

PHENYLEPHRINE HYDROCHLORIDE INJECTION USP 1%

10 mg/mL
VASOPRESSOR
S.C./I.M./I.V.

WARNING: PHYSICIANS SHOULD COMPLETELY FAMILIARIZE THEMSELVES WITH THE COMPLETE CONTENTS OF THIS LEAFLET BEFORE PRESCRIBING THIS DRUG.

DESCRIPTION

Phenylephrine Hydrochloride Injection is a vasoconstrictor and pressor drug chemically related to epinephrine and ephedrine.

PHARMACOLOGY

When applied topically or infiltrated into the tissues, phenylephrine produces vasoconstriction that lasts longer than that of epinephrine and ephedrine. Its action on the heart contrast sharply with that of epinephrine and ephedrine, in that it shows the heart rate and increases the stroke output, inducing no disturbance in the rhythm of the pulse.

In therapeutic doses, it produces little if any stimulation of either the spinal cord or cerebrum. A singular advantage of this drug is the fact that repeated injections produce comparable effects.

INDICATIONS

For the maintenance of blood pressure during spinal and inhalation anesthesia, and also for overcoming peripheral vascular failure in shock and shock-like states, drug-induced hypotension or hypersensitivity. Employed to overcome paroxysmal supraventricular tachycardia, to prolong spinal anesthesia and as a vasoconstrictor in regional anesthesia.

PRECAUTIONS

May be contraindicated in patients with hypertension or ventricular tachycardia or in patients who are hypersensitive to the drug.

Should be used with extreme caution in elderly patients or those with hyperthyroidism, bradycardia, partial heart block, myocardial disease or severe arteriosclerosis.

Vasopressors may cause serious cardiac arrhythmias during halothane anesthesia and therefore should be used only with great caution or not at all.

Contains sodium metabisulfite, a sulfite that may cause allergic-type reactions including anaphylactic symptoms and life-threatening or less severe asthmatic episodes in certain susceptible people. The overall prevalence of sulfite sensitivity in the general population is unknown and probably low. Sulfite sensitivity is seen more frequently in asthmatic than in non asthmatic people.

Oxytocics: In obstetrics, if vasopressor drugs are either used to correct hypotension or added to the local anesthetic solution, the obstetrician should be warned that some oxytocic drugs may cause severe persistent hypertension and that even a rupture of a cerebral blood vessel may occur during the postpartum period.

MAO Inhibitors: The pressor effects of sympathomimetic pressor amines is markedly potentiated in patients receiving a monoamine oxydase (MAO) inhibitor. Therefore, when initiating pressor therapy in these patients, the initial dosage should be small and used with due caution.

The pressor response of adrenergic agents may also be potentiated by tricyclic antidepressants.

Pregnancy: Animal reproduction studies have not been conducted with phenylephrine. It is also not known whether phenylephrine can cause fetal harm when administered to a pregnant woman or can affect reproduction capacity. Phenylephrine should be given to a pregnant woman only if clearly needed.

Lactation: It is not known whether this drug is excreted in human milk. Because many are excreted in human milk, caution should be exercised where phenylephrine is administered to a nursing woman.

ADVERSE EFFECTS

Headache, reflex bradycardia, excitability, restlessness and rarely arrhythmias.

OVERDOSAGE

Symptoms: Overdosage may induce ventricular extrasystoles and short paroxysms of ventricular tachycardia, sensations of fullness in the head and tingling of the extremities.

Treatment: An excessive elevation of blood pressure may be immediately relieved by an α -adrenergic blocking agent.

DOSAGE AND ADMINISTRATION

Phenylephrine is generally injected S.C., I.M., slowly I.V., or in dilute solution as a continuous I.V. infusion. In patients with paroxysmal supraventricular tachycardia and, if indicated, in case of emergency, phenylephrine is administered directly I.V. The dose should be adjusted according to the pressor response.

Dosage Calculations

Dose required	Use Phenylephrine Hydrochloride Injection 1%
10 mg	1 mL
5 mg	0.5 mL
1 mg	0.1 mL

For convenience in intermittent intravenous administration, dilute 1 mL of Phenylephrine Hydrochloride 1% with 9 mL of Sterile Water for Injection USP.

Dose required	Use diluted Phenylephrine Hydrochloride Injection (0.1%)
0.1 mg	0.1 mL
0.2 mg	0.2 mL
0.5 mg	0.5 mL

Mild or Moderate Hypotension:

S.C. or I.M.: Usual dose: from 2 to 5 mg. Range: from 1 to 10 mg. Initial dose should not exceed 5 mg.

I.V.: Usual dose: 0.2 mg. Range: from 0.1 to 0.5 mg. Initial dose should not exceed 0.5 mg.

Injections should not be repeated more often than every 10 to 15 minutes. A 5 mg I.M. dose should raise blood pressure for 1 to 2 hours. A 0.5 mg I.V. dose should elevate the pressure for about 15 minutes.

Severe Hypotension and Shock:

Blood volume depletion should always be corrected as fully as possible before any vasopressor is administered. When, as an emergency measure, intraaortic pressures must be maintained to prevent cerebral or coronary artery ischemia, phenylephrine can be administered before and concurrently with blood volume replacement.

Higher initial and maintenance doses of phenylephrine are required in patients with persistent or untreated severe hypotension or shock. Hypotension produced by powerful peripheral adrenergic blocking agents, chlorpromazine, or pheochromocytectomy may also require more intensive therapy.

Continuous Infusion:

Add 10 mg of the drug (1 mL of 1% solution) to 500 mL of Dextrose Injection USP or Sodium Chloride Injection USP (providing a 1:50 000 solution). To raise the blood pressure rapidly, start the infusion at about 100 to 180 $\mu\text{g}/\text{minute}$ (based on 20 drops/mL, this would be 100 to 180 drops/minute). When the blood pressure is stabilized (at a low normal level for the individual), a maintenance rate of 40 to 60 $\mu\text{g}/\text{minute}$ usually suffices (based on 20 drops/mL, this would be 40 to 60 drops/minute). If the drop size of the infusion system varies from 20 drops/mL, the dose must be adjusted accordingly. If a prompt initial pressor response is not obtained, additional increments of phenylephrine (10 mg or more) are added to the infusion bottle. The rate of flow is then adjusted until the desired blood pressure level is obtained. (In some cases, a more potent vasopressor, such as norepinephrine, may be required.) Hypertension should be avoided. The blood pressure should be checked frequently. Headache and/or bradycardia may indicate hypertension. Arrhythmias are rare.

Spinal Anesthesia – Hypotension:

Routine parenteral use of phenylephrine has been recommended by many investigators for the prophylaxis and treatment of hypotension during spinal anesthesia. It is best administered S.C. or I.M. 3 or 4 minutes before injection of the spinal anesthetic. The total requirement for high anesthetic levels is usually 3 mg and for lower levels, 2 mg. For hypotensive emergencies during spinal anesthesia, phenylephrine may be injected I.V. beginning with a dose of 0.2 mg. Any subsequent dose should not exceed the previous dose by more than 0.1 to 0.2 mg and should not be more than 0.5 mg. To combat hypotension during spinal anesthesia in children, a dose of 0.5 to 1 mg/11.3 kg of body weight, administered S.C. or I.M., is recommended.

Prolongation of Spinal Anesthesia:

The addition of 2 to 5 mg of phenylephrine to the anesthetic solution increases the duration of motor block as much as approximately 50% without any increase in the incidence of complications such as nausea, vomiting or blood pressure disturbances.

Vasoconstrictor for Regional Analgesia:

Concentrations about 10 times those of epinephrine are recommended. The optimum strength is 1:20 000 (made by adding 1 mg of phenylephrine to every 20 mL of local anesthetic solution). Some pressor responses can be expected when 2 mg or more are injected.

Paroxysmal Supraventricular Tachycardia:

Rapid I.V. injection (within 20 to 30 seconds) is recommended; the initial dose should not exceed 0.5 mg and subsequent doses, which are determined by the initial blood pressure response, should not exceed the preceding dose by more than 0.1 to 0.2 mg and should never exceed 1 mg.

Drug-Induced Reactions:

Hypotension and occasionally severe shock may result from overdosage or idiosyncrasy following the administration of certain drugs, especially adrenergic and ganglionic blocking agents, rauwolfia and veratrum alkaloids and phenothiazine tranquilizers. Patients who receive a phenothiazine derivative as a preoperative medication are especially susceptible to these reactions. As an adjunct in the management of such episodes, phenylephrine is a suitable agent for restoring blood pressure.

SUPPLIED

Each mL of sterile solution contains: phenylephrine hydrochloride 10 mg in water for injection. Non-medical ingredients: sodium chloride 3.5 mg, sodium citrate 4 mg, citric acid 1 mg and sodium metabisulfite 2 mg. The pH is adjusted between 3.0 and 6.5 with sodium citrate or citric acid. Vials of 1 mL, boxes of 10.

The air in vials has been displaced by nitrogen gas.

STORAGE

Protect from light. Store between 15 and 30°C.

SINGLE USE VIAL

Discard unused portion.

omega

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