ROBERT WOOD JOHNSON UNIVERSITY HOSPITAL

COVID-19 Inpatient Anticoagulation Recommendations (November 17, 2020)

Screening:

- **Is patient currently on therapeutic anticoagulation or antiplatelet medications at home?**
- **Does patient have history of HIT or heparin allergy?**
- **Does patient or anyone in their family have a history of bleeding disorder?**
- **Has patient had ANY recent bleeding symptoms or surgeries/procedures?**
- **Does patient have history of recent GI bleeding (within last 3 months or without proven healing), active PUD symptoms, unstable cirrhosis, or baseline INR>1.5?**

If yes to any of these questions please review additional considerations section prior to deciding on AC dose.

All patients should have the following collected prior to any anticoagulation initiation: CBC, CMP, PT/INR/PTT, D-dimer, and Fibrinogen

All hospitalized COVID-19 patients should receive DVT prophylaxis with **standard prophylaxis, Enoxaparin 40 mg SC daily UNLESS:**

Kidney Function		Obesity	Platelet Count	Fibrinogen
If receiving dialysis OR CrCl < 15 mL/min	If CrCl less than 15-30 mL/minute	BMI > 40	Platelet count less than 50	Fibrinogen less than 150
Heparin 5000 units Q8 hours vs heparin 7500 units Q12 hours	**DECREASE dose** to Enoxaparin 30 mg SC daily	**INCREASE dose** to Enoxaparin 40mg SC q12h	**HOLD** anticoagulation and initiate SCDs.	**HOLD anticoagulation** and initiate SCDs. **Consider hematology consult**

For patients with confirmed VTE/PE or suspected PE, we recommend **therapeutic dose anticoagulation with Enoxaparin 1mg/kg SC q12h UNLESS**:

Kidney Function		Platelet Count	Fibrinogen	PT/INR	PTT
For ANY dialysis patients	For CrCl less than 30 mL/minute **OR** decompensating kidney function	Platelet less than 100K	For Fibrinogen less than 200	If PT>3 sec above normal or INR >1.5	If PTT >5 sec above normal
IV UFH* or bivalirudin preferred with PTT monitoring	**DECREASE dose** to 0.5 mg/kg SC twice daily and **call hematology for anti-Xa monitoring recommendations**	**Consult hematology for consideration of decreased AC dose.**	**Consult hematology for consideration of decreased AC dose.**	**Consult hematology for consideration of decreased AC dose.**	**Consult hematology for consideration of decreased AC dose.**

***Recommend *"Stroke, post procedure and patients with hemostatic abnormalities" protocol*, goal PTT 50-70**
NO BOLUS

All patients should have the following labs rechecked prior to increasing anticoagulation:

CBC, CMP, PT/INR/PTT, D-dimer, and Fibrinogen

For patients with rapid deterioration of pulmonary, cardiac, or neurological function, or sudden, localized loss of peripheral perfusion, possibility of thromboembolic disease should be evaluated with:

CBC, CMP, d-dimer, troponin, BNP

Consider VBG or ABG

Upper and lower extremity dopplers

TTE +/- CTA

If evidence of VTE please start full dose anticoagulation as outlined above.

Patients who are suspected to have thromboembolic disease at a time when further diagnostic evaluation is not possible should be managed with therapeutic dose anticoagulation as above with testing to be completed once patient is stable.

Recommend pulmonary consultation for further evaluation.

Once patients are escalated to full-dose anticoagulation, we recommend continuation of this dose for the duration of the hospitalization unless change in clinical status or VTE has been ruled out.

Pearls for Lovenox dosing:

- Dose capping should be AVOIDED
- Use TOTAL body weight for weight-based dosing calculations

Additional considerations:

- If patient on therapeutic anticoagulation at home that is not lovenox (ex. Warfarin, DOAC) would recommend changing to treatment dose lovenox (1mg/kg BID) for the duration of their hospitalization unless CrCl <30 mL/min (dose adjust), history of HIT, or fibrinogen <200. Can consider Hematology consult at that time for additional guidance.
- If patient with history of HIT would consider fondaparinux but recommend hematology consult prior to initiation.
- If patient with personal or family history of bleeding disorder, recent surgery/procedure, or recent bleeding symptoms please consult with hematology before starting anticoagulation
- Does patient have history of recent GI bleeding (within last 3 months or without proven healing), active PUD symptoms, unexplained acute drop in hgb $\geq$ 2g from baseline, unstable cirrhosis or baseline INR>1.5? **Recommend GI consultation prior to AC initiation.**

- If patient has a history of peptic ulcer disease (PUD), AVMs, chronic GERD, resolved hemorrhagic gastritis, compensated cirrhosis or chronic NSAID/steroid use then give empiric pantoprazole 40 mg daily upon initiation of any anticoagulation
- Recommend that any patient on antiplatelet therapy and anticoagulation or receiving steroids receive PPI prophylaxis with pantoprazole 40mg daily upon initiation of anticoagulation
- Consider hematology consult if concern for DIC or COVID coagulopathy (as demonstrated by platelets <100, fibrinogen <150, prolonged PT/INR/PTT)
- If patient is on device where parenteral AC may be preferred (ex. ECMO, LVAD, CVVHD), ok to change to desired AC and can consider hematology consult if needed.
- We recommend all patients who cannot tolerate anticoagulation should have SCDs for mechanical thromboprophylaxis.
- Patients with a BMI of < 18 kg/m^2 consult hematology.

COVID-19 Anticoagulation Recommendations: Discharge Planning

For patients without known VTE:

- We do not recommend routine post-discharge thromboprophylaxis for patients without known VTE.

For patients with known VTE:

- Continue therapeutic anticoagulation with either lovenox (at current inpatient dose) or Eliquis 5mg BID for at least 3 months
- Xarelto 20mg daily can be considered if above options not available to patient and CrCl >30ml/min
- Patient can be referred to outpatient hematology clinic to determine duration of anticoagulation

For patients with CrCL < 30 mL/min and on hemodialysis with known VTE please contact hematology for AC recs prior to discharge.

DOACS SHOULD BE AVOIDED ON DISCHARGE IF CHILD-PUGH CLASS B OR C

References:

1. Thachil J, Tang N, Gando S, Falanga A, Cattaneo M, Levi M, Clark C, Iba T. ISTH interim guidance on recognition and management of coagulopathy in COVID-19. Available from: https://onlinelibrary.wiley.com/doi/epdf/10.1111/jth.14810. Accessed April 3, 2020.
2. Hunt B, Retter A, McClintock C. Practical guidance for the prevention of thrombosis and management of coagulopathy and disseminated intravascular coagulation of patients infection with COVID-19. Available from: https://thrombosisuk.org/downloads/T&H%20and%20COVID.pdf. Accessed April 3, 2020.
3. Tang N, Bai H, Chen X, Gong J, Li D, Sun Z. Anticoagulant treatment is associated with decreased mortaligy in severe coronavirus disease 2019 patients with coagulopathy. Available from ISTH Academy. Sun Z. March 23, 2020.
4. Eck R, Bult W, Wetterslev J, Gans R, Meijer K, Keus F, van der Horst I. Intermediate Dose Low-Molecular-Weight Heparin for Thrombosis Prophylaxis: Systemic Review with Meta-Analysis and Trial Sequential Analysis. Semin Thromb Hemos; 45(08): 810-824; 2019.
5. Weitz J, Raskob G, Spyropoulos A, et al. Thromboprophylaxis with Rivaroxaban in Acute Ill Medicla Patients with Renal Impairment: Insights from the MAGELLAN and MARINER Trials. Thromb Haemost; 120: 515-524; 2020.