Catheter-Directed Thrombolysis (CDT) for Deep Vein Thrombosis (DVT) HOSPITALS · RESEARCH · FOUNDATION evaluate for CDT Draw labs: CBC, PT, PTT, fibrinogen, d-dimers, Draw labs: CBC, PT, PTT, fibrinogen, d-dimers, BUN, Cr, UPT, type and cross BUN, Cr, UPT (if not drawn already) Treat per Heme/Onc recommendations with Start therapeutic anticoagulation per Heme recommendations (UFH vs Lovenox) anticoagulation (usual enoxaparin) Consult Interventional Radiology (IR) Reassess need for CDT daily Ensure adequate IV access Admit to 4K -NO Heme and IR? Non-Emergent Emergent Admit to 4K or PICU after Patient to IR suite and then directly to PICU discussion of timing with IR * Transfer patient to PICU Post CDT management by IR³ Post CDT management by Heme/PICU after initiation of CDT Reimage/Venogram In 24 hours Anticoagulation during CDT: PICU Management: Systemic heparin (UFH) 10 units/kg/hr Q6-8hr labs: CBC, continuous infusion fibrinogen (keep plt while tPA infusing (no >50k and fibrinogen bolus) >100) Continue tPA for Repeat aPTT every 48-Q12h: D-dimer another 24hr or 72 hours while on Q24h: Cr switch modalities prophylactic dosing Supportive care² * If DVT present at Goal for aPTT is 40-60 48hr, discuss seconds Compression stockings need for applied by PICU continued CDT Once tPA stopped, ↑ UFH to Decision made to stop therapeutic dosing or discontinue UFH Transfer to Heme or CDT primary service and start enoxaparin per Heme recommendations

¹Indications and Contraindications for CDT



<u>Indications</u>

Symptoms for < 2 weeks PLUS one of the following:

- Upper extremity DVT (not catheter-related), thoracic outlet syndrome or SVC syndrome
- May-Thurner syndrome (Left lower extremity DVT)
- Extensive DVT of lower extremity (IVC to femoral DVT)
- Life or limb threatening thrombosis
- Vascular compromise
- Massive pulmonary embolism (PE) (also consider systemic thrombolysis if any delay in CDT)
 - Sustained systemic hypotension (systolic blood pressure <90 mm Hg) for at least 15 minutes or which requires inotropic support
 - Which is not primarily due to another cause, such as left ventricular dysfunction, sepsis, hypovolemia or an arrhythmia
 - Pulselessness
 - o Persistent and profound bradycardia
 - o Defined by the presence of a heart rate <40 bpm associated with signs of end organ hypoperfusion
- No improvement after 24-48 hr of anticoagulation therapy

Contraindications

- Known tPA allergy
- Any active bleeding (patients will have oozing while receiving tPA at catheter sites, etc)
- Major general surgery within 7-14 days
- CNS ischemia/bleed/neurosurgical procedure within 10-14 days
- Invasive procedure within 3 days
- Seizures within 48h
- Recent, severe trauma
- Inability to correct severe coagulopathy: PTT >2x ULN or INR >1.5, platelet <50k, fibrinogen <100
- Careful consideration in premature infants, hypertension or other risk factors for bleeding

²Supportive Care during CDT

- Monitor closely for bleeding
- No IM injections, urinary catheterization, rectal temps, arterial punctures
- Avoid large dressings over line sites to ensure adequate line site checks
- Minimal patient manipulation (i.e. avoid physical therapy/CPT/bathing/weighing)
- Avoid concurrent use of coumadin, aspirin, other anti-platelet agents
- Neuro checks hourly
- Limb checks (pulses/Doppler/blood pressure) hourly if applicable
- Attention to symptoms suggestive of bleed (headache, mental status changes, abdominal pain/distension, hypotension or tachycardia, etc)
- Expect oozing from line/puncture sites, this is an indication that thrombolysis is occurring and NOT an indication to stop the TPA infusion. Consider topical thrombin/Amicar for mucocutaneous bleeding.
- Anticipate drop of 1-2 g/dl in hemoglobin and 20-50% decline in fibrinogen from baseline

Transfusion Parameters:

- Goal for fibrinogen is 20-50% decrease and d-dimer to rise with adequate therapy. If no change after 24h of tPA, consider transfusion of 10ml/kg FFP to replace plasminogen
- Neonates and infants may need FFP empirically prior to thrombolysis secondary to naturally low levels of plasminogen.
- Transfuse platelets if <50K
- Transfuse cryoprecipitate if fibrinogen <100

³Alteplase (tPA) dosing per IR

- Intraprocedural bolus: 0.6mg/kg (max 10mg)
- Drip: 0.03 -0.06 mg/kg/hr (max 24 mg per 24 hr)