



RN Orientation Manual - 2024

Select Medications Pertinent to CVICU Patients

Vasopressors/Inotropes

| Vasopressors | α | β | D | V1/V2 |
|------------------|-----------------------------------|-----------------|----------------|-------|
| Epinephrine | ++ | ++++ | | |
| Norepinephrine | ++++ | ++ | | |
| Phenylephrine | ++++ | | | |
| Dopamine | >10 mcg/kg/min | 5-10 mcg/kg/min | 1-3 mcg/kg/min | |
| Vasopressin | | | | ++++ |
| Inotropes | | | | |
| Dobutamine | + | ++++ | | |
| Isoproterenol | | ++++ | | |
| Milrinone | PDE-III → increased cAMP and cGMP | | | |

Post-op Vasoplegia

Methylene Blue → inhibits NO synthase and soluble guanylate cyclase

- Avoid/monitor patients with liver dysfunction
- Blue discoloration of skin/body fluids (can affect pulse ox)

Hydroxocobalamin (Vitamin B12, Cyanokit) → mechanism involves NO system vs H₂S induced vasodilation

- High cost
- Red discoloration of skin/body fluids (can affect HD, aPTT, Hgb, SCr)

Post-op Bleeding

KCentra → factors II, VII, IX, and X along with Protein C and S, both extrinsic and intrinsic

- Does contain heparin
- Each dose is about 500 units, can repeat up to a total dose of about 1000 units

Novo7 → recombinant fact VIIa, extrinsic coagulation pathway activation leading to conversion from prothrombin to thrombin

DDAVP → increased von Willebrand factor, factor VIII, and t-PA, shortens aPTT and bleeding time

- Can cause hypotension

TXA → displaces plasminogen from fibrin, inhibits fibrinolysis

IV Anticoagulants (other than Heparin)

Argatroban/Bivalirudin (Angiomax) → direct thrombin inhibitors

- Options for HIT/heparin allergy
- Both effect INR
- Bivalirudin requires renal adjustment
- Argatroban requires renal and hepatic adjustment (and is cheaper)



Antihypertensives

Nicardipine/Clevidipine → DHP CCB

- Concern for shunting (aka V/Q mismatch)
- Quicker titration with clevidipine, but more expensive and 20% fat emulsion

Nitroglycerine/Nitroprusside → NO increases cGMP

- Nitroglycerine exhibits vasodilatory effect primarily on venous smooth muscle, primarily reduces preload, can build tolerance/require high doses
- Nitroprusside exhibits vasodilatory effect on both venous and arteriolar smooth muscle, decreases afterload, cyanide toxicity at high doses for extended periods of time (metabolic acidosis, tinnitus)

Esmolol/Labetalol → Beta Blocker

- Most commonly seen for aortic dissection
- Esmolol selective for β_1 (reduce heart rate before reducing BP)
- Labetalol $\beta:\alpha$ ratio 3:1 PO and 7:1 IV

Epoprostenol → Prostaglandin, strong vasodilator, inhibit PLT aggregation via increased cAMP within PLT

- Localized action alleviates concern for shunting
- Useful for post-op pHTN, RV dysfunction, or refractory hypoxemia

Liothyronine (T3)/Levothyroxine (T4) → increased HR + contractility = increased CO, decreased SVR, increased blood volume and preload

- Can be used for additional inotropic support after CT surgery when refractory to standard inotropic therapy
- Limited availability of liothyronine
- Not recommended for patients with hyperthyroidism