

Heparin Protocol Information Sheet based on Anticoagulation Policy MM-140

Heparin is designated as a High Alert Medication (HAM) at McLaren Flint. Heparin is administered at a standard concentration of 25,000 units/ 250 ml D5W (100 Units/ ml), and has a standardize dosing nomogram.

Laboratory Orders

1. Baseline PT/INR, aPTT, CBC, and serum creatinine if not obtained within 24 hrs prior to initiation of therapy
2. Obtain CBC daily and aPTT daily following dose changes
3. Obtain aPTT 6 hours after initiation of Heparin **and** after any subsequent changes until therapeutic for two consecutive aPTT, then every AM.
4. Monitor platelets. Notify physician if platelets decrease by $\geq 30\%$ from baseline and evaluate for HIT.
5. Monitor for bleeding. Notify physician immediately if bleeding occurs or if two consecutive PTT results in levels greater than 120 seconds

Initial Dosing

1. Heparin will *not* be held in the event there are no baseline labs.
2. Dosing is based on **Actual Body Weight**.
3. Round all bolus doses to the nearest 500 units, and infusion rates to the nearest 50 units/hr.
4. If patients have a therapeutic INR >2.0 OR an elevated aPTT >31 seconds, decrease the initial infusion rate by 30% but continue with the bolus dose as indicated in the protocol

Dosing Nomogram: Initiation of Therapy

INDICATION	WEIGHT	BOLUS DOSE	INITIAL INFUSION RATE	NOTES
Deep Venous Thrombosis (DVT) Pulmonary Embolism (PE) Arterial Embolism	< 125kg	80 units/kg IV	18 units/kg/hour	
<i>Deep Venous Thrombosis (DVT) Pulmonary Embolism (PE) Arterial Embolism</i>	> 125kg	<i>10,000 units IV</i>	<i>2250 units/hr</i>	<i>1. Maximum Bolus Dose = 10,000 units 2. Maximum initial rate = 2250 units/hr</i>
Acute Coronary Syndrome (ACS) Atrial Fibrillation	< 83kg	60 units/kg IV	12 units/kg/hr	
Acute Coronary Syndrome (ACS) Atrial Fibrillation	> 83kg	5,000 units IV	1000 units/hr	1. Maximum Bolus Dose = 5,000 units 2. Maximum initial rate = 1000 units/hr
Acute Coronary Syndrome (ACS) Atrial Fibrillation AFTER Thrombolytics	< 66kg	60 units/kg IV	12 units/kg/hr	
<i>Acute Coronary Syndrome (ACS) Atrial Fibrillation AFTER Thrombolytics</i>	<i>67-83 kg</i>	<i>4,000 units IV</i>	<i>12 units/kg/hr</i>	<i>Maximum Bolus Dose = 4,000 units Maximum initial rate = 1000 units/hr</i>
Acute Coronary Syndrome (ACS) Atrial Fibrillation AFTER Thrombolytics	>83 kg	4,000 units IV	1000 units/hr	<i>1. Maximum Bolus Dose = 4,000 units. 2. Maximum initial rate = 1000 units/hr</i>



PT.

MR.#/P.M.

DR.

Heparin Adjustments based on aPTT Results

1. Standard Bleeding Risk Patients: Goal aPTT 50-70 seconds

PTT	Rebolus or Hold	Rate Adjustment	Recheck PTT
≤ 35	Bolus: 80units/kg	↑ 4 units/kg/hr	6 hrs
36-49	Bolus: 40units/kg	↑ 2 units/kg/hr	6 hrs
GOAL 50-70	NONE	NONE	6 hrs –OR- in AM if 2 consecutive aPTT
71-90	NONE	↓ 2 units/kg/hr	6 hrs
> 90	HOLD 60 minutes	↓ 3 units/kg/hr	6 hrs

2. Higher Bleeding Risk Patients (hepatic dysfunction, elderly Age>65, post-thrombolytic/GP IIb/IIIa inhibitor therapy): Goal aPTT 50-70 seconds

PTT	Rebolus or Hold	Rate Adjustment	Recheck PTT
≤ 35	Bolus: 2000 units	↑ 2 units/kg/hr	6 hrs
36-49	NONE	↑ 2 units/kg/hr	6 hrs
GOAL 50-70	NONE	NONE	6 hrs –OR- in AM if 2 consecutive aPTT
71-90	NONE	↓ 2 units/kg/hr	6 hrs
> 90	HOLD 60 minutes	↓ 3 units/kg/hr	6 hrs

3. Customized Physician-driven aPTT range: Goal aPTT determined by physician

PTT	Rebolus or Hold	Rate Adjustment	Recheck PTT
≥ 15 sec below treatment range	Bolus: 80 units/kg	↑ 1 units/kg/hr	6 hrs
Between 1- 14 sec below treatment range	NONE	↑ 2 units/kg/hr	6 hrs
GOAL RANGE	NONE	NONE	6 hrs -OR- in AM if 2 consecutive aPTT
>1 but ≤ 19 sec above treatment range	NONE	↓ 1 units/kg/hr	6 hrs
> 20 sec above treatment range	HOLD 60 minutes	↓ 3 units/kg/hr	6 hrs