Norepinephrine (Levophed)

Norepinephrine (Levophed) is an adrenergic agonist with alpha-1, alpha-2, and beta-1 specificity. Norepinephrine is a potent vasopressor and is used in instances of severe hypotension to produce a dramatic increase in blood pressure. Side effects of this medication include: decreased renal blood flow, cardiac arrhythmias, and hypertension. Extravasation of norepinephrine during administration can cause tissue necrosis. If extravasation occurs, the antidote, phentolamine (Regitine), can be infused into necrosed area to allow blood vessels to re-expand. Norepinephrine is a last resort medication and should be used only when other interventions have proven to be ineffective.

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Mechanism of Action

Alpha Agonist
Afro Dragonist
Norepinephrine is an alpha agonist medication. Activation of alpha receptors causes smooth muscle contraction, leading to constriction of blood vessels and subsequent increase in blood pressure.

Beta-1 Agonist
Beta-fish (1) Wand Dragonist
Norepinephrine is also a beta-1 agonist, meaning that it stimulates beta-1 receptors in the heart, thereby increasing heart rate.

Indications

Severe Hypotension
Severed Hippo-BP
Norepinephrine is a vasopressor, which causes constriction of blood vessels. In instances of severe hypotension, norepinephrine can be given to produce a dramatic increase in blood pressure, potentially saving a patient’s life.

Side Effect

Decreases Renal Blood Flow
Down-arrow Kidney with Blood-vessels
Because this medication is a potent vasoconstrictor, blood vessels will constrict causing less blood to perfuse the kidneys. Norepinephrine decreases renal blood flow in an attempt to supply blood to more vital organs, such as the brain and the heart, in a severe hypotensive crisis.

Arrhythmias
Broken Arrhythmia-drum
Cardiac arrhythmias can occur in patients receiving norepinephrine, related to excessive activation of beta-1 receptors in the heart.

Hypertension
Hiker-BP
If given in excess, vasoconstriction caused by activation of alpha-1 receptors may cause the patient to become hypertensive. Blood pressure should be monitored carefully in these patients to avoid a hypertensive crisis.

Considerations

Tissue Necrosis

Tissue Necrosis-crow

If norepinephrine extravasates or leaves the blood vessel during administration, it can cause tissue necrosis. If extravasation occurs, the antidote, phentolamine (Regitine) can be infused into necrosed area to allow blood vessels to re-expand.

Last Resort Medication

Last Resort

Norepinephrine is a last resort medication and should be used only when other medical and/or pharmaceutical interventions have proven to be ineffective.