

Inclusion criteria:

- Therapeutic indication for DTI management

Exclusion criteria:

- Prophylactic indication for DTI management (i.e., maintaining patency of arterial or central venous catheters or hemodialysis / extracorporeal circuits)

Patient with indication for intravenous direct thrombin inhibitor (DTI) management

Indications for management:

- Treatment of VTE
- Treatment of arterial thrombosis

Bivalirudin considerations for use

Adverse effects:

- Most common event is bleeding; refer to section below for **management**
- Other: headache, thrombocytopenia, fever

Management of bleeding:

- There is no reversal agent for bivalirudin, but it has a very short half-life (about 25 minutes in patients with normal renal function or up to 60 minutes in patients with severe renal dysfunction (CrCl < 30 mL/min)).
- Discontinuation of the infusion should terminate the anticoagulant effect.

Drug Interactions:

- Increased potential for hemorrhage:
 - Anticoagulants: Heparin, Vitamin K antagonists, direct acting oral anticoagulants
 - Thrombolytic agents: alteplase, streptokinase, urokinase
 - GP IIb/IIIa inhibitors: abciximab, eptifibatide, tirofiban
- Drugs affecting platelet function: aspirin, NSAIDs, dipyridamole, clopidogrel, ticlopidine, cilostazol
- Complementary/alternative medications known to have the potential to increase bleeding risk: garlic, ginger, ginkgo biloba, fenugreek, St. John's Wort

Other Considerations:

- For recommendations regarding transitioning between anticoagulants, contact hematology.

Guidance for holding prior to procedures:

- Hold bivalirudin infusion 2 hours prior to any invasive procedure and restart 12-24 hours post-procedure depending on bleeding risk.

Initiation and Maintenance

- Consult Coagulation Service
- Obtain baseline CBC, PT, aPTT, SrCr
- Initiate bivalirudin infusion:
 - If CrCl > 60 mL/min, start at 0.3 mg/kg/hr
 - If renal dysfunction or increased bleeding risk, start at 0.1 mg/kg/hr
- Adjust rate of infusion to maintain **hPTT*** at 60-90 seconds using [Table 1](#)
 - To place an order for hPTT, order PTT and select line draw and bivalirudin. This will prompt the lab to heparin neutralize the sample.
 - Obtain hPTT level 2 to 4 hours after initiation and every change in infusion rate
 - Obtain hPTT at least daily once in therapeutic range

*Note hPTT is reported in Cerner as Heparin Neutralized aPTT

Monitoring

- Monitor for any signs or symptoms of bleeding. If bleeding is concerning, please discontinue bivalirudin infusion and contact coagulation team to discuss plan of care.
- Note mild prolongation of PT may be expected in addition to PTT
- Total duration of therapy depends on indication for use

Abbreviations:

PT = prothrombin time
 aPTT = activated partial thromboplastin time
 hPTT = heparinase neutralized partial thromboplastin time
 VTE = venous thromboembolism



References:

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