Alpha Agonists

? agonists include norepinephrine, phenylephrine, ephedrine, and epinephrine. These drugs can be remembered by ending with the suffix, "rine." They all have different effects on ? receptors and have varied indications. Norepinephrine is a catecholamine used to treat hypotension, which also has effects in treating attention disorders and depression. Phenylephrine is a drug used to treat hypotension without chronotropic or inotropic effects, which can also be used for rhinitis. Ephedrine is a drug which can treat urinary incontinence, and has use as a decongestant and vasopressor. Epinephrine is a catecholamine which is helpful in anaphylaxis and asthma, which is also used to increase blood pressure.



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-RINE suffix
Watermelon Rind
These drugs can be recalled by their nomenclature, which has a "rine" suffix: epinephrine, norepinephrine, ephedrine, pseudoephedrine, and phenylephrine.

Norepinephrine
North-epi-pen
Norepinephrine is a catecholamine and ?1, ?2 agonist with some ?1 activity. It is primarily indicated for acute hypotension, especially in septic shock.

Hypotension
Hippo-BP
Norepinephrine raises blood pressure primarily through ?1-mediated vasoconstriction while providing modest ?1 support to cardiac output. In septic shock, it does not inherently decrease renal perfusion; instead, by restoring mean arterial pressure, norepinephrine often preserves or improves renal blood flow and kidney function, depending on volume status and overall hemodynamics.

Septic Shock
Shocking Sepsis-snake
Norepinephrine is a first-line vasopressor used in septic shock to rapidly increase blood pressure. It acts primarily as an ?1 agonist, causing peripheral vasoconstriction, and has some ?1 activity, which supports cardiac output. This combination raises mean arterial pressure without significantly increasing heart rate, helping to maintain organ perfusion in critically ill patients.

Phenylephrine
Phoenix-apron
Phenylephrine is a selective ?1 agonist that is indicated for use as a decongestant, vasopressor, and mydriatic.

Hypotension
Hippo-BP
Phenylephrine is a selective ?1-adrenergic agonist that increases blood pressure through peripheral vasoconstriction. It is not recommended as a first-line vasopressor in septic shock and is not equivalent to norepinephrine, as it lacks ?1 activity and may reduce stroke volume. Its use is reserved for specific situations, such as septic shock with significant tachyarrhythmias where ?-adrenergic stimulation is undesirable.

Congestion
Stuffed-nose
It is used orally or intranasally to treat nasal congestion by vasoconstricting the nasal mucosa.

Ephedrine
F-head
Ephedrine is an indirect sympathomimetic that releases stored catecholamines. It is used to treat hypotension, urinary incontinence, and nasal congestion.

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Congestion
Stuffed-nose
Ephedrine is commonly used as a decongestant via ?1-mediated vasoconstriction.

Urinary Incontinence
Urine In-continents
Ephedrine improves urinary continence by increasing urethral sphincter tone through ?1 receptor activation.

Hypotension
Hippo-BP
Ephedrine is commonly used to treat hypotension, and administration is often seen in surgical or obstetric procedures.

Epinephrine
Epi-pen
Epinephrine is a catecholamine agonist at ?1, ?2, ?1, and ?2 receptors. It is used for anaphylaxis, asthma, and hypotension.

Anaphylaxis and Asthma
Anvil-ax and Asthma-inhaler
In anaphylaxis, epinephrine vasoconstricts to reverse hypotension and edema. In asthma, it acts as a bronchodilator via ?2 stimulation when specific ?2 agonists are unavailable.

Hypotension
Hippo-BP
Epinephrine increases blood pressure through ?1-mediated peripheral vasoconstriction and ?1-mediated cardiac stimulation, enhancing both systemic vascular resistance and cardiac output.

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