

## Calculation for dose of Dopamine & Dobutamine

### How to give Dopamine

1 ml of commercially available contains 40 mg of dopamine. In a baby weighing 2.5 kg if we want to start dopamine at a rate of 10 mcg/kg/min:

$$=10 \times 2.5 = 25 \text{ mcg/min} = 25 \times 60 = 1500 \text{ mcg/hour} = 1500 \times 24 = 36000 \text{ mcg/day}$$

$$=36 \text{ mg of dopamine in 24 hours}$$

It means if we add 0.9 ml of dopamine in 24 ml of fluid and give @ rate of 1 ml/hr with syringe pump or 1 microdrops per min (which is virtually impossible) with the micro drip set, we will give dopamine @ 10 mcg/kg/min.

### Increment

If we want to increase dopamine to 15 mcg/kg/min then give the same fluid @ 1.5 ml/hr

**The above method is to give a separate infusion of Dopamine, however it could also be added to 24 hours fluid as explained below:**

e.g. 2.5 kg neonate in shock with a fluid requirement of 100 ml/kg/day, has received 2 fluid boluses of 10 ml/kg of normal saline, without any improvement. Plan is **Total Fluid needed for this baby in 24 hours =  $100 \times 2.5 = 250 \text{ ml/day}$ .**

Fluid to be given every 8 hours = 85 ml. Let us learn how much dopamine to be added in 8 hours fluid i.e. 85ml to be given at a rate of 10 mcg/kg/min.

$$\text{Amount of dopamine required in one minute} = 10 \times 2.5 = 25 \text{ mcg}$$

$$\text{Amount of dopamine required in one hour} = 25 \times 60 = 1500 \text{ mcg}$$

$$\text{Amount of dopamine required in 8 hours} = 1500 \times 8 = 12000 \text{ mcg} = 12.0 \text{ mg}$$

$$1 \text{ ml of available dopamine preparation} = 40 \text{ mg of dopamine}$$

To make 12 mg of dopamine we need 0.3 ml, add this volume to 85 ml of fluid and give over 8 hours at a rate of 10 ml/hour or at a rate of 10 micro drops/min with a burette set, which will deliver dopamine at a rate of 10 mcg/kg/min

## How to give Dobutamine

1 ml of commercially available contains 25 mg of dobutamine. In a baby weighing 3.75 kg if we want to start dobutamine at a rate of 10 mcg/kg/min:

$$=10 \times 3.75 = 37.5 \text{ mcg/min} = 37.5 \times 60 = 2250 \text{ mcg/hour} = 2250 \times 24 = 54000 \text{ mcg/day}$$

=54 mg of dobutamine in 24 hours

It means if we add 2.2 ml of dobutamine in 24 ml of fluid and give @ rate of 1 ml/hr with syringe pump or 1 microdrops per min (which is virtually impossible) with the micro drip set, we will give dobutamine @ 10 mcg/kg/min

## Increment

If we want to increase dobutamine to 15 mcg/kg/min then give the same fluid @ 1.5 ml/hr

**The above method is to give a separate infusion of Dobutamine, however it could also be added to 24 hours fluid as explained below:**

e.g. 3.75 kg neonate in shock with a fluid requirement of 100 ml/kg/day, has received 2 fluid boluses of 10 ml/kg of normal saline, without any improvement. Plan is **Total Fluid needed for this baby in 24 hours=100x3.75=375ml/day**

Fluid to be given every 8 hours = 125 ml. Let us learn how much dobutamine to be added in 8 hours fluid i.e. 125ml to be given at a rate of 10 mcg/kg/min

Amount of dobutamine required in one minute =  $10 \times 3.75 = 37.5$  mcg

Amount of dobutamine required in one hour =  $37.5 \times 60 = 2250$  mcg

Amount of dobutamine required in 8 hours =  $2250 \times 8 = 18000$  mcg = 18 mg

1 ml of available dobutamine preparation = 25 mg of dobutamine

To make 18 mg of dobutamine we need 0.7 ml, add this volume to 125 ml of fluid and give over 8 hours at a rate of 15 ml/hour or at a rate of 15 micro drops/min with a burette set, which will deliver dobutamine at a rate of 10 mcg/kg/min