PRESCRIBING INFORMATION

PHENYLEPHRINE HYDROCHLORIDE INJECTION USP

10 mg/mL

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PHENYLEPHRINE HYDROCHLORIDE INJECTION USP

10 mg/mL (1%)

THERAPEUTIC CLASSIFICATION

Vasoconstrictor

PHARMACOLOGY

Phenylephrine Hydrochloride Injection USP is a sympathomimetic agent chemically related to epinephrine and ephedrine. It has direct effects on adrenergic receptors, vasoconstrictor and pressor drug.

ACTIONS

When applied topically or infiltrated into the tissues, Phenylephrine Hydrochloride Injection USP produces vasoconstriction that lasts longer than that of epinephrine and ephedrine. Its action on the heart contrasts sharply with that of epinephrine and ephedrine, in that it slows 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 AND CLINICAL USE

Phenylephrine Hydrochloride Injection USP is intended for the maintenance of an adequate level of blood pressure during spinal and inhalation anesthesia and for the treatment of vascular failure in shock, shock-like states, and drug-induced hypotension, or hypersensitivity. It is also employed to overcome paroxysmal supraventricular tachycardia, to prolong spinal anesthesia, and as a vasoconstrictor in regional analgesia.

PRECAUTIONS

Parenteral administration of Phenylephrine Hydrochloride Injection USP may be contraindicated in patients with hypertension or ventricular tachycardia, or in patients who are hypersensitive to it, and should be employed only with extreme caution in elderly patients or in patients with hyperthyroidism, bradycardia, partial heart block, myocardial disease, or severe arteriosclerosis.

“Mixture (solution) should be inspected visually for clarity, particulate matter, precipitation, discolouration, and leakage prior to administration whenever solution and container permit. Do

not use product if mixture (solution) shows haziness, particulate matter, discolouration, or leakage."

When Phenylephrine Hydrochloride Injection USP is administered intravenously in the treatment of patients with paroxysmal supraventricular tachycardia, overdosage may induce ventricular extra-systoles and short paroxysms of ventricular tachycardia, a sensation of fullness in the head, and tingling of the extremeties.

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

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.

Phenylephrine Hydrochloride Injection USP should be given to a pregnant woman only if clearly needed. It is not known whether this drug is excreted in human milk. Caution should be exercised when Phenylephrine Hydrochloride Injection USP is administered to a nursing woman.

MAO Inhibitors: The pressor effect of sympathomimetic pressor amines is markedly potentiated in patients receiving a monoamine oxidase (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.

Should an excessive elevation of blood pressure occur, it may be immediately relieved by an α-adrenergic blocking agent, e.g. phentolamine.

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.

ADVERSE REACTIONS

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

DOSAGE AND ADMINISTRATION

Phenylephrine Hydrochloride Injection USP is generally injected subcutaneously, intramuscularly, slowly intravenously, or in diluted solution as a continuous intravenous infusion. In patients with paroxysmal supraventricular tachycardia and, if indicated, in case of emergency, Phenylephrine Hydrochloride Injection USP is administered directly intravenously. The dose should be adjusted according to the pressor response.

Dosage Calculations

Dose Required	Use Phenylephrine HCl Injection USP 10 mg/mL (1%)
10 mg	1.0 mL
5 mg	0.5 mL
1 mg	0.1 mL

For convenience in intermittent intravenous administration, dilute 1 mL Phenylephrine Hydrochloride Injection USP 10 mg/mL with 9 mL Sterile Water for Injection USP.

Dose Required	Use Diluted Phenylephrine HCl Injection USP 1 mg/mL (0.1%)
0.1 mg	0.1 mL
0.2 mg	0.2 mL
0.5 mg	0.5 mL

Mild or Moderate Hypotension
Subcutaneously or Intramuscularly: Usual dose, from 2 to 5 mg. Range, from 1 to 10 mg. Initial dose should not exceed 5 mg.

Intravenously: 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 intramuscular dose should raise blood pressure for one to two hours. A 0.5 mg intravenous 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, intra-aortic pressures must be maintained to prevent cerebral or coronary artery ischemia, Phenylephrine Hydrochloride Injection USP can be administered before and concurrently with blood volume replacement.

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

Continuous Infusion: Add 10 mg of the drug to 500 mL of Dextrose Injection USP, or Sodium Chloride Injection USP (providing a l:50,000 solution). To raise the blood pressure rapidly, start the infusion at about 0.1 mg to 0.18 mg per minute (based on 20 drops per mL, this would be 100 to

180 drops per minute). When the blood pressure is stabilized (at a low normal level for the individual), a maintenance rate of 0.04 mg to 0.06 mg per minute usually suffices (based on 20 drops per mL, this would be 40 to 60 drops per minute). If the drop size of the infusion system varies from the 20 drops per mL, the dose must be adjusted accordingly. If a prompt initial pressor response is not obtained, additional increments of Phenylephrine Hydrochloride Injection USP (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 levarterenol bitartrate, 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 Hydrochloride Injection USP has been recommended by many investigators for the prophylaxis and treatment of hypotension during spinal anesthesia. It is best administered subcutaneously or intramuscularly three or four 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 Hydrochloride Injection USP may be injected intravenously 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 per 25 pounds of body weight, administered subcutaneously or intramuscularly, is recommended.

Prolongation of Spinal Anesthesia
The addition of 2 to 5 mg of Phenylephrine Hydrochloride Injection USP to the anesthetic solution increases the duration of motor block as much as approximately 50 per cent without any increase in the incidence of complications such as nausea, vomiting, or blood pressure disturbances.

Vasoconstrictor for Regional Analgesia
Concentrations about ten times those of epinephrine are recommended. The optimum strength is l:20,000 (made by adding 1 mg of Phenylephrine Hydrochloride Injection USP 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 intravenous 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 hypersensitivity to drugs of the following types: (1) ganglionic and adrenergic blocking agents such as hexamethonium compounds, (2) antihistamine tranquilizers such as chlorpromazine and promethazine, (3) reserpine and veratrum compounds - especially when administered during surgery.

Patients on chronic maintenance corticosteroid therapy who undergo precipitous corticosteroid withdrawal or traumatic stress may have the above reactions.

Phenylephrine Hydrochloride Injection USP parenterally, is the most suitable agent for restoring the blood pressure to normal. Larger doses than usual may be required to reverse hypotension produced by compounds such as hexamethonium, chlorpromazine, etc.

OVERDOSAGE

For management of a suspected drug overdose, contact your regional Poison Control Centre immediately.

DOSAGE FORMS, COMPOSITION AND PACKAGING

Each mL contains phenylephrine hydrochloride 10 mg, sodium chloride 4.34 mg, sodium citrate dihydrated 4.56 mg, citric acid 0.9 mg, sodium metabisulfite 2 mg in water for injection. The pH is adjusted between 3.0 and 5.5 with sodium citrate or citric acid. The stopper is not made with natural rubber latex.

Single use vials of 1 mL and 5 mL, boxes of 10.

STORAGE AND STABILITY

Store between 15 and 30°C. Protect from light. Discard unused portion.