

The Johns Hopkins Hospital

Coronary Care Unit IV Infusion Guidelines



Drug/Restrictions	Usual Conc (Max Conc)	Loading Dose	
Abciximab (Reopro) CCU, Hal5 (post CVDL), CVDL, ED for aMI transferring to CVDL	7.2 mg/250 mL	PTCA/USA/NQWMI/AMI: 0.25 mg/kg	0.125 mcg/kg/min x 12 hours (MAX infusion duration is 24 hours)
Alteplase (Activase, tPA) CCU, CVDL, ED	100 mg/200 mL (100mg/100 mL)	AMI: 15 mg over 1-2 minutes (Consider using reteplase) PE: NA	AMI: 0.75 mg/kg (up to 50 mg) over 30 minutes then 0.5 mg/kg (up to 35 mg) over 1 hour PE: 100 mg over 2 hours Massive PE: 50 mg IVPush over 2 minutes (notify pharmacy for kit)
Aminophylline	1 gm/250 mL	Symptomatic bradycardia associated with IWMI: 5-10 mg / kg over 20 min	NA (maintenance drip is optional): 0.4-0.7 mg/kg/hr)
Argatroban HIT – requires Hematology approval PCI – restricted to interventional Cardiology	250 mg/250 mL	HIT: NA PCI: 350 mcg/kg over 3-5 min (May be repeated at 150 mcg/kg if ACT<300 seconds)	HIT: 2 mcg/kg/min-10 mcg/kg/min (Adjust for hepatic disease) PCI: Initial dose 25 mcg/kg/min (may be titrated by 5 mcg/kg/min with additional boluses of 150 mcg/kg depending on ACT results) Max = 40 mcg/kg/min <i>NOTE: affects aPTT and PT/INR</i>
Amiodarone (Cordarone)	LD: 150 mg/100 mL MD: 450 mg/250 mL	Stable VT: 150 mg IV over 10 minutes Pulseless VT/VF: 300 mg IV Push (UNFILTERED/UNDILUTED), may repeat 150 mg	Stable VT & Pulseless VT/VF: 1 mg/min for 6 hours then 0.5 mg/min; begin PO load ASAP
Bivalirudin (Angiomax) CVDL	250 mg/50 mL	PCI: 0.75 mg/kg (withdrawn from bag)	IF Cr Cl > 60 mL/min: 1.75 mg/kg/hr IF Cr Cl 30-59 mL/min: 1.4 mg/kg/hr IF Cr Cl 10-29 mL/min: 0.7 mg/kg/hr IF Dialysis-dependant: 0.18 mg/hr/hr
Diltiazem (Cardizem)	125 mg/125 mL (300 mg/100 mL)	0.25 mg/kg over 2 min; may repeat 0.35 mg/kg in 15 min.	5-15 mg/hr
Dobutamine (Dobutrex)	500 mg/250 mL (1000 mg/250 mL)	Titrate	2-25 mcg/kg/min
Dopamine (Inotropin)	400 mg/250 mL (800 mg/250 mL)	Titrate	Renal dose: 0.5-3 mcg/kg/min Beta-1 effects: 3-10 mcg/kg/min Alpha-1 effects: 10-25 mcg/kg/min
Drotrecogin alfa (activated protein C, Xigris) All ICUs/MPC4 Form must be filled out by ICU fellow or attending	<63kg then 10 mg/50 mL 63-82kg then 15 mg/100mL ≥ 83 kg then 20 mg/100 mL	NA	24 mcg/kg/hr x 96 hours (MAX infusion duration is 96 hours) Dose must be written in mcg/hr based on the current weight of the patient. Must write an order to d/c 2 hrs prior to any invasive procedure.
Epinephrine	3 mg/250 mL (10 mg/250 mL)	Titrate	Beta: 0.015-0.03 mcg/kg/min Alpha & Beta: 0.03-0.15 mcg/kg/min Alpha: >0.15 mcg/kg/min MAX: 1 mcg/kg/min
Eptifibatid (Integrilin) CCU, CCP, CVDL, Hal5. May not be initiated in ED.	Bolus vial: 2 mg/ml Infusion bottle: 75 mg/100 ml	USA/NQWMI: IF Cr<2, 180 mcg/kg; IF Cr≥2, 180 mcg/kg PCI: 180 mcg/kg q 10 minutes x 2 doses	IF Cr<2, 2 mcg/kg/min IF Cr≥2 and <4, 1 mcg/kg/min
Esmolol (Brevibloc) CCU	2.5 gm/250 mL (7.5 gm/250 mL)	Step 1: 500 mcg/kg over 1 minute, then 50 mcg/kg/min for 4 min.	Step 2: Bolus 500 mcg/kg over 1 minute, then 100 mcg/kg/min for 4 minutes Step 3: Bolus 500 mcg/kg over 1 minute, then 150 mcg/kg/min for 4 min (May continue steps as above to max of 300 mcg/kg/min)
Fentanyl (Sublimaze)	2500 mcg/250 mL	20-50 mcg slowly IVP over at least 3 minutes	20-50 mcg/hr; rebolus with hourly rate dose and increase q30 minutes by 20-30% prn
Furosemide	100 mg/100 mL D5W (500 mg/50 mL)	NA	10-160 mg/hr
Heparin	25,000 Units/250 mL	Low Dose: See protocol Standard Dose: See protocol	Low Dose: 15 units/kg/hr (MAX=1200 units/hr) Standard Dose: 18 units/kg/hr (MAX=1600 units/hr) See heparin protocol for adjustments

Drug/Restrictions	Usual Conc (Max Conc)	Loading Dose	Maintenance Dose
Insulin	100 units/100mL	NA	1-10 units/hour (base on dexis)
Labetalol (Normodyne)	500 mg/200 mL (750 mg/200 mL)	20 mg IVP over 2 minutes	0.5 –2 mg/min MAX = 6 mg/min
Lepirudin (Refludan) NOTE: requires hematology approval or interventional Cardiology for PCI	100 mg/250 mL	0.4 mg/kg (Adjust for renal insufficiency)	0.15 mg/kg/hr (Adjust for renal insufficiency)
Lidocaine (Xylocaine)	2 gm/250 mL	1-1.5 mg/kg up to 3 mg/kg	1-4 mg/min
Lorazepam (Ativan)	10 mg/100 mL (40 mg/250 mL)	1-2 mg IVP q 10-15 minutes to desired level of sedation	0.5 mg/hr; rebolus qhr prn and increase rate by 0.5-2 mg/hr q 60 min up to 10 mg/hr
Milrinone (Inocor)	20 mg/100 mL (40 mg/100 mL)	50 mcg/kg over 10 minutes	0.2 mcg/kg/min-0.75 mcg/kg/min (Adjust for renal insufficiency)
Midazolam (Versed)	100 mg/100 mL (250 mg/50 mL)	1-2.5 mg q 5min to desired level of sedation	1-2 mg/hr; rebolus qhr prn and increase rate 1-4 mg/hr q 30 minutes up to 20 mg/hr
Nesiritide (Natrecor) CCU, CCP, MICU, CSICU, SICU, and Hal5 (fixed regimen ONLY)	1500 mcg/250 mL	2 mcg/kg over 1 minute	Fixed regimen: 0.01 mcg/kg/min Adjustable regimen: 0.01 mcg/kg/min, q 3 hours may increase by 0.005 mcg/kg/min with a 1-mcg/kg bolus before each increase. MAX=0.03 mcg/kg/min
Nicardipine (Cardene)	25 mg/250 mL (50 mg/100 mL-Central Line only)	NA	5 mg/hr; titrate by 2.5 mg/hr q5-15 minutes; MAX: 15 mg/hr
Nitroglycerin	100 mg/250 mL	NA	5-400 mcg/min
Nitroprusside (Nipride) CCU, CVDL only	50 mg/100 mL in D5W (100 mg/100 mL D5W)	NA	0.15-10 mcg/min
Norepinephrine (Levophed) CCU	8 mg/250 mL (32 mg/100 mL)	NA	1-50 mcg/min MAX=1.5 mcg/kg/min
Octreotide (Sandostatin)	500 mcg/250 mL (1000 mcg/250 mL)	25-50 mcg	25-50 mcg/hr
Pantoprazole (Protonix)	80 mg/100 mL	80 mg over 30 minutes	Non-variceal GI Bleed: 8 mg/hr (MAX duration of infusion is 72 hours)
Phenylephrine (Neosynephrine) CCU	10 mg/100 mL (200 mg/270 mL)	NA	0.5-9 mcg/kg/min or 6-400 mcg/min
Procainamide (Pronestyl)	2 gm/270 mL	20 mg/min up to 17 mg/kg (Usually 1000 mg)	1-4 mg/min
Tirofiban (Aggrastat) CCU, CCP, CVDL, Hal5	12.5 mg/250 mL	USA/NQWMI: IF CrCl >30 mL/min, 0.4 mcg/kg/min x 30 min; IF CrCl < 30 mL/min, 0.2 mcg/kg/min x 30 min PTCA: IF Cr>30 mL/min, 10 mcg/kg over 3 min; IF CrCl < 30 mL/min, 5 mcg/kg over 3 min. NOTE: IF Cr >4 or dialysis dependant, consider abciximab	USA/NQWMI IF CrCl >30 mL/min, 0.1 mcg/kg/min 24-72 hrs IF CrCl <30 mL/min, 0.05 mcg/kg/min 24-72 hrs PTCA: IF CrCl >30 mL/min, 0.15 mcg/kg/min 18-24 hours post PCI IF CrCl <30 mL/min, 0.07 mcg/kg/min 18-24 hours post PCI NOTE: IF Cr >4 or dialysis dependant, consider abciximab
Vasopressin (Pitressin)	50 units/100 mL	Pulseless VT/VF: 40 Units IVP X 1 Vasodilatory Shock: NA	Vasodilatory shock: 0.02-0.1 units/min