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 x 2.5 = 25 mcg/min=25x60=1500 mcg/hour=1500x24=36000 mcg/day

=36 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 = 100x2.5 = 250 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. 85 ml to be given at a rate of 10 mcg/kg/min.

Amount of dopamine required in one minute = 10x2.5 = 25 mcg

Amount of dopamine required in one hour = 25x60 = 1500 mcg

Amount of dopamine required in 8 hours = 1500x8 = 12000 mcg = 12.0 mg

1 ml of available dopamine preparation = 40 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 x 3.75 = 37.5 mcg/min=37.5x60=2250 mcg/hour=2250x24=54000 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 = 10x3.75=37.5 mcg

Amount of dobutamine required in one hour=37.5x60=2250 mcg

Amount of dobutamine required in 8 hours = 2250x8=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