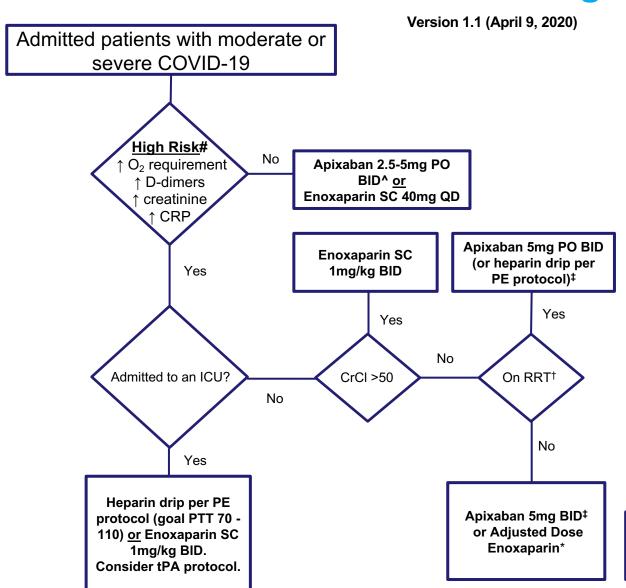
Mount Sinai COVID-19 Anticoagulation Algorithm



Inclusion: All admitted patients with moderate or severe COVID-19 Exclusion: High risk of bleeding as judged by treating physician

Obtain at baseline and daily:

- CBC, PT/PTT, D-dimer

Hold anticoagulation if:

- Platelet count <50,000; INR>1.5
- Evidence of current or recent bleeding

If patients take AC at home:

 May switch to therapeutic enoxaparin or heparin (as per algorithm) for the duration of hospitalization, unless contraindicated

Rivaroxaban may be used in place of Apixaban at any indication

Discharged COVID-19 patient on therapeutic anticoagulation while hospitalized

Consider Prophylactic AC for 2 weeks post discharge (Apixaban 5mg PO BID for 2 wks)

#<u>High Risk</u>: No precise metrics exist. Consider exam (eg O_2 sat<90%, RR >24), $\uparrow O_2$ requirement (eg, \geq 4L NC), labs (eg, \uparrow d-dimers, C-reactive protein)
^Efficacy and dose not established; prophylactic or treatment doses acceptable

†RRT – Renal Replacement Therapy

‡ If ≥80 years of age or weight ≤60 kg, reduce apixaban to 2.5 mg BID

* If CrCl <30: enoxaparin 0.5mg/kg BID with anti-Xa level after 3rd dose

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Definition of high risk for progression to ICU

- There is insufficient evidence to precisely define "high-risk" or provide specific cut-off values for individual factors
- Clinicians should consider a combination of exam findings (e.g, labored breathing, RR >24, decreased O₂ sat<90%), increased O₂ requirement (eg, ≥4L NC), and lab biomarkers (eg, elevated CRP, elevated creatinine, rising d-dimer >1.0).

Rationale for early anticoagulation

- Pathophysiology of COVID-19 associated respiratory disease is consistent with pulmonary vascular thromboemboli with increased dead space ventilation
- Autopsy studies have demonstrated venous thromboembolism in deceased coronavirus patients¹
- Early anticoagulation is necessary to prevent propagation of microthrombi at disease presentation
- Anticoagulation may be associated with decreased mortality²

Rationale for choice of anticoagulant

- Heparins bind tightly to COVID-19 spike proteins^{3,4}
- Heparins also downregulate IL-6 and directly dampen immune activation⁵
- DOACs do not appear to have these anti-inflammatory properties
- Rivaroxaban can be used in place of Apixaban in this algorithm

References

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- 3. Belouzard et al. Proc Natl Acad Sci, 2009 106 (14), 5871-6. PMID: 19321428
- 4. de Haan et al. J Virol. 2005 Nov; 79(22): 14451-14456. PMID: 16254381
- 5. Mummery et al. J Immunol, 2000. 165 (10), 5671-9. PMID: 1106792