

LEPIRUDIN
Suggested Guidelines for Use
University of Washington Medical Center Dept of Pharmacy

*****FOR PHYSICIAN USE ONLY*****

This is not intended as a nurse-managed protocol

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BACKGROUND:

Lepirudin (recombinant hirudin; Refludan[®]) is a recombinant direct thrombin inhibitor identical to hirudin which is derived from leeches. It is used as an alternative anticoagulant in patients with heparin –induced thrombocytopenia. It has a relatively short half life of 0.8-2 hours. However, it is primarily eliminated by renal excretion and therefore requires significant dosing adjustments in patients with renal impairment. *It is strongly recommended that other DTIs be used in renal impairment.* Like other antithrombotic agents, the primary adverse effect of lepirudin is hemorrhagic complications. Like other direct thrombin inhibitors, there is no antidote for lepirudin.

Lepirudin is monitored using the activated partial thromboplastin time (aPTT). The goal aPTT in seconds has been defined at UWMC/HMC as 60-80 seconds. Alternatively, it can also be monitored with the direct thrombin inhibitor assay available at UWMC/HMC. This assay has a therapeutic range of 90-160 seconds for lepirudin (different for other DTIs). Lepirudin has only minor effects the prothrombin time (PT/INR). A relatively valid INR can be obtained during concurrent warfarin/lepirudin administration.

PRIOR TO ADMINISTRATION

The following baseline information is required before lepirudin can be administered

- a. Baseline aPTT/PT
- b. calculate creatinine clearance [(140-age) x IBW/(72 x serum creatinine)] [x 0.85 in women]

DOSING

1. **use a maximum of 110kg for total body weight**
2. **It is strongly recommended that other DTIs be used in patients with Clcr<60**

Clcr (ml/min)	Bolus Dose (use only in life- or limb-threatening thrombosis)	Initial Infusion Rate
> 60	0.2mg/kg	0.10 mg/kg/hr
45-60	0.1 mg/kg	0.05 mg/kg/hr
30-44	0.1 mg/kg	0.01 mg/kg/hr
15-29	0.1 mg/kg	0.005 mg/kg/hr
< 15	0.05mg/kg	NO INFUSION :Use 0.05mg/kg rebolus prn aPTT < 60

MONITORING

1. first aPTT check: 4 hours after initiation of therapy
2. subsequent aPTT checks
 - qam
 - 4 hrs after any change in dose
 - immediately prior to resuming therapy if infusion has been held
 - at any time if thromboembolism or hemorrhage are suspected
 - after hemodialysis or plasmapheresis

DOSING ADJUSTMENTS

APTT (primary testing)	DTI Assay (alternate testing)	Dosing Adjustment	Written Orders
< 60	< 90	increase infusion rate by 20%	<i>The order must define the dose change in mg/kg/hr and must be calculated by the physician writing the order</i>
60-80	90 - 160	NONE	
> 80	> 160	hold infusion for 2 hours, then restart at 50% lower rate	

