Epinephrine

Epinephrine is a direct sympathomimetic that is used for treatment of hypotension, anaphylaxis, and open angle glaucoma. It is most commonly administered intravenously, and is metabolized extensively by the liver prior to excretion. It increases heart rate and systolic blood pressure and acts on α and β adrenergic receptors.



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Mechanism of Action

Alpha Agonist

Afro Dragonist

Epinephrine is an α agonist that has several pharmacologic effects. It acts on α₁ adrenergic receptors to constrict smooth muscle of resistance blood vessels, such as those in the skin and splanchnic beds, causing increased peripheral resistance and venous return.

Beta Agonist

Beta-fish Dragonist

Epinephrine acts on both β₁ and β₂ adrenergic receptors and acts to increase heart rate and contractility. Furthermore, it increases lipolysis and renin release, while causing vasodilation. Drugs acting on β receptors also decrease uterine tone.

Indications

Hypotension

Hippo-BP

Epinephrine is indicated for hypotension, as it increases systolic pressure as a result of positive inotropic and chronotropic effects on the heart. At high doses, it may cause vasoconstriction within skeletal muscle vasculature.

Anaphylaxis

Anvil-axes

This drug is used during anaphylactic shock and asthma attacks because of its vasoconstrictive effects, reversing angioedema and hypotension. Stimulation of β₂ receptors causes bronchodilation as well as increasing intracellular cyclic adenosine monophosphate production in mast cells and basophils, reducing release of inflammatory mediators.

Allergy

Allergy-alligator

Patients with allergies undergoing immunotheraphy may be administered epinephrine to reduce possible immune response to the allergen.

Glaucoma

Glock-eye

Epinephrine acts in the eye as a less selective alpha agonist and decreases aquous humor production through vasoconstriction of ciliary body blood vessels. This decreases ocular pressure in open-angle glaucoma.Note: Epinephrine should NOT be used in closed-angle glaucoma.

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