Our Lady of the Lake Regional Medical Center

Pharmacy Anticoagulation Stewardship

ECMO HEPARIN NOMOGRAM

FOR USE IN VA AND VV CANNULATION

There are three heparin protocol below based on patient risk of bleeding or clotting.

1. **Heparin protocol with standard Anti-Xa goal (0.3 – 0.5):**
   for patient without high risk of bleeding or high risk of clotting

   Initial Bolus : 10,000 units for cannulation bolus, to be given 3-5 mins prior to cannula insertion.
   Initial Infusion: Start heparin at 10 units/kg/hr and titrate based on Anti-Xa-goal below.
   Anti-Xa Frequency: Order every 4 hours for the first 24 hours after initiation of heparin.

Heparin dosing nomogram with Standard Anti-Xa goal: 0.3 – 0.5			
Anti-Xa level	**Bolus**	**Rate of infusion**	**When to order next Xa level**
< 0.1	Sum of last 1 hour dose	Increase by 4 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.1 – 0.19	No	Increase by 2 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.2 - 0.29	No	Increase by 1 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.3 - 0.5	No	**No change**	4 hours first 24hrs If Xa is in range for 24 hours, repeat Xa every 8 hours.
0.51-0.6	No	Decrease by 1 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.61 – 0.7	No	Decrease by 2 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
>0.7	No	**Hold infusion.** Notify MD. Check AntiXa every 2 hours and resume at decrease rate of 4 units/kg/hr when AntiXa is less than 0.5, then follow protocol.	Once infusion resumed; recheck Anti-Xa in 4 hours, then follow protocol.

2. Heparin protocol with Low Anti-Xa goal (0.2 – 0.3):

for patients with high risk of bleeding

Initial Bolus : 10,000 units for cannulation bolus, to be given 3-5 mins prior to cannula insertion.
Initial Infusion: Start heparin at 10 units/kg/hr and titrate based on Anti-Xa-goal below.
Anti-Xa Frequency: Order every 4 hours for the first 24 hours after initiation of heparin.

Heparin dosing nomogram with low Anti-Xa goal: 0.2 – 0.3			
Anti-Xa level	**Bolus**	**Rate of infusion**	**When to order next Xa level**
< 0.1	Sum of last 1 hour dose	Increase by 3 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.1 – 0.19	No	Increase by 1 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.2 - 0.3	No	**No change**	4 hours first 24hrs If Xa is in range for 24 hours, repeat Xa every 8 hours.
0.31-0.4	No	Decrease by 1 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.41-0.6	No	Decrease by 2 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
>0.6	No	**Hold infusion.** Notify MD. Check AntiXa every 2 hours and resume at decrease rate of 4 units/kg/hr when AntiXa is less than 0.3, then follow protocol.	Once infusion resumed; recheck Anti-Xa in 4 hours, then follow protocol.

3. Heparin protocol with High Anti-Xa goal (0.5 – 0.7):

for patients with high risk of clotting.

Initial Bolus : 10,000 units for cannulation bolus, to be given 3-5 mins prior to cannula insertion
Initial Infusion: Start heparin at 10 units/kg/hr and titrate based on Anti-Xa-goal below.
Anti-Xa Frequency: Order every 4 hours for the first 24 hours after initiation of heparin.

Heparin dosing nomogram with High Anti-Xa goal: 0.5 - 0.7			
Anti-Xa level	**Bolus**	**Rate of infusion**	**When to order next Xa level**
< 0.2	Sum of last 1 hour dose	Increase by 4 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.2 – 0.39	No	Increase by 2 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.4 - 0.49	No	Increase by 1 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.5 - 0.7	No	**No change**	4 hours first 24hrs If Xa is in range for 24 hours, repeat Xa every 8 hours.
0.71-0.8	No	Decrease by 1 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
0.81 – 0.9	No	Decrease by 2 units/kg/hr	4 hours first 24hrs 6 hours after 24 hours
>0.9	No	**Hold infusion.** Notify MD. Check AntiXa every 2 hours and resume at decrease rate of 4 units/kg/hr when AntiXa is less than 0.7, then follow protocol.	Once infusion resumed; recheck Anti-Xa in 4 hours, then follow protocol.

This Nomogram preparation and review information

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