15. DOPAMINE HYDROCHLORIDE (INTROPIN®) (JURISDICTIONAL OPTION ONLY WHEN APPROVED BY THE STATE EMS MEDICAL DIRECTOR - NEW '20)

a) Pharmacology

(1) Alpha and beta adrenergic receptor stimulator
(2) Dopaminergic receptor stimulator
(3) Precursor of norepinephrine
(4) At low doses, less than 2 **mcg**/kg/min
  (a) Dilates renal and mesenteric blood vessels
  (b) Venoconstricts
  (c) Arterial resistance varies
(5) At moderate doses, 2–6 **mcg**/kg/min beta1 stimulating effect on heart
  Results in increased cardiac output
(6) High dose, 6–10 **mcg**/kg/min
  Exhibits alpha1 effects; peripheral vasoconstriction including renal and mesenteric vessels, increases left and right ventricular preload
(7) Doses greater than or equal to 10 **mcg**/kg/min
  Alpha1 stimulating effects may reverse mesenteric and renal artery dilatation resulting in decreased blood flow, causing increased preload due to effects on venous system

b) Pharmacokinetics

(1) Extremely rapid onset of action
(2) Extremely brief duration of action
(3) The rate of administration may be used to control the effect of dopamine.

c) Indications

(1) Cardiogenic shock
(2) Septic shock
(3) Anaphylactic shock
(4) Hypovolemic shock (after sufficient volume replacement)

d) Contraindications

(1) Preexisting tachydysrhythmias
(2) Uncorrected hypovolemia

e) Adverse Effects

(1) Anginal pain
(2) Tachydysrhythmias
(3) Nausea and vomiting
(4) Hypertension
(5) Undesirable degree of vasoconstriction

f) Precautions

(1) Extravasation should be reported to the hospital staff on arrival.
(2) Patients receiving monoamine oxidase (MAO) inhibitors are extremely sensitive to the effects of dopamine and should receive a much lower dosage than is usually given.
(3) Patients with pheochromocytoma are extremely sensitive to dopamine and may develop profound hypertension in response to minimal doses.

g) Dosage

(1) For IV/IO infusion only. The preferred route of administration is IV.
(2) In general, the infusion rate is adjusted to blood pressure and clinical response.
(3) Adult: Administer 2–20 **mcg**/kg/min IV drip titrated to BP of 100 systolic or medical consultation selected BP; initial infusion rate 2–5 **mcg**/kg/min
(4) Pediatric: Administer 2–20 **mcg**/kg/min IV drip titrated age specific BP or medical consultation selected BP; initial infusion rate is 2 **mcg**/kg/min