Dopamine Hydrochloride[3,72,74]

Indications: Poor cardiac contractility

Dose: 5 to 20 micrograms per kg per minute (mcg/kg/minute)

Route: IV continuous infusion (IV pump)

⚠ Do not give via any arterial route (umbilical or peripheral artery) or through an endotracheal tube.

Table 4.3. Dopamine dose and effect.[9]

Dosage	Receptors	Effect
0.5 to 2 mcg/kg/min	Dopaminergic (stimulation of dopaminergic receptors)	Renal and mesenteric vasodilatation; little effect on blood pressure
2-10 mcg/kg/min	Beta-adrenergic (beta$_1$ receptors activated)	Increase in cardiac output and systolic blood pressure
Greater than 10 mcg/kg/min	Alpha-adrenergic (alpha receptors activated)	Vasoconstriction; increased systolic and diastolic blood pressure

Dopamine Dosing for Newborns

How to Calculate a Final Standardized Concentration of 800 Micrograms per mL IV Fluid

In some practice settings, nurses and physicians may have limited experience in administering dopamine. In recognition of this, the S.T.A.B.L.E. Program recommends the use of a final dopamine infusion concentration that is relatively dilute. That dilution is explained in this section. More concentrated solutions are usually provided in the neonatal intensive care unit.

Step 1: Select the pre-mixed dopamine solution as described in Option one, or mix the solution as described in Option two.

Option One

Use this option when a commercially-prepared pre-mixed dopamine drip solution with a final concentration of 800 micrograms (mcg) per milliliter (mL) in D_5W **IS** available.

- Please note, this solution is mixed in D_5W. Monitor the infant's blood glucose closely and adjust the maintenance dextrose infusion (concentration and/or rate) as necessary to maintain a normal blood sugar.
- To determine the appropriate rate, go to Step 2 on page 213. Rules for dopamine infusion may be found on page 214.
- Always administer dopamine using an infusion pump.

Option Two

Use this option when a commercially prepared pre-mixed dopamine solution IS NOT available.

Mix the dopamine drip as follows:

1. Select a dopamine vial containing dopamine 40 milligrams (mg) per mL.
2. From this vial draw up 5 mL (or 200 mg) of dopamine.
3. Add this amount (5 mL or 200 mg of dopamine) to a 250 mL bag of $D_{10}W$.
4. This will provide a dopamine concentration of 800 mcg per mL of IV fluid (or 200 mg per 250 mL IV fluid).
5. Label the IV bag with the following: This 250 mL bag of $D_{10}W$ contains 800 mcg dopamine per mL IV fluid.
6. Always administer dopamine using an infusion pump.

Step 2: Using the graph, select the infusion rate.

1. Find the **patient's weight** in the first column marked **Weight in kg**. Round up or down as needed if the weight is in between the 0.5 kilogram increments.
2. Read across the row to the ordered infusion dose in mcg/kg/min.
3. Result = infusion pump setting in **mL/hr**.

⚠ Double check all calculations and reconstitution with another nurse or physician before administering dopamine to the infant.

Ordered Dose (mcg/kg/min)
Using a dopamine solution containing 800 mcg per mL of IV fluid

Weight In kg	5 mcg/kg/min	7.5 mcg/kg/min	10 mcg/kg/min	12.5 mcg/kg/min	15 mcg/kg/min	17.5 mcg/kg/min	20 mcg/kg/min
0.5 kg	0.2 mL/hr	0.3 mL/hr	0.4 mL/hr	0.5 mL/hr	0.6 mL/hr	0.7 mL/hr	0.8 mL/hr
1 kg	0.4 mL/hr	0.6 mL/hr	0.8 mL/hr	1 mL/hr	1.1 mL/hr	1.3 mL/hr	1.5 mL/hr
1.5 kg	0.6 mL/hr	0.8 mL/hr	1.1 mL/hr	1.4 mL/hr	1.7 mL/hr	2 mL/hr	2.3 mL/hr
2 kg	0.8 mL/hr	1.1 mL/hr	1.5 mL/hr	1.9 mL/hr	2.3 mL/hr	2.6 mL/hr	3 mL/hr
2.5 kg	1 mL/hr	1.4 mL/hr	1.9 mL/hr	2.3 mL/hr	2.8 mL/hr	3.3 mL/hr	3.8 mL/hr
3 kg	1.1 mL/hr	1.7 mL/hr	2.3 mL/hr	2.8 mL/hr	3.4 mL/hr	3.9 mL/hr	4.5 mL/hr
3.5 kg	1.3 mL/hr	2 mL/hr	2.6 mL/hr	3.3 mL/hr	3.9 mL/hr	4.6 mL/hr	5.3 mL/hr
4 kg	1.5 mL/hr	2.3 mL/hr	3 mL/hr	3.8 mL/hr	4.5 mL/hr	5.3 mL/hr	6 mL/hr
4.5 kg	1.7 mL/hr	2.5 mL/hr	3.4 mL/hr	4.2 mL/hr	5.1 mL/hr	5.9 mL/hr	6.8 mL/hr
5 kg	1.9 mL/hr	2.8 mL/hr	3.8 mL/hr	4.7 mL/hr	5.6 mL/hr	6.6 mL/hr	7.5 mL/hr

Note: some rounding has occurred to simplify the infusion rate.

If a pre-mixed dopamine solution is not available, place the following items in a plastic bag or container and keep with emergency medications:

250 mL bag of $D_{10}W$

5 mL syringe

Dopamine hydrochloride 40 mg/mL solution (5 ml vial = 200 mg)

This instructional information