

# COVID-19 Thromboprophylaxis Guidance

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**It has become increasingly clear that a large percentage of patients with COVID-19, particularly those that become critically ill, develop a prothrombotic state<sup>1</sup>**

**ALL COVID-19 positive and PUI patients should receive pharmacologic VTE prophylaxis unless contraindicated**

**(e.g. PLT <25-30K, active bleeding, fibrinogen < 0.5 g/L)**

# EVIDENCE TO DATE

- 184 ICU Dutch patients with confirmed COVID-19 all receiving at least standard dose thromboprophylaxis had **31% incident of thrombotic complications**<sup>2</sup>
- Elevated D-dimer levels is a common finding in patients with COVID-19. **An elevated D-dimer on admission is associated with poor prognosis**<sup>3</sup>
  - An elevated D-dimer does not currently warrant routine investigation for acute VTE in absence of clinical manifestations or other supporting information<sup>1</sup>
  - A retrospective review in China suggests that thromboprophylaxis therapy is associated with decreased mortality in severe COVID-19 patients with D-Dimer > 6x ULN<sup>4</sup>
  - In a retrospective review of 106 French COVID-19 positive patients who underwent a CT angiogram, 30% were positive for acute PE. This paper indicates a D-dimer positive predictive value of >2660<sup>5</sup>
- An observational study in COVID-19 patients in the U.S. showed an association for improved survival in mechanically ventilated patients receiving systemic anticoagulation<sup>6</sup>

# COVID-19 Thromboprophylaxis – INPATIENT MANAGEMENT

## STANDARD PROPHYLAXIS

### **D-dimer < 500 AND not in ICU**

- CrCl  $\geq$  30 ml/min: enoxaparin 40 mg subcutaneous daily
- CrCl < 30 ml/min: heparin 5000 units subcutaneous TID

## INTERMEDIATE THROMBOPROPHYLAXIS

### **D-dimer 500 - 3000 OR admitted to ICU with D-dimer $\leq$ 3000**

- CrCl  $\geq$  30 ml/min: enoxaparin 0.5 mg/kg subcutaneous BID
- CrCl < 30 ml/min: heparin 7500 units subcutaneous TID

## EMPIRIC TREATMENT DOSING ANTICOAGULATION

### **D-dimer > 3000 OR high suspicion of DVT/PE, (can consider in mechanically ventilated patients)**

- full dose anticoagulation
  - CrCl  $\geq$  30 ml/min: enoxaparin 1 mg/kg subcutaneous BID
  - CrCl < 30 ml/min: heparin infusion

# COVID-19 Thromboprophylaxis - POST-HOSPITALIZATION MANAGEMENT

## ▪ **D-dimer > 3000 or admitted to ICU**

- Continue prophylactic anticoagulation for 2 weeks after symptom resolution AND able to get LE duplex U/S. U/S can be completed prior to discharge.
  - Treatment selection based on patient coverage
    - Enoxaparin (Lovenox) 40 mg subcutaneous daily
    - Rivaroxaban (Xarelto) 10 mg daily
    - Apixaban (Eliquis) 2.5 mg BID
- For prolonged post-ICU stay, clinical judgement of risk/benefit should be used when making the decision to continue prophylactic anticoagulation on discharge.

## ▪ **confirmed VTE (or unconfirmed and treating)**

- continue full dose anticoagulation for 3 months then reassess (unchanged process for a provoked DVT)
- enoxaparin or DOAC based on patient coverage

## Take away

- ❑ Have a heightened awareness of COVID-19 prothrombotic state
- ❑ D-Dimer levels are higher in COVID-19 patient. Use D-Dimer to guide thromboprophylaxis category, and not for thrombotic work-up.
- ❑ Thromboprophylaxis on discharge is recommended for the highest risk individuals

# REFERENCES

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