COVID-19 Anticoagulation Management for Adults: 03/23/22

This guidance should not supersede clinical judgment. Should be used in conjunction with latest evidence and patient-specific characteristics

This guideline does NOT apply to patients in the 4-30-day post vaccination window who received the J &J vaccine. See guidance for Thrombosis with Thrombocytopenia Syndrome (TTS)

COAGULOPATHY IN PATIENTS INFECTED WITH COVID-19

- Severe cases of COVID-19 result in a cytokine storm, systemic inflammatory response and coagulopathy. COVID coagulopathy has been considered prothrombotic rather than hemorrhagic and is thought to be a result of an uncontrolled immunothrombotic response
- Common findings: Elevated d-dimer and fibrinogen levels and mild prolongation of PT/aPTT

THERAPEUTIC ANTICOAGULATION PRIOR TO ADMISSION

- If no contraindications, consider switching to enoxaparin or heparin for anti-inflammatory effect
- Dexamethasone may reduce apixaban/rivaroxaban concentrations and could potentially increase risk of thrombosis. Assess risk-benefit of concurrent use. If apixaban/rivaroxaban continuation is needed, consider switching steroid to methylprednisolone

VTE PROPHYLAXIS (see page 2 for recommendations)

- All highly suspected or confirmed COVID-19 patients should receive pharmacologic VTE prophylaxis unless contraindicated
- If unable to use pharmacologic prophylaxis, SCDs are recommended

EMPIRIC THERAPEUTIC ANTICOAGULATION WITHOUT SUSPECTED OR CONFIRMED VTE (see page 2 for recommendations)

- Elevated D-dimer in isolation should **NOT** be used to prescribe therapeutic anticoagulation
- In patients receiving supplemental oxygen up to 6 L by nasal cannula, may consider therapeutic anticoagulation up to 14 days or until discharge, whichever comes first (conditional recommendation based on very low certainty in the evidence about effects)
    - In studies therapeutic anticoagulation was not given to patients who were considered high bleed risk defined by the following: receiving concomitant dual antiplatelet therapy, active gastrointestinal / intracranial cancer, active bleed/history of bleed within the last 30 days, platelets < 50 x 10^9/L, hemoglobin < 8 g/dL, ischemic stroke within the past 2 weeks, or known bleeding disorder
- May consider therapeutic anticoagulation in patients with persistent clotting (e.g lines/devices/filters clotting) despite pharmacological VTE prophylaxis

BLEEDING RISK ASSESSMENT:

- Antiplatelet agents are not recommended as adjunctive therapy for the treatment of COVID-19
- If patient is on antiplatelet therapy, ensure appropriate indication

VTE TREATMENT FOR CONFIRMED OR HIGH SUSPICION OF VTE

- High VTE suspicion, recommend early confirmatory testing (doppler or CTPE). Delayed testing may result in negative results
- Enoxaparin or heparin is recommended due to short half-life and the effect can be reversed
- Patients with confirmed new VTE, treat for minimum of 3 months

DISCHARGE VTE PROPHYLAXIS

- Post discharge VTE thromboprophylaxis is not recommended for the treatment of COVID-19 illness alone
- Assess as you would other medical patients being discharged
- Recent COVID-19 illness alone should not alter the approach for VTE prevention in those undergoing elective surgery

OBSTETRICAL PATIENTS

- VTE prophylaxis is recommended for all obstetrical patients.
- Therapeutic anticoagulation is not recommended without a suspected/confirmed VTE due to lack of data

ANTICOAGULATION RECOMMENDATIONS

Patients WITHOUT a suspected or confirmed VTE	Pharmacological Recommendations*
Not requiring supplemental oxygen (or if on chronic oxygen therapy, not requiring an increase in baseline oxygen flow rate due to COVID-19)	• VTE prophylaxis
Requiring supplemental oxygen up to 6 L nasal cannula	• Therapeutic anticoagulation for 14 days or until hospital discharge (whichever is sooner) in patients not considered high bleed risk defined in studies as the following: ○ Concomitant dual antiplatelet therapy, active gastrointestinal / intracranial cancer, active bleed/history of bleed within the last 30 days, platelets < 50 x 10^9/L, hemoglobin < 8 g/dL, ischemic stroke within the past 2 weeks, or known bleeding disorder **-OR-** • VTE prophylaxis until hospital discharge if therapeutic anticoagulation is not appropriate
High flow/cold flow oxygen devices, noninvasive/invasive mechanical ventilation or ECMO	• VTE prophylaxis • Consider therapeutic anticoagulation in patients with persistent clotting (e.g. lines/devices/filters clotting) despite pharmacological VTE prophylaxis

* SCDs are recommended in patients with contraindications to pharmacologic prophylaxis

ANTICOAGULATION DOSING RECOMMENDATIONS

DVT Prophylaxis Recommendations	Therapeutic Anticoagulation Recommendations
BMI < 40 kg/m^2 CrCl ≥ 30 mL/min: Enoxaparin 40 mg subQ q24h CrCl < 30 mL/min: Enoxaparin 30 mg subQ q24h or UFH 7,500 units subQ q12h (preferred in RRT) **BMI ≥ 40 kg/m^2** CrCl ≥ 30 mL/min: Enoxaparin 40 mg subQ q12h CrCl < 30 mL/min: Enoxaparin 40 mg subQ q24h or UFH 7,500 units subQ q12h (preferred in RRT) **Special Populations** Weight <50 kg: UFH 5,000 units subQ q12h Heparin allergy (CrCl ≥ 30 mL/min): Fondaparinux 2.5 mg subQ q24h	**CrCl ≥ 30 mL/min:** *Enoxaparin 1 mg/kg subQ q12h *Enoxaparin 1.5 mg/kg subQ q24h UFH infusion: VTE protocol **CrCl < 30 mL/min:** UFH infusion (preferred in RRT): VTE protocol Enoxaparin: 1 mg/kg subQ q24h

*Use caution in obese patients. Reference site guideline/resource for additional dosing considerations

Post Discharge VTE Prophylaxis: Post discharge VTE thromboprophylaxis is not recommended for the treatment of COVID illness alone
CrCl ≥ 30 mL/min: Enoxaparin 40 mg subQ daily, rivaroxaban 10 mg daily
CrCl < 30 mL/min Enoxaparin 30 mg subQ daily