

DOPamine

Classification

Sympathomimetic alpha- and beta-agonist

Dopaminergic agonist

Indications

- CCP: Symptomatic hypotension in the absence of hypovolemia (e.g., cardiogenic shock, bradycardia, sepsis, renal failure)
- CCP: Post-cardiac arrest hypotension

Contraindications

- Known or suspected pheochromocytoma
- Tachydysrhythmias
- Patients taking mono-amine oxidase inhibitors (extreme caution required)

Adult dosages

- CCP: All indications
- 2 mcg/kg/min IV: dopaminergic effects
- 5-10 mcg/kg/min IV: beta effects
- 10-20 mcg/kg/min IV: alpha effects
- For the treatment of hemodynamically unstable patients, the dose range is 5-20 mcg/kg/min
- Titrate DOPamine in increments of 2-5 mcg/kg/min every 2-5 minutes to effect

Pediatric Considerations And Dosing

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Mechanism Of Action

DOPamine's activity is dose-dependent: low doses result in renal, mesenteric, and cerebral vasodilation, improving urine output (and are very unlikely to be used in prehospital care). Medium doses provoke beta stimulation, increasing heart rate and contractility. At high doses, alpha effects dominate, producing systemic vasoconstriction.

Pharmacokinetics

Intravenous:

- Onset: 2-5 minutes
- Peak: Unknown
- Half-life: 2 minutes

- Duration: less than 10 minutes

Adverse Effects

The most serious adverse effects of DOPamine are ventricular arrhythmias and atrial fibrillation.

Extravasation is a significant risk: sloughing and tissue necrosis has been reported from these events. Ensure the IV line is patent and secure prior to administering DOPamine.

Overdose

Overdosage of DOPamine is associated with excessively elevated blood pressures. Reduce the rate of administration, or temporarily discontinue infusion until the patient's condition is stable. DOPamine's duration of action is relatively short; it is unlikely additional management measures will be required. For protracted overdose situations, consider the use of alpha-adrenergic antagonist agent (phentolamine) for management of hypertension.

Warning And Precautions

Do not administer DOPamine to patients with uncorrected tachydysrhythmias or ventricular fibrillation. DOPamine must not be diluted with alkaline solutions. Use with extreme caution in patients taking monoamine oxidase inhibitor medications; substantially smaller doses will be required to achieve the same clinical effects.

Drug Interactions

See Warnings and Precautions for details on co-administration with monoamine oxidase inhibitors.

