Heparin Advisor: Cardiac Subphase

Heparin Advisor/All BayCare

Transitioning from Another Anticoagulant

Anticoagulant	Recommendation
Enoxaparin (Lovenox) Treatment Dosing	Discontinue enoxaparin and initiate heparin 1 to 2 hours before the next enoxaparin dose would have been due. Omit bolus dose.
Fondaparinux (Arixtra)	Discontinue fondaparinux and initiate heparin 1 to 2 hours before the next fondaparinux dose would have been due. Omit bolus dose.
Dabigatran (Pradaxa)	Discontinue dabigatran and initiate heparin 12 hours after the last dose for CrCl>/= 30 or 24 hours after the last dose for CrCl<30.
Rivaroxaban (Xarelto)	Discontinue rivaroxaban and initiate heparin when the next rivaroxaban dose would have been due (12 hours for 2xdaily dosing or 24 hours for 1xdaily dosing).
Edoxaban (Savaysa)	Discontinue edoxaban and initiate heparin when the next edoxaban dose would have been due (24 hours for 1xdaily dosing).
Apixaban (Eliquis)	Discontinue apixaban and initiate heparin when the next apixaban dose would have been due (12 hours for 2xdaily dosing).

Initial Bolus: 60 units/kg (max 5000 units)

- If patient weighs less than 83.4 kg, use 60 units/kg heparin bolus (rounded to nearest 100 units)
- If patient weighs greater than or equal to 83.4 kg, use MAX INITIAL bolus 5000-units heparin

Initial Infusion Rate: Dependent on whether patient is simultaneously receiving GPIIb/IIIa therapy (eptifibatide (Intergrilin) or tirofiban (Aggrastat)).

Standard Rate (not receiving GPIIb/IIIa inhibitors) – 12 units/kg/hr (max 1000 units/hr)

- If patient weighs less than 83.4 kg, use 12 units/kg/hr heparin drip
- If patient weighs greater than or equal to 83.4 kg, use MAX INITIAL rate 1000 units/hr heparin drip

Lower Intensity Rate (receiving GPIIb/IIIa inhibitors) – 7 units/kg/hr (max 800 units/hr)

- If patient weighs less than 114.3 kg, use 7 units/kg/hr heparin drip
- If patient weighs greater than or equal to 114.3 kg, use MAX INITIAL rate 800 units/hr heparin drip

BayCare Information Services Education

Labs

- Anti-Xa, aPTT and CBC prior to start of therapy
- Anti-Xa/aPTT every 6 hours or 6 hours after each change until 2 consecutive therapeutic Anti-Xa/ aPTT; Anti-Xa/aPTT daily once therapeutic
- CBC without differential performed at minimum q72h while on heparin infusion
- Notify Physician if platelets are less than 100,000 or 50% decrease from baseline

Lab Monitoring Modality (anti-Xa vs. aPTT)

- Default monitoring for heparin drips is **anti-Xa**
- Monitoring switches to **aPTT** if <u>any</u> of the following conditions are present:
    - Baseline anti-Xa > 0.3 IU/mL AND level drawn PRIOR to administering heparin
    - Triglyceride level > 807 mg/dL
    - Total bilirubin level > 100 mg/dL

Heparin Titrations

*Dose titrations are made in either units/kg/hr or units/hr, which is weight-dependent based on the initial infusion rate above.

Adjustments to heparin drips should <u>not</u> be made prior to 4 hours from initiating the heparin infusion or from a previous titration recommendation. Ensure follow-up lab is entered 6 hours from initiating a heparin drip or therapy adjustments.

Anti-Xa	**aPTT level**	**Titration Recommendation**: *Units/kg/hr*	**Titration Recommendation:** *Units/hr*
Less than 0.2	Less than 45	Bolus: 25 units/kg rounded to the nearest 100 units Increase rate by 3 units/kg/hr	Bolus: 25 units/kg rounded to the nearest 100 units Increase rate by (3 units/kg/hr * patient weight (kg)) = _____ units/hr
0.2 to 0.29	45 to 52.9	Increase rate by 2 units/kg/hr	Increase rate by (2 units/kg/hr * patient weight (kg)) = _____ units/hr
0.3 to 0.6	53 to 79	No Change - Therapeutic	No Change - Therapeutic
0.61 to 0.7	79.1 to 87	Decrease rate by 1 units/kg/hr	Decrease rate by (1 units/kg/hr * patient weight (kg)) = _____ units/hr
0.71 to 0.9	87.1 to 103.9	Decrease rate by 2 units/kg/hr	Decrease rate by (2 units/kg/hr * patient weight (kg)) = _____ units/hr

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Anti-Xa	aPTT level	Titration Recommendation: *Units/kg/hr*	Titration Recommendation: *Units/hr*
0.91 to 1	104 to 112	Hold infusion for 1 hour Decrease rate by 3 units/kg/hr	Hold infusion for 1 hour Decrease rate by (3 units/kg/hr * patient weight (kg)) = _____ units/hr
Greater than 1	Greater than 112	Hold infusion for 1 hour Decrease rate by 4 units/kg/hr	Hold infusion for 1 hour Decrease rate by (4 units/kg/hr * patient weight (kg)) = _____ units/hr

Instructions for Heparin Infusions Held for Reason other than aPTT/anti-Xa Levels

Held less than 4 hrs:
1. Confirm with provider prior to resuming heparin.
2. Restart heparin infusion at previous recommended rate prior to being held.
3. Repeat appropriate monitoring (aPTT or anti-Xa) 6 hr after restarting.
4. Resume with *Heparin Advisor* dosing instructions.

Held 4 hrs or more, OR protamine given within last 4 hrs:
1. Confirm with provider prior to resuming heparin.
2. Draw STAT appropriate monitoring (aPTT or anti-Xa) prior to restarting infusion.
3. Restart heparin infusion at previous recommended rate prior to being held. **Important:** Do not wait for STAT monitoring to result prior to resuming heparin drip.
4. Review STAT results:
    - If aPTT less than 39 **OR** anti-Xa less than 0.2, administer heparin 25 units/kg IV bolus once.
    - If aPTT greater than or equal to 39 **OR** anti-Xa greater than or equal to 0.2, continue at current infusion rate.
5. Repeat appropriate monitoring (aPTT or anti-Xa) in 6 hr and resume with *Heparin Advisor* dosing instructions.

Heparin Infusion Held for Surgical Procedure: Provider specifies resume instructions.