also note: Avoid full therapeutic anticoagulation when platelets under 50K and prophylactic anticoagulation regimens in setting of platelets < 25K or fibrinogen < 50

BACKGROUND and GUIDANCE STATEMENTS:

COVID-19 inpatients demonstrate hypercoagulable profile: ↑ D-dimer, ↑ fibrinogen, relatively preserved PT/aPTT, and normal platelets.

Recent data suggest 31% rate of thromboembolic events (majority PEs) in ICU patients with COVID-19 despite use of prophylactic LMWH.

A retrospective study of pharmacologic prophylaxis suggested a mortality benefit in COVID-19 inpatients with elevated sepsis-induced coagulopathy score.

Therefore, we recommend pharmacologic prophylaxis or therapeutic anticoagulation (AC) for all non-bleeding inpatients with COVID-19.

> *Note: Avoid full therapeutic anticoagulation when platelets under 50K and prophylactic anticoagulation regimens in setting of platelets < 25K or fibrinogen < 50*

We advise choosing a therapeutic or high-risk regimen (if not contraindicated) if patient was previously on full dose AC for a standard indication.

For inpatients, choose Intermediate/moderate risk dose regimen (if not contraindicated) if patient was on low dose DOAC for secondary VTE as outpatient. Choose Therapeutic High dose regimen (if not contraindicated) if patient was on full dose DOAC for Primary or secondary VTE/CVA prophylaxis as outpatient.

Preference is for LMWH regimens if not otherwise contraindicated. Several randomized trials in the past compared subcutaneous LMWH and UFH for the initial treatment of VTE, the LMWH was at least as effective and safe as the UFH. Meta-analyses of data from these trials suggest that LMWHs are more effective than UFH in preventing recurrence (risk reduction, 34 to 61 percent) and cause less major bleeding (risk reduction, 35 to 68 percent). There is preference for using heparins in COVID based on the observation that COVID is a highly inflammatory state and the potential anti-inflammatory properties of LMWH and UFH.

There is no indication for using TPA in COVID patients outside of standard indications.

There is no evidence to use Thromboelastography (TEG) to guide AC decisions.

A D-Dimer <1 does rule out acute VTE but D-Dimer > 1 is NOT diagnostic of VTE.

USE SCDs for all high-risk patients and if all pharmacological VTE prophylaxis options are contraindicated.

If there is evidence of acquired ATIII deficiency while on heparin continuous infusion for ECMO, would advise using argatroban continuous infusion adjusting for liver function.

COVID patients should undergo evaluation for extended VTE prophylaxis at time of discharge, taking into consideration bleeding risks.

If a patient is started on high risk or therapeutic AC while inpatient for diagnosed or suspected VTE, duration of anticoagulation should extend at least 3 months total, and at least 1-month s/p discharge. Bleeding risk should also be considered.

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