MEG Demo (Staff App) - MEG Demo - MEG Staff app: Adrenaline for Neonatal Resuscitation

ADRENALINE FOR NEONATAL RESUSCITATION

Indications for use

Adrenaline (Epinephrine) is a potent stimulator of both alpha and beta adrenoreceptors, increasing both heart rate and contractility (beta $_1$ effects), peripheral vasodilation (beta $_2$ effect) and vasoconstriction (alpha effect) . The lower the dose, the more beta effects with systemic and pulmonary vasodilation. The higher the dose, the more alpha effect causing intense systemic vasoconstriction. It is used in acute cardiovascular collapse, mainly for its inotropic action. It is also used to treat systemic hypotension.

Medication safety issues

- Adrenaline/EPINEPhrine, can be confused with ePHEDrine.
- Different concentrations of Adrenaline are available (1:10,000-0.1 mg/ml), (1:1,000-1 mg/ml)■.

Dose for resuscitation (Adrenaline 1:10,000 pre-filled syringe -0.1 mg/ml-)

IV : 0.1 - 0.3 ml/kg (equivalent to 0.01 - 0.03 mg/kg) of 1:10,000 Adrenaline Minijet by IV push followed by 0.5 to 1 ml flush with NaCl 0.9%.

Via ETT (only while awaiting emergency IV access): 0.5 - 1 ml/kg (equivalent to 0.05 - 0.1 mg/kg) of 1:10,000 Adrenaline Minijet. Because of the higher dose administered endotracheally, a large volume of fluid is administered into the endotracheal tube. Administration should be followed with several positive pressure breaths to distribute the drug throughout the lungs for absorption. There is no need to follow the ET dose with a NaCl 0.9% flush.

Presentation

Adrenaline 1:10,000 prefilled syringe (100 microgram/ml).

Preparation

Draw up volume required from pre-filled syringe. Use 1 ml syringe for IV dose and 3 or 5ml for ETT dose.

Administration

IV : Rapid push, preferably into a large central vein followed by Sodium Chloride 0.9% flush. Repeat every 3 - 5 minutes as required.

Via ETT : Rapid push followed by several positive pressure breaths.

Monitoring

Monitor heart rate, rhythm and blood pressure, blood glucose , urinary output, U&E , limb perfusion and IV site.

Side Effects

Tachycardia, tremor, dyspnoea, hyperglycaemia, tissue necrosis . In higher doses arrhythmias, hypertension, cerebral haemorrhage, pulmonary oedema, hypokalaemia and severe metabolic acidosis may occur.

Incompatibilities

Compatible with amiodarone, caffeine citrate, calcium gluconate, dobutamine, dopamine, heparin, hydrocortisone, milrinone, noradrenaline, potassium chloride, standard TPN (aqueous phase only), vasopressin.

Compatible with fentanyl, midazolam and morphine but only if both drugs are mixed with glucose 5%.

Compatible with furosemide and insulin but only if both drugs are mixed with sodium chloride 0.9%.

Incompatible with blood products, parenteral nutrition (lipid phase), prostin, lignocaine, sodium bicarbonate, phenobarbitone or other alkaline solutions.

Notes

Adrenaline should not be given intra-arterially because marked vasocontriction may result in gangrene.

Reviewed by David Fitzgerald and Montse Corderroura. March 2021.