



PHENERGAN[®]

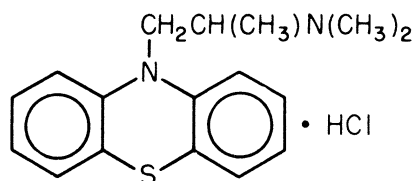
(promethazine HCl)

Injection

R_x only

DESCRIPTION

Phenergan (promethazine HCl) Injection, is a sterile, pyrogen-free solution for deep intramuscular or intravenous administration. Promethazine HCl (10*H*-phenothiazine-10-ethanamine, *N,N*, α -trimethyl-, monohydrochloride, (\pm)-) is a racemic compound and has the following structural formula:



C₁₇H₂₁ClN₂S

MW=320.89

Each mL of ampul contains either 25 mg or 50 mg promethazine HCl with 0.1 mg edetate disodium, 0.04 mg calcium chloride, 0.25 mg sodium metabisulfite, and 5 mg phenol in Water for Injection. The pH range is 4.0 to 5.5, buffered with acetic acid-sodium acetate, and it is sealed under nitrogen.

Phenergan (promethazine HCl) Injection is a clear, colorless solution. The product is light sensitive. It should be inspected before use and discarded if either color or particulate is observed.

CLINICAL PHARMACOLOGY

Promethazine HCl is a phenothiazine derivative which possesses antihistaminic, sedative, antimotion-sickness, antiemetic, and anticholinergic effects. Promethazine is a competitive H₁ receptor antagonist, but does not block the release of histamine. Structural differences from the neuroleptic phenothiazines results in its relative lack (1/10 that of chlorpromazine) of dopamine antagonist properties. Clinical effects are generally apparent within 5 minutes of an intravenous injection and within 20 minutes of an intramuscular injection. Duration of action is four to six hours, although effects may persist up to 12 hours. Promethazine HCl is metabolized in the liver, with the sulfoxides of promethazine and *N*-desmethylpromethazine being the predominant metabolites appearing in the urine. Following intravenous administration in healthy volunteers, the plasma half-life for promethazine has been reported to range from 9 to 16 hours. The mean plasma half-life for promethazine after intramuscular administration in healthy volunteers has been reported to be 9.8 \pm 3.4 hours.

INDICATIONS AND USAGE

Phenergan Injection is indicated for the following conditions:

1. Amelioration of allergic reactions to blood or plasma.
2. In anaphylaxis as an adjunct to epinephrine and other standard measures after the acute symptoms have been controlled.
3. For other uncomplicated allergic conditions of the immediate type when oral therapy is impossible or contraindicated.
4. For sedation and relief of apprehension and to produce light sleep from which the patient can be easily aroused.
5. Active treatment of motion sickness.
6. Prevention and control of nausea and vomiting associated with certain types of anesthesia and surgery.
7. As an adjunct to analgesics for the control of postoperative pain.
8. Preoperative, postoperative, and obstetric (during labor) sedation.
9. Intravenously in special surgical situations, such as repeated bronchoscopy, ophthalmic surgery, and poor-risk patients, with reduced amounts of meperidine or other narcotic analgesic as an adjunct to anesthesia and analgesia.

CONTRAINDICATIONS

Phenergan Injection is contraindicated in comatose states and in patients who have demonstrated an idiosyncratic reaction or hypersensitivity to promethazine or other phenothiazines.

Under no circumstances should Phenergan Injection be given by intra-arterial injection due to the likelihood of severe arteriospasm and the possibility of resultant gangrene (see **WARNINGS—Injection Site Reactions**).

Phenergan Injection should not be given by the subcutaneous route; evidence of chemical irritation has been noted, and necrotic lesions have resulted following subcutaneous injection. The preferred parenteral route of administration is by deep intramuscular injection.

WARNINGS

Sulfite Sensitivity

Phenergan Injection (ampuls only) contains sodium metabisulfite, a sulfite that may cause allergic-type reactions, including anaphylactic symptoms and life-threatening or less severe asthma 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 nonasthmatic people.

CNS Depression

Phenergan Injection may impair the mental and/or physical abilities required for the performance of potentially hazardous tasks, such as driving a vehicle or operating machinery. The impairment may be amplified by concomitant use of other central-nervous-system depressants such as alcohol, sedative/hypnotics (including barbiturates), general anesthetics, narcotics, narcotic analgesics, tricyclic antidepressants, and tranquilizers; therefore such agents should either be eliminated or given in reduced dosage in the presence of promethazine HCl (see **PRECAUTIONS—Information for Patients and Drug Interactions**).

Respiratory Depression

Phenergan Injection may lead to potentially fatal respiratory depression.

Use of Phenergan Injection in patients with compromised respiratory function (e.g. COPD, sleep apnea) should be avoided.

Lower Seizure Threshold

Phenergan Injection may lower seizure threshold and should be used with caution in persons with seizure disorders or in persons who are using concomitant medications, such as narcotics or local anesthetics, which may also affect seizure threshold.

Bone-Marrow Depression

Phenergan Injection should be used with caution in patients with bone-marrow depression. Leukopenia and agranulocytosis have been reported, usually when Phenergan has been used in association with other known marrow-toxic agents.

Neuroleptic Malignant Syndrome

A potentially fatal symptom complex sometimes referred to as Neuroleptic Malignant Syndrome (NMS) has been reported in association with promethazine HCl alone or in combination with antipsychotic drugs. Clinical manifestations of NMS are hyperpyrexia, muscle rigidity, altered mental status and evidence of autonomic instability (irregular pulse or blood pressure, tachycardia, diaphoresis and cardiac dysrhythmias).

The diagnostic evaluation of patients with this syndrome is complicated. In arriving at a diagnosis, it is important to identify cases where the clinical presentation includes both serious medical illness (e.g., pneumonia, systemic infection, etc.) and untreated or inadequately treated extrapyramidal signs and symptoms (EPS). Other important considerations in the differential diagnosis include central anticholinergic toxicity, heat stroke, drug fever and primary central nervous system (CNS) pathology.

The management of NMS should include 1) immediate discontinuation of promethazine HCl, antipsychotic drugs, if any, and other drugs not essential to concurrent therapy, 2) intensive symptomatic treatment and medical monitoring, and 3) treatment of any concomitant serious medical problems for which specific treatments are available. There is no general agreement about specific pharmacological treatment regimens for uncomplicated NMS.

Since recurrences of NMS have been reported with phenothiazines, the reintroduction of promethazine HCl should be carefully considered.

Use in Pediatric Patients

PHENERGAN INJECTION IS NOT RECOMMENDED FOR USE IN PEDIATRIC PATIENTS LESS THAN TWO YEARS OF AGE.

CAUTION SHOULD BE EXERCISED WHEN ADMINISTERING PHENERGAN INJECTION TO PEDIATRIC PATIENTS 2 YEARS OF AGE AND OLDER BECAUSE OF THE POTENTIAL FOR FATAL RESPIRATORY DEPRESSION. ANTIEMETICS ARE NOT RECOMMENDED FOR TREATMENT OF UNCOMPLICATED VOMITING IN PEDIATRIC PATIENTS, AND THEIR USE SHOULD BE LIMITED TO PROLONGED VOMITING OF KNOWN ETIOLOGY. THE EXTRAPYRAMIDAL SYMPTOMS WHICH CAN OCCUR SECONDARY TO PHENERGAN INJECTION ADMINISTRATION MAY BE CONFUSED WITH THE CNS SIGNS OF UNDIAGNOSED PRIMARY DISEASE, e.g., ENCEPHALOPATHY OR REYE'S SYNDROME. THE USE OF PHENERGAN INJECTION SHOULD BE AVOIDED IN PEDIATRIC PATIENTS WHOSE SIGNS AND SYMPTOMS MAY SUGGEST REYE'S SYNDROME OR OTHER HEPATIC DISEASES.

Excessively large dosages of antihistamines, including Phenergan Injection, in pediatric patients may cause sudden death (see **OVERDOSAGE**). Hallucinations and convulsions have occurred with therapeutic doses and overdoses of Phenergan in pediatric patients. In pediatric patients who are acutely ill associated with dehydration, there is an increased susceptibility to dystonias with the use of Phenergan Injection.

Injection Site Reactions

Phenergan Injection can cause severe chemical irritation and damage to tissues, **regardless of the route of administration**. Irritation and damage can also result from perivascular extravasation, unintentional intra-arterial injection, and intraneuronal or perineuronal infiltration.

Signs, symptoms, and manifestations of severe tissue irritation include burning, pain, erythema, swelling, severe spasm of distal vessels, thrombophlebitis, venous thrombosis, phlebitis, abscesses, tissue necrosis, and gangrene. Administration of Phenergan Injection has resulted in nerve damage ranging from temporary sensory loss to palsies and paralysis. Injection into or near a nerve may result in permanent tissue damage. In some cases, surgical intervention (including fasciotomy, skin graft, and/or amputation) may be required (see **ADVERSE REACTIONS**).

Due to the close proximity of arteries and veins in the areas most commonly used for intravenous injection, extreme care should be exercised to avoid perivascular extravasation or unintentional intra-arterial injection. Reports compatible with unintentional intra-arterial injection of Phenergan Injection, usually in conjunction with other drugs intended for intravenous use, suggest that pain, severe chemical irritation, severe spasm of distal vessels, and resultant gangrene requiring amputation are likely under such circumstances. Intravenous injection was intended in all the cases reported but perivascular extravasation or arterial placement of the needle is now suspect.

There is no proven successful management of unintentional intra-arterial injection or perivascular extravasation after it occurs. Sympathetic block and heparinization have been employed during the acute management of unintentional intra-arterial injection, because of the

results of animal experiments with other known arteriolar irritants. Aspiration of dark blood does not preclude intra-arterial needle placement, because blood is discolored upon contact with Phenergan Injection. Use of syringes with rigid plungers or of small-bore needles might obscure typical arterial backflow if this is relied upon alone.

When used intravenously, Phenergan Injection should be given in a concentration no greater than 25 mg per mL and at a rate not to exceed 25 mg per minute. When administering any irritant drug intravenously, it is usually preferable to inject it through the tubing of an intravenous infusion set that is known to be functioning satisfactorily. In the event that a patient complains of pain during intended intravenous injection of Phenergan Injection, the injection should be stopped immediately to provide for evaluation of possible arterial placement or perivascular extravasation.

Visual Inspection

This product is light sensitive and should be inspected before use and discarded if either color or particulate is observed.

Other Considerations

Administration of promethazine has been associated with reported cholestatic jaundice.

PRECAUTIONS

General

Drugs having anticholinergic properties should be used with caution in patients with narrow-angle glaucoma, prostatic hypertrophy, stenosing peptic ulcer, pyloroduodenal obstruction, and bladder-neck obstruction.

Phenergan Injection should be used cautiously in persons with cardiovascular disease or impairment of liver function.

Information for Patients

Phenergan Injection may cause marked drowsiness or impair the mental or physical abilities required for the performance of potentially hazardous tasks, such as driving a vehicle or operating machinery. The use of alcohol, sedative/hypnotics (including barbiturates), general anesthetics, narcotics, narcotic analgesics, tricyclic antidepressants, and tranquilizers, with Phenergan Injection may enhance impairment (see **WARNINGS–CNS Depression** and **PRECAUTIONS–Drug Interactions**). Pediatric patients should be supervised to avoid potential harm in bike riding or in other hazardous activities.

Patients should be advised to report any involuntary muscle movements.

Persistent or worsening pain or burning at the injection site should be reported immediately.

Avoid prolonged exposure to the sun.

Drug Interactions

CNS Depressants - Phenergan Injection may increase, prolong, or intensify the sedative action of central-nervous-system depressants, such as alcohol, sedative/hypnotics (including barbiturates), general anesthetics, narcotics, narcotic analgesics, tricyclic antidepressants, and tranquilizers;

therefore, such agents should be avoided or administered in reduced dosage to patients receiving promethazine HCl. When given concomitantly with Phenergan Injection, the dose of barbiturates should be reduced by at least one-half, and the dose of narcotics should be reduced by one-quarter to one-half. Dosage must be individualized. Excessive amounts of Phenergan Injection relative to a narcotic may lead to restlessness and motor hyperactivity in the patient with pain; these symptoms usually disappear with adequate control of the pain.

Epinephrine - Because of the potential for Phenergan to reverse epinephrine's vasopressor effect, epinephrine should NOT be used to treat hypotension associated with Phenergan Injection overdose.

Anticholinergics - Concomitant use of other agents with anticholinergic properties should be undertaken with caution.

Monoamine Oxidase Inhibitors (MAOI) - Drug interactions, including an increased incidence of extrapyramidal effects, have been reported when some MAOI and phenothiazines are used concomitantly. This possibility should be considered with Phenergan Injection.

Drug/Laboratory Test Interactions

The following laboratory tests may be affected in patients who are receiving therapy with Phenergan[®] Injection:

Pregnancy Tests - Diagnostic pregnancy tests based on immunological reactions between HCG and anti-HCG may result in false-negative or false-positive interpretations.

Glucose Tolerance Test - An increase in blood glucose has been reported in patients receiving promethazine HCl.

Carcinogenesis, Mutagenesis and Impairment of Fertility

Long term animal studies have not been performed to assess the carcinogenic potential of Phenergan Injection, nor are there other animal or human data concerning carcinogenicity, mutagenicity, or impairment of fertility. Phenergan Injection was nonmutagenic in the *Salmonella* test system of Ames.

Pregnancy

Teratogenic Effects—Pregnancy Category C

Teratogenic effects have not been demonstrated in rat-feeding studies at doses of 6.25 and 12.5 mg/kg (approximately 2.1 and 4.2 times the maximum recommended human daily dose) of Phenergan Injection. Daily doses of 25 mg/kg intraperitoneally have been found to produce fetal mortality in rats.

There are no adequate and well-controlled studies of Phenergan Injection in pregnant women. Because animal reproduction studies are not always predictive of human response, Phenergan Injection should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Adequate studies to determine the action of the drug on parturition, lactation and development of the animal neonate have not been conducted.

Nonteratogenic Effects

Phenergan Injection administered to a pregnant woman within two weeks of delivery may inhibit platelet aggregation in the newborn.

Labor and Delivery

Phenergan Injection may be used alone or as an adjunct to narcotic analgesics during labor (see **DOSAGE AND ADMINISTRATION**). Limited data suggest that use of Phenergan Injection during labor and delivery does not have an appreciable effect on the duration of labor or delivery and does not increase the risk of need for intervention in the newborn. The effect on later growth and development of the newborn is unknown. (See also *Nonteratogenic Effects*.)

Nursing Mothers

It is not known whether Phenergan Injection is excreted in human milk. Because many drugs are excreted in human milk and because of the potential for serious adverse reactions in nursing infants from Phenergan Injection, a decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother.

Pediatric Use

Safety and effectiveness in pediatric patients under 2 years of age have not been established.

Phenergan Injection should be used with caution in pediatric patients 2 years of age and older (see **WARNINGS—Use in Pediatric Patients**).

Use in Geriatric Patients (approximately 60 years or older)

Since therapeutic requirements for sedative drugs tend to be less in geriatric patients, the dosage should be reduced for these patients.

ADVERSE REACTIONS

Central Nervous System

Drowsiness is the most prominent CNS effect of this drug. Sedation, somnolence, blurred vision, dizziness, confusion, disorientation, and extrapyramidal symptoms such as oculogyric crisis, torticollis, and tongue protrusion; lassitude, tinnitus, incoordination, fatigue, euphoria, nervousness, diplopia, insomnia, tremors, convulsive seizures, excitation, catatonic-like states, hysteria. Hallucinations have also been reported.

Cardiovascular

Increased or decreased blood pressure, tachycardia, bradycardia, faintness. Thrombophlebitis, venous thrombosis, and phlebitis at the injection site have been reported and in some cases have required surgical intervention. INTRA-ARTERIAL INJECTION MAY RESULT IN GANGRENE OF THE AFFECTED EXTREMITY (see **CONTRAINDICATIONS**, **WARNINGS—Injection Site Reactions**, and **DOSAGE AND ADMINISTRATION**).

Dermatologic – Dermatitis, photosensitivity, urticaria.

Hematologic - Leukopenia, thrombocytopenia, thrombocytopenic purpura, agranulocytosis.

Gastrointestinal - Dry mouth, nausea, vomiting, jaundice.

Respiratory - Asthma, nasal stuffiness, respiratory depression (potentially fatal) and apnea (potentially fatal). (See **WARNINGS—Respiratory Depression**.)

Other — Angioneurotic edema. Neuroleptic malignant syndrome (potentially fatal) has also been reported. (See **WARNINGS — Neuroleptic Malignant Syndrome**.) Administration of Phenergan Injection has resulted in nerve damage ranging from temporary sensory loss to palsies and paralysis. Injection into or near a nerve may result in permanent tissue damage. Subcutaneous injection has resulted in tissue necrosis. Injection site reactions including burning, erythema, pain, and edema have been reported. Administration of Phenergan Injection has resulted in abscesses and/or tissue necrosis and gangrene, regardless of the route of administration. In some cases, surgical intervention (including fasciotomy, skin graft, and/or amputation) may be required (see **CONTRAINDICATIONS, WARNINGS—Injection Site Reactions**, and **DOSAGE AND ADMINISTRATION**).

Paradoxical Reactions

Hyperexcitability and abnormal movements have been reported in patients following a single administration of Phenergan Injection. Consideration should be given to the discontinuation of Phenergan Injection and to the use of other drugs if these reactions occur. Respiratory depression, nightmares, delirium, and agitated behavior have also been reported in some of these patients.

OVERDOSAGE

Signs and symptoms of overdose range from mild depression of the central nervous system and cardiovascular system to profound hypotension, respiratory depression, unconsciousness and sudden death. Other reported reactions include hyperreflexia, hypertonia, ataxia, athetosis, and extensor-plantar reflexes (Babinski's reflex).

Stimulation may be evident, especially in pediatric patients and geriatric patients. Convulsions may rarely occur. A paradoxical type reaction has been reported in pediatric patients receiving single doses of 75 mg to 125 mg orally, characterized by hyperexcitability and nightmares.

Atropine-like signs and symptoms — dry mouth, fixed, dilated pupils, flushing, etc., as well as gastrointestinal symptoms, may occur.

Treatment

Treatment of overdose is essentially symptomatic and supportive. Only in cases of extreme overdose or individual sensitivity do vital signs, including respiration, pulse, blood pressure, temperature, and EKG, need to be monitored. Attention should be given to the reestablishment of adequate respiratory exchange through provision of a patent airway and institution of assisted or controlled ventilation. Diazepam may be used to control convulsions. Acidosis and electrolyte losses should be corrected. Note that any depressant effects of Phenergan Injection are not reversed by naloxone.

Avoid analeptics, which may cause convulsions. The treatment of choice for resulting hypotension is administration of intravenous fluids, accompanied by repositioning if indicated. In the event that vasopressors are considered for the management of severe hypotension which does not respond to intravenous fluids and repositioning, the administration of norepinephrine or

phenylephrine should be considered. EPINEPHRINE SHOULD NOT BE USED, since its use in a patient with partial adrenergic blockade may further lower the blood pressure. Extrapyramidal reactions may be treated with anticholinergic antiparkinson agents, diphenhydramine, or barbiturates. Oxygen may also be administered. Limited experience with dialysis indicates that it is not helpful.

DOSAGE AND ADMINISTRATION

Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution and container permit.

Do not use Phenergan Injection if solution has developed color or contains precipitate.

To avoid the possibility of physical and/or chemical incompatibility, consult specialized literature before diluting with any injectable solution or combining with any other medication. Do not use if there is a precipitate or any sign of incompatibility.

Important Notes on Administration

The preferred parenteral route of administration for Phenergan Injection is by deep intramuscular injection. The proper intravenous administration of this product is well-tolerated, but use of this route is not without some hazard. Not for subcutaneous administration.

UNINTENTIONAL INTRA-ARTERIAL INJECTION CAN RESULT IN GANGRENE OF THE AFFECTED EXTREMITY (see **CONTRAINDICATIONS, WARNINGS—Injection Site Reactions**). **SUBCUTANEOUS INJECTION IS CONTRAINDICATED, AS IT MAY RESULT IN TISSUE NECROSIS** (see **CONTRAINDICATIONS, WARNINGS—Injection Site Reactions**, and **ADVERSE REACTIONS**).

Injection into or near a nerve may result in permanent tissue damage (see **ADVERSE REACTIONS**).

When used intravenously, Phenergan Injection should be given in concentration no greater than 25 mg/mL at a rate not to exceed 25 mg per minute; it is preferable to inject through the tubing of an intravenous infusion set that is known to be functioning satisfactorily.

Allergic Conditions

The average adult dose is 25 mg. This dose may be repeated within two hours if necessary, but continued therapy, if indicated, should be via the oral route as soon as existing circumstances permit. After initiation of treatment, dosage should be adjusted to the smallest amount adequate to relieve symptoms. The average adult dose for amelioration of allergic reactions to blood or plasma is 25 mg.

Sedation

In hospitalized adult patients, nighttime sedation may be achieved by a dose of 25 to 50 mg of Phenergan Injection.

Nausea and Vomiting

For control of nausea and vomiting, the usual adult dose is 12.5 to 25 mg, not to be repeated more frequently than every four hours. When used for control of postoperative nausea and

vomiting, the medication may be administered either intramuscularly or intravenously and dosage of analgesics and barbiturates reduced accordingly.

Preoperative and Postoperative Use

As an adjunct to preoperative or postoperative medication, 25 to 50 mg of Phenergan Injection in adults may be combined with appropriately reduced doses of analgesics and atropine-like drugs as desired. Dosage of concomitant analgesic or hypnotic medication should be reduced accordingly.

Obstetrics

Phenergan Injection in doses of 50 mg will provide sedation and relieve apprehension in the early stages of labor. When labor is definitely established, 25 to 75 mg (average dose, 50 mg) Phenergan Injection may be given intramuscularly or intravenously with an appropriately reduced dose of any desired narcotic. If necessary, Phenergan Injection with a reduced dose of analgesic may be repeated once or twice at four-hour intervals in the course of a normal labor. A maximum total dose of 100 mg of Phenergan Injection may be administered during a 24-hour period to patients in labor.

Pediatric Patients

Phenergan Injection is not recommended for use in pediatric patients less than two years of age. (See **WARNINGS–Use in Pediatric Patients.**)

In pediatric patients 2 years of age and older, the dosage should not exceed half that of the suggested adult dose. As an adjunct to premedication, the suggested dose is 0.5 mg per lb. of body weight in combination with an appropriately reduced dose of narcotic or barbiturate and the appropriate dose of an atropine-like drug. Antiemetics should not be used in vomiting of unknown etiology in pediatric patients.

HOW SUPPLIED

Phenergan[®] (promethazine HCl) Injection is available in 1 mL ampuls, in packages of 25 ampuls, as follows:


25 mg per mL, NDC 0008-0063-01

50 mg per mL, NDC 0008-0746-01

Store at controlled room temperature 20° to 25°C (68° to 77°F).

Protect from light. Keep covered in carton until time of use.

Do not use if solution has developed color or contains a precipitate.

 Wyeth Laboratories
A Wyeth-Ayerst Company
Philadelphia, PA 19101

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