

HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use MEPERGAN INJECTION safely and effectively. See full prescribing information for MEPERGAN INJECTION.

MEPERGAN (meperidine HCl and promethazine HCl) injection, for intramuscular or intravenous use, CII

Initial U.S. Approval: 1961

WARNING: ADDICTION, ABUSE, AND MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; NEONATAL OPIOID WITHDRAWAL SYNDROME; CYTOCHROME P450 3A4 INTERACTION; RISKS FROM CONCOMITANT USE WITH BENZODIAZEPINES OR OTHER CNS DEPRESSANTS; and MONOAMINE OXIDASE (MAO) INHIBITORS INTERACTIONS

See full prescribing information for complete boxed warning.

- MEPERGAN Injection exposes users to risks of addiction, abuse, and misuse, which can lead to overdose and death. Assess patient's risk before prescribing and monitor regularly for these behaviors and conditions (5.1)
- Serious, life-threatening, or fatal respiratory depression may occur. Monitor closely, especially upon initiation or following a dose increase. (5.2)
- Prolonged use of MEPERGAN Injection during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life-threatening if not recognized and treated. If prolonged opioid use is required in a pregnant woman, advise the patient of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available. (5.3).
- Concomitant use of opioids with benzodiazepines or other central nervous system (CNS) depressants, including alcohol, may result in profound sedation, respiratory depression, coma, and death. Reserve concomitant prescribing for use in patients for whom alternative treatment options are inadequate; limit dosages and durations to the minimum required; and follow patients for signs and symptoms of respiratory depression and sedation. (5.X, 7.X)
- Concomitant use with CYP3A4 inhibitors (or discontinuation of CYP3A4 inducers) can result in fatal overdose of MEPERGAN Injection (5.4, 7)
- Concomitant use of MEPERGAN Injection with Monoamine oxidase (MAO) inhibitors can result in coma, severe respiratory depression, cyanosis and hypotension. Use of MEPERGAN Injection with MAO inhibitors is contraindicated. (4, 7)

RECENT MAJOR CHANGES

| | |
|-------------------------------|---------|
| Boxed Warning | 12/2016 |
| Indications and Usage (1) | 12/2016 |
| Dosage and Administration (2) | 12/2016 |
| Contraindications (4) | 12/2016 |
| Warnings and Precautions (5) | 12/2016 |

INDICATIONS AND USAGE

MEPERGAN Injection contains meperidine, an opioid agonist, and promethazine, a phenothiazine. MEPERGAN Injection is indicated for:

- the management of pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate.
- as a preanesthetic medication when analgesia and sedation are indicated.
- as an adjunct to local and general anesthesia.

Limitations of Use (1)

Because of the risks of addiction, abuse, and misuse with opioids, even at recommended doses, reserve MEPERGAN Injection for use in patients for whom alternative treatment options [e.g., non-opioid analgesics or opioid combination products]:

- Have not been tolerated, or are not expected to be tolerated,
- Have not provided adequate analgesia, or are not expected to provide adequate analgesia

DOSAGE AND ADMINISTRATION

- Use the lowest effective dosage for the shortest duration consistent with individual patient treatment goals. (2.1)
- Individualize dosing based on the severity of pain, patient response, prior analgesic experience, and risk factors for addiction, abuse, and misuse. (2.1)
- Initiate treatment as follows:
Adult: 1 to 2 mL (25 to 50 mg of each component) per single injection which can be repeated every 3 to 4 hours (2.2)
Children 12 Years of Age and Under: 0.5 mg of each component per pound of body weight. The dosage may be repeated every 3 to 4 hours as necessary (2.2)
- Do not stop MEPERGAN Injection abruptly in a physically dependent patient (2.4)

DOSAGE FORMS AND STRENGTHS

- Injectable, Tubex blunt point cartridge, 2 mL. Each mL contains 25 mg meperidine hydrochloride and 25 mg promethazine hydrochloride.
- Injectable, multi-dose vial, 250 mg of meperidine HCl and 250 mg of promethazine HCl/10 mL (25 mg meperidine HCL and 25 mg promethazine HCl/mL) (3)

CONTRAINDICATIONS

- Significant respiratory depression (4)
- Acute or severe bronchial asthma in an unmonitored setting in absence of resuscitative equipment (4)
- Known or suspected gastrointestinal obstruction, including paralytic ileus (4)
- Hypersensitivity to meperidine or promethazine (4)
- In patients who are receiving monoamine oxidase inhibitors (MAOI) or those who have received such agents within 14 days. (4)
- Administration by intra-arterial injection or by the subcutaneous route.(4)

WARNINGS AND PRECAUTIONS

- Life-Threatening Respiratory Depression in Patients with Chronic Pulmonary Disease or in Elderly, Cachectic, or Debilitated Patients: Monitor closely, particularly during initiation and titration. (5.7)
- Serotonin Syndrome: Potentially life-threatening condition could result from concomitant serotonergic drug administration. Discontinue MEPERGAN Injection if serotonin syndrome is suspected. (5.8)
- Adrenal Insufficiency: If diagnosed, treat with physiologic replacement of corticosteroids, and wean patient off of the opioid. (5.9)
- Severe Hypotension: Monitor during dosage initiation and titration. Avoid use of MEPERGAN Injection in patients with circulatory shock.(5.10)
- Risks of Use in Patients with Increased Intracranial Pressure, Brain Tumors, Head Injury, or Impaired Consciousness: Monitor for sedation and respiratory depression. Avoid use of MEPERGAN Injection in patients with impaired consciousness or coma. (5.11)

ADVERSE REACTIONS

Most serious adverse reactions were light-headedness, dizziness, sedation, nausea, vomiting, and sweating (6)

To report SUSPECTED ADVERSE REACTIONS, contact West-Ward Pharmaceuticals Corp. at 1-877-845-0689 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS

- Mixed Agonist/Antagonist and Partial Agonist Opioid Analgesics: Avoid use with MEPERGAN Injection because they may reduce the analgesic effect of MEPERGAN Injection or precipitate withdrawal symptoms. (7)

USE IN SPECIFIC POPULATIONS

- Pregnancy: May cause fetal harm. (8.1)
- Geriatric patients: Use caution during dose selection, starting at the low end of the dosing range while carefully monitoring for side effects. (8.5)

See 17 for PATIENT COUNSELING INFORMATION

Revised: 12/2016

FULL PRESCRIBING INFORMATION: CONTENTS*

WARNING: ADDICTION, ABUSE, AND MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; NEONATAL OPIOID WITHDRAWAL SYNDROME; CYTOCHROME P450 3A4 INTERACTION RISKS FROM CONCOMITANT USE WITH BENZODIAZEPINES OR OTHER CNS DEPRESSANTS; and MAOI INTERACTION; and MONOAMINE OXIDASE (MAO) INHIBITORS INTERACTION

1 INDICATIONS AND USAGE

2 DOSAGE AND ADMINISTRATION

- 2.1 Important Dosage and Administration Instructions
- 2.2 Initial Dosage
- 2.3 Titration and Maintenance of Therapy
- 2.4 Discontinuation of MEPEPERGAN Injection
- 2.5 For Preoperative Medication

3 DOSAGE FORMS AND STRENGTHS

4 CONTRAINDICATIONS

5 WARNINGS AND PRECAUTIONS

- 5.1 Addiction, Abuse, and Misuse
- 5.2 Life-Threatening Respiratory Depression
- 5.3 Neonatal Opioid Withdrawal Syndrome
- 5.4 Risks of Concomitant Use or Discontinuation of Cytochrome P450 3A4 Inhibitors and Inducers
- 5.5 Risks due to Concomitant Use with Benzodiazepines or Other CNS Depressants
- 5.6 Fatal Interaction with Monoamine Oxidase Inhibitors
- 5.7 Life-Threatening Respiratory Depression in Patients with Chronic Pulmonary Disease or in Elderly, Cachectic, or Debilitated Patients
- 5.8 Serotonin Syndrome with Concomitant Use of Serotonergic Drugs
- 5.9 Adrenal Insufficiency
- 5.10 Severe Hypotension
- 5.11 Risks of Use in Patients with Increased Intracranial Pressure, Brain Tumors, Head Injury, or Impaired Consciousness
- 5.12 Risks of Use in Patients with Gastrointestinal Conditions
- 5.13 Increased Risk of Seizures in Patients with Seizure Disorders

- 5.14 Withdrawal
- 5.15 Risks of Driving and Operating Machinery
- 5.16 Risks in Patients with Pheochromocytomas
- 5.17 Risk of Use in Patients with Atrial Flutter and Other Supraventricular Tachycardia
- 5.18 Sulfite Sensitivity
- 5.19 Inadvertent Intra-Arterial Injection
- 5.20 Intravenous Use
- 5.21 Laboratory Tests

6 ADVERSE REACTIONS

7 DRUG INTERACTIONS

8 USE IN SPECIFIC POPULATIONS

- 8.1 Pregnancy
- 8.2 Lactation
- 8.3 Females and Males of Reproductive Potential
- 8.4 Pediatric Use
- 8.5 Geriatric Use
- 8.6 Hepatic Impairment
- 8.7 Renal Impairment
- 8.8 Special Risk Patients

9 DRUG ABUSE AND DEPENDENCE

- 9.1 Controlled Substance
- 9.2 Abuse
- 9.3 Dependence

10 OVERDOSAGE

11 DESCRIPTION

12 CLINICAL PHARMACOLOGY

- 12.1 Mechanism of Action
- 12.2 Pharmacodynamics
- 12.3 Pharmacokinetics

13 NONCLINICAL TOXICOLOGY

- 13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

16 HOW SUPPLIED/STORAGE AND HANDLING

17 PATIENT COUNSELING INFORMATION

*Sections or subsections omitted from the full prescribing information are not listed.

FULL PRESCRIBING INFORMATION

WARNING: ADDICTION, ABUSE, AND MISUSE; LIFE-THREATENING RESPIRATORY DEPRESSION; NEONATAL OPIOID WITHDRAWAL SYNDROME; CYTOCHROME P450 3A4 INTERACTION; RISKS FROM CONCOMITANT USE WITH BENZODIAZEPINES OR OTHER CNS DEPRESSANTS; and MONOAMINE OXIDASE (MAO) INHIBITORS INTERACTIONS

Addiction, Abuse, and Misuse

MEPERGAN Injection exposes patients and other users to the risks of opioid addiction, abuse, and misuse, which can lead to overdose and death. Assess each patient's risk prior to prescribing MEPERGAN Injection, and monitor all patients regularly for the development of these behaviors and conditions [see *Warnings and Precautions* (5.1)].

Life-Threatening Respiratory Depression

Serious, life-threatening, or fatal respiratory depression may occur with use of MEPERGAN Injection. Monitor for respiratory depression, especially during initiation of MEPERGAN Injection following a dose increase [see *Warnings and Precautions* (5.2)].

Neonatal Opioid Withdrawal Syndrome

Prolonged use of MEPERGAN Injection during pregnancy can result in neonatal opioid withdrawal syndrome, which may be life-threatening if not recognized and treated, and requires management according to protocols developed by neonatology experts. If opioid use is required for a prolonged period in a pregnant woman, advise the patient of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available [see *Warnings and Precautions* (5.3)].

Cytochrome P450 3A4 Interaction

The concomitant use of MEPERGAN Injection with all cytochrome P450 3A4 inhibitors may result in an increase in meperidine plasma concentrations, which could increase or prolong adverse reactions and may cause potentially fatal respiratory depression. In addition, discontinuation of a concomitantly used cytochrome P450 3A4 inducer may result in an increase in meperidine plasma concentration. Monitor patients receiving MEPERGAN Injection and any CYP3A4 inhibitor or inducer [see *Warnings and Precautions* (5.4), *Drug Interactions* (7)].

Risks From Concomitant Use With Benzodiazepines Or Other CNS Depressants

Concomitant use of opioids with benzodiazepines or other central nervous system (CNS) depressants, including alcohol, may result in profound sedation, respiratory depression, coma, and death [see *Warnings and Precautions* (5.5), *Drug Interactions* (7)].

- Reserve concomitant prescribing of MEPERGAN Injection and benzodiazepines or other CNS depressants for use in patients for whom alternative treatment options are inadequate.
- Limit dosage and duration to the minimum required.
- Follow patients for signs and symptoms of respiratory depression.

Concomitant use of MEPERGAN Injection with Monoamine oxidase (MAO) inhibitors

Concomitant use of MEPERGAN Injection with monoamine oxidase (MAO) inhibitors can result in coma, severe respiratory depression, cyanosis, and hypotension. Use of MEPERGAN Injection with MAO inhibitors within last 14 days is contraindicated [see *Contraindications* (4), *Warnings and Precautions* (5.5), *Drug Interactions* (7)].

1 INDICATIONS AND USAGE

MEPERGAN Injection is indicated as a preanesthetic medication when analgesia and sedation are indicated and as an adjunct to local and general anesthesia.

MEPERGAN Injection is indicated for the management of pain severe enough to require an opioid analgesic and for which alternative treatments are inadequate.

Limitations of Use

Because of the risks of addiction, abuse, and misuse with opioids, even at recommended doses [*see Warnings and Precautions (5.1)*], reserve MEPERGAN Injection for use in patients for whom alternative treatment options (e.g., non-opioid analgesics or opioid combination products):

- Have not been tolerated, or are not expected to be tolerated,
- Have not provided adequate analgesia, or are not expected to provide adequate analgesia

2 DOSAGE AND ADMINISTRATION

2.1 Important Dosage and Administration Instructions

- Use the lowest effective dosage for the shortest duration consistent with individual patient treatment goals [*see Warnings and Precautions (5)*].
- Initiate the dosing regimen for each patient individually, taking into account the patient's severity of pain, patient response, prior analgesic treatment experience, and risk factors for addiction, abuse, and misuse. [*see Warnings and Precautions (5.1)*].
- Monitor patients closely for respiratory depression, especially within the first 24-72 hours of initiating therapy and following dosage increases with MEPERGAN Injection and adjust the dosage accordingly [*see Warnings and Precautions (5.2)*].
- Parenteral drug products should be inspected visually for particulate matter and discoloration prior to administration, whenever solution and container permit.
- Barbiturates are not chemically compatible in solution with MEPERGAN (meperidine hydrochloride and promethazine hydrochloride) Injection and should not be mixed in the same syringe.
- MEPERGAN Injection is usually administered intramuscularly. However, in certain specific situations, the intravenous route may be employed.
- Inadvertent intra-arterial injection can result in gangrene of the affected extremity (see "warnings"). Subcutaneous administration is contraindicated, as it may result in tissue necrosis (see "contraindications"). Injection into or near peripheral nerves may result in permanent neurological deficit.
- When used intravenously, the rate should not be greater than 1 mL of MEPERGAN (25 mg of each component) per minute; it is preferable to inject through the tubing of an intravenous infusion set that is known to be functioning satisfactorily.

TUBEX® BLUNT POINTE Sterile Cartridge Unit

The TUBEX® BLUNT POINTETM Sterile Cartridge Unit is suitable for substances to be administered intravenously only. It is intended for use with Injection sets specifically manufactured as "needle-less" Injection systems. TUBEX® BLUNT POINTETM is compatible with Abbott's LifeShield® pre-pierced reseal Injection site, Baxter's Interlink® Injection Site, and B. Braun Medical's SafSite® Reflux Valve. Consult manufacturer's recommendations regarding "Directions for Use" of the "needle-less" system. It is also intended for admixture with, and convenient administration of, various medicaments when using Drug Vial Adapters for "needle-less" Injection systems.

The TUBEX® Sterile Cartridge-Needle Unit is suitable for substances to be administered intravenously or intramuscularly.

The TUBEX® Sterile Cartridge-Needle Unit is designed for single-dose use. VIALS should be used when required doses are fractions of a milliliter, as indicated below.

2.2 Initial Dosage

Initiating Treatment with MEPERGAN Injection

For Management of Pain

Intramuscular administration is preferred when repeated doses are required. If intravenous administration is required, dosage should be decreased and the injection made very slowly, preferably utilizing a diluted solution. The dose of MEPERGAN Injection should be proportionately reduced (usually by 25 to 50 percent) when administered concomitantly with phenothiazines and many other tranquilizers since they potentiate the action of MEPERGAN Injection.

Adult Dose

1 to 2 mL (25 to 50 mg of each component) per single injection, which can be repeated every 3 to 4 hours.

Children 12 Years Of Age And Under

0.5 mg of each component per pound of body weight. The dosage may be repeated every 3 to 4 hours as necessary.

2.3 Titration and Maintenance of Therapy

Individually titrate MEPERGAN Injection to a dose that provides adequate analgesia and minimizes adverse reactions. Continually reevaluate patients receiving MEPERGAN Injection to assess the maintenance of pain control and the relative incidence of adverse reactions, as well as monitoring for the development of addiction, abuse or misuse [see *Warnings and Precautions (5.2)*]. Frequent communication is important among the prescriber, other members of the healthcare team, the patient, and the caregiver/family during periods of changing analgesic requirements, including initial titration.

If the level of pain increases after dosage stabilization, attempt to identify the source of increased pain before increasing the MEPERGAN Injection. If unacceptable opioid-related adverse reactions are observed, consider reducing the dosage. Adjust the dosage to obtain an appropriate balance between management of pain and opioid-related adverse reactions.

2.4 Discontinuation of MEPERGAN Injection

When a patient who has been taking MEPERGAN Injection regularly and may be physically dependent no longer requires therapy with MEPERGAN Injection, taper the dose gradually, by 25% to 50% every 2 to 4 days, while monitoring carefully for signs and symptoms of withdrawal. If the patient develops these signs or symptoms, raise the dose to the previous level and taper more slowly, either by increasing the interval between decreases, decreasing the amount of change in dose, or both. Do not abruptly discontinue MEPERGAN Injection in a physically-dependent patient [see *Warnings and Precautions (5.14), Drug Abuse and Dependence (9.3)*].

2.5 For Preoperative Medication

The usual adult dose is 2 mL (50 mg of each component) intramuscularly with or without appropriate atropine-like drug. Atropine sulfate, 0.3 to 0.4 mg, or scopolamine hydrobromide, 0.25 to 0.4 mg, in sterile solution may be mixed in the same syringe with MEPERGAN. Repeat doses of 50 mg or less of both promethazine and meperidine may be administered by either route at 3- to 4-hour intervals, as necessary. As an adjunct to local or general anesthesia, the usual dose is 2 mL (50 mg each of meperidine and promethazine).

3 DOSAGE FORMS AND STRENGTHS

Injectable, Tubex blunt point cartridge, 2 mL. Each mL contains 25 mg meperidine hydrochloride and 25 mg promethazine hydrochloride.

Injectable, multi-dose vial, 250 mg of meperidine HCl and 250 mg of promethazine HCl/10 mL (25 mg meperidine HCL and 25 mg promethazine HCl/mL)

4 CONTRAINDICATIONS

MEPERGAN Injection is contraindicated in patients with:

- Significant respiratory depression [*see Warnings and Precautions (5.2)*]
- Acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment [*see Warnings and Precautions (5.7)*]
- Concomitant use of monoamine oxidase inhibitors (MAOIs) or within 14 days of having taken an MAOI. [*see Warnings and Precautions (5.6), Drug Interactions (7)*]
- Known or suspected gastrointestinal obstruction, including paralytic ileus [*see Warnings and Precautions (5.12)*]
- Hypersensitivity to meperidine or promethazine (e.g., anaphylaxis) [*See Adverse Reactions (6)*]

MEPERGAN Injection is also contraindicated:

- by intra-arterial injection, due to the likelihood of severe arteriospasm and the possibility of resultant gangrene [*See Warnings and Precautions (5.19)*]
- by the subcutaneous route; necrotic lesions have resulted

5 WARNINGS AND PRECAUTIONS

5.1 Addiction, Abuse, and Misuse

MEPERGAN INJECTION contains meperidine HCl and promethazine HCL. Meperidine is a Schedule II controlled substance. As an opioid, MEPERGAN Injection exposes users to the risks of addiction, abuse, and misuse [*see Drug Abuse and Dependence (9)*].

Although the risk of addiction in any individual is unknown, it can occur in patients appropriately prescribed MEPERGAN Injection. Addiction can occur at recommended dosages and if the drug is misused or abused.

Assess each patient's risk for opioid addiction, abuse, or misuse prior to prescribing MEPERGAN Injection, and monitor all patients receiving MEPERGAN Injection for the development of these behaviors and conditions. Risks are increased in patients with a personal or family history of substance abuse (including drug or alcohol abuse or addiction) or mental illness (e.g., major depression). The potential for these risks should not, however, prevent the proper management of pain in any given patient. Patients at increased risk may be prescribed opioids such as MEPERGAN Injection, but use in such patients necessitates intensive counseling about the risks and proper use of MEPERGAN Injection along with intensive monitoring for signs of addiction, abuse, and misuse.

Opioids are sought by drug users and people with addiction disorders and are subject to criminal diversion. Consider these risks when prescribing or dispensing MEPERGAN Injection. Strategies to reduce these risks include prescribing the drug in the smallest appropriate quantity.

Contact local state professional licensing board or state controlled substances authority for information on how to prevent and detect abuse or diversion of this product.

5.2 Life-Threatening Respiratory Depression

Serious, life-threatening, or fatal; respiratory depression has been reported with the use of opioids, even when used as recommended. Respiratory depression, if not immediately recognized and treated, may lead to respiratory arrest

and death. Management of respiratory depression may include close observation, supportive measures, and use of opioid antagonists, depending on the patient's clinical status [see *Overdosage (10)*]. Carbon dioxide (CO₂) retention from opioid-induced respiratory depression can exacerbate the sedating effects of opioids.

While serious, life-threatening, or fatal respiratory depression can occur at any time during the use of MEPERGAN Injection, the risk is greatest during the initiation of therapy or following a dosage increase. Monitor patients closely for respiratory depression, especially within the first 24-72 hours of initiating therapy with and following dosage increases of MEPERGAN Injection.

To reduce the risk of respiratory depression, proper dosing and titration of MEPERGAN Injection are essential [see *Dosage and Administration (2)*]. Overestimating the MEPERGAN Injection dosage when converting patients from another opioid product can result in a fatal overdose with the first dose.

5.3 Neonatal Opioid Withdrawal Syndrome

Prolonged use of MEPERGAN Injection during pregnancy can result in withdrawal in the neonate. Neonatal opioid withdrawal syndrome, unlike opioid withdrawal syndrome in adults, may be life-threatening if not recognized and treated, and requires management according to protocols developed by neonatology experts. Observe newborns for signs of neonatal opioid withdrawal syndrome and manage accordingly. Advise pregnant women using opioids for a prolonged period of the risk of neonatal opioid withdrawal syndrome and ensure that appropriate treatment will be available [see *Use in Specific Populations (8.1)*].

5.4 Risks of Concomitant Use or Discontinuation of Cytochrome P450 3A4 Inhibitors and Inducers

Concomitant use of MEPERGAN Injection with a CYP3A4 inhibitor, such as macrolide antibiotics (e.g., erythromycin), azole-antifungal agents (e.g., ketoconazole), and protease inhibitors (e.g., ritonavir), may increase plasma concentrations of meperidine and prolong opioid adverse reactions, which may cause potentially fatal respiratory depression [see *Warnings and Precautions (5.4)*], particularly when an inhibitor is added after a stable dose of MEPERGAN Injection is achieved. Similarly, discontinuation of a CYP3A4 inducer, such as rifampin, carbamazepine, and phenytoin, in MEPERGAN INJECTION-treated patients may increase meperidine plasma concentrations and prolong opioid adverse reactions. When using MEPERGAN Injection with CYP3A4 inhibitors or discontinuing CYP3A4 inducers in MEPERGAN INJECTION-treated patients, monitor patients closely at frequent intervals and consider dosage reduction of MEPERGAN Injection until stable drug effects are achieved [see *Drug Interactions (7)*].

Concomitant use of MEPERGAN Injection with CYP3A4 inducers or discontinuation of a CYP3A4 inhibitor could decrease meperidine plasma concentrations, decrease opioid efficacy or, possibly, lead to a withdrawal syndrome in a patient who had developed physical dependence to meperidine. When using MEPERGAN Injection with CYP3A4 inducers or discontinuing CYP3A4 inhibitors, monitor patients closely at frequent intervals and consider increasing the opioid dosage if needed to maintain adequate analgesia or if symptoms of opioid withdrawal occur [see *Drug Interactions (7)*].

5.5 Risk from Concomitant Use with Benzodiazepines or Other CNS Depressants

The sedative action of promethazine hydrochloride is additive to the sedative effects of central nervous system depressants; therefore, agents such as alcohol, barbiturates, and narcotic analgesics should either be eliminated or given in reduced dosage in the presence of promethazine hydrochloride. When given concomitantly with promethazine hydrochloride, the dose of barbiturates should be reduced by at least one-half and the dose of analgesic depressants, such as morphine or meperidine, should be reduced by one-quarter to one-half.

Profound sedation, respiratory depression, coma, and death may result from the concomitant use of MEPERGAN Injection without other CNS depressants (e.g., non-benzodiazepines sedatives/hypnotics, anxiolytics, tranquilizers, muscle relaxants, general anesthetics, antipsychotics, other opioids, alcohol). Because of these risks, reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate.

Observational studies have demonstrated that concomitant use of opioid analgesics and benzodiazepines increases the risk of drug-related mortality compared to use of opioid analgesics alone. Because of similar pharmacological

properties, it is reasonable to expect similar risk with the concomitant use of other CNS depressant drugs with opioid analgesics [see *Drug Interactions (7)*].

If the decision is made to prescribe a benzodiazepine or other CNS depressant concomitantly with an opioid analgesic, prescribe the lowest effective dosages and minimum durations of concomitant use. In patients already receiving an opioid analgesic, prescribe a lower initial dose of the benzodiazepine or other CNS depressant than indicated in the absence of an opioid, and titrate based on clinical response. If an opioid analgesic is initiated in a patient already taking a benzodiazepine or other CNS depressant, prescribe a lower initial dose of the opioid analgesic, and titrate based on clinical response. Follow patients closely for signs and symptoms of respiratory depression and sedation.

Advise both patients and caregivers about the risks of respiratory depression and sedation when MEPERGAN Injection is used with benzodiazepines or other CNS depressants (including alcohol and illicit drugs). Advise patients not to drive or operate heavy machinery until the effects of concomitant use of the benzodiazepine or other CNS depressant have been determined. Screen patients for risk of substance use disorders, including opioid abuse and misuse, and warn them of the risk for overdose and death associated with the use of additional CNS depressants including alcohol and illicit drugs [see *Drug Interactions (7)*].

5.6 Fatal Interaction with Monoamine Oxidase Inhibitors

Meperidine is contraindicated in patients who are receiving monoamine oxidase (MAO) inhibitors or those who have recently received such agents. Therapeutic doses of meperidine have occasionally precipitated unpredictable, severe, and occasionally fatal reactions in patients who have received such agents within 14 days. The mechanism of these reactions is unclear, but may be related to a preexisting hyperphenylalaninemia. Some have been characterized by coma, severe respiratory depression, cyanosis, and hypotension, and have resembled the syndrome of acute narcotic overdose. Serotonin syndrome with agitation, hyperthermia, diarrhea, tachycardia, sweating, tremors and impaired consciousness may also occur. In other reactions the predominant manifestations have been hyperexcitability, convulsions, tachycardia, hyperpyrexia, and hypertension.

Do not use MEPERGAN Injection in patients taking MAOIs or within 14 days of stopping such treatment.

Intravenous hydrocortisone or prednisolone have been used to treat severe reactions, with the addition of intravenous chlorpromazine in those cases exhibiting hypertension and hyperpyrexia. The usefulness and safety of narcotic antagonists in the treatment of these reactions is unknown.

5.7 Life-Threatening Respiratory Depression in Patients with Chronic Pulmonary Disease or in Elderly, Cachectic, or Debilitated Patients

The use of MEPERGAN Injection in patients with acute or severe bronchial asthma in an unmonitored setting or in the absence of resuscitative equipment is contraindicated.

Patients with Chronic Pulmonary Disease: MEPERGAN Injection -treated patients with significant chronic obstructive pulmonary disease or cor pulmonale, and those with a substantially decreased respiratory reserve, hypoxia, hypercapnia, or pre-existing respiratory depression are at increased risk of decreased respiratory drive including apnea, even at recommended doses of MEPERGAN Injection [see *Warnings and Precautions (5.2)*].

Elderly, Cachectic, or Debilitated Patients: Life-threatening respiratory depression is more likely to occur in elderly, cachectic, or debilitated patients because they may have altered pharmacokinetics or altered clearance compared to younger, healthier patients [see *Warnings and Precautions (5.2)*].

Monitor such patients closely, particularly when initiating and titrating MEPERGAN Injection and when MEPERGAN Injection is given concomitantly with other drugs that depress respiration [see *Warnings and Precautions (5.2)*]. Alternatively, consider the use of non-opioid analgesics in these patients.

5.8 Serotonin Syndrome with Concomitant Use of Serotonergic Drugs

Cases of serotonin syndrome, a potentially life-threatening condition, have been reported during concomitant use of MEPERGAN Injection with serotonergic drugs. Serotonergic drugs include selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants (TCAs), triptans, 5-HT₃ receptor antagonists, drugs that affect the serotonergic neurotransmitter system (e.g., mirtazapine, trazadone, tramadol), and drugs that impair metabolism of serotonin (including MAO inhibitors, both those intended to treat psychiatric disorders and also others, such as linezolid and intravenous methylene blue) [see *Drug Interactions (7)*]. This may occur within the recommended dosage range.

Serotonin syndrome symptoms may include mental status changes (e.g., agitation, hallucinations, coma), autonomic instability (e.g., tachycardia, labile blood pressure, hyperthermia), neuromuscular aberrations (e.g., hyperreflexia, incoordination, rigidity), and/or gastrointestinal symptoms (e.g., nausea, vomiting, diarrhea). The onset of symptoms generally occurs within several hours to a few days of concomitant use, but may occur later than that. Discontinue MEPERGAN Injection if serotonin syndrome is suspected.

5.9 Adrenal Insufficiency

Cases of adrenal insufficiency have been reported with opioid use, more often following greater than one month of use. Presentation of adrenal insufficiency may include non-specific symptoms and signs including nausea, vomiting, anorexia, fatigue, weakness, dizziness, and low blood pressure. If adrenal insufficiency is suspected, confirm the diagnosis with diagnostic testing as soon as possible. If adrenal insufficiency is diagnosed, treat with physiologic replacement doses of corticosteroids. Wean the patient off of the opioid to allow adrenal function to recover and continue corticosteroid treatment until adrenal function recovers. Other opioids may be tried as some cases reported use of a different opioid without recurrence of adrenal insufficiency. The information available does not identify any particular opioids as being more likely to be associated with adrenal insufficiency.

5.10 Severe Hypotension

MEPERGAN Injection may cause severe hypotension including orthostatic hypotension and syncope in ambulatory patients. There is increased risk in patients whose ability to maintain blood pressure has already been compromised by a reduced blood volume or concurrent administration of certain CNS depressant drugs (e.g., phenothiazines or general anesthetics) [see *Drug Interactions (7)*]. Monitor these patients for signs of hypotension after initiating or titrating the dosage of MEPERGAN Injection. In patients with circulatory shock, MEPERGAN Injection may cause vasodilation that can further reduce cardiac output and blood pressure. Avoid the use of MEPERGAN Injection in patients with circulatory shock.

5.11 Risks of Use in Patients with Increased Intracranial Pressure, Brain Tumors, Head Injury, or Impaired Consciousness

In patients who may be susceptible to the intracranial effects of CO₂ retention (e.g., those with evidence of increased intracranial pressure or brain tumors), MEPERGAN Injection may reduce respiratory drive, and the resultant CO₂ retention can further increase intracranial pressure. Monitor such patients for signs of sedation and respiratory depression, particularly when initiating therapy with MEPERGAN Injection.

Opioids may also obscure the clinical course in a patient with a head injury. Avoid the use of MEPERGAN Injection in patients with impaired consciousness or coma.

5.12 Risks of Use in Patients with Gastrointestinal Conditions

MEPERGAN Injection is contraindicated in patients with known or suspected gastrointestinal obstruction, including paralytic ileus.

The meperidine HCl in MEPERGAN Injection may cause spasm of the sphincter of Oddi. Opioids may cause increases in serum amylase. Monitor patients with biliary tract disease, including acute pancreatitis, for worsening symptoms.

5.13 Increased Risks of Seizures in Patients with Seizure Disorders

The meperidine in MEPERGAN Injection may increase the frequency of seizures in patients with seizure disorders, and may increase the risk of seizures occurring in other clinical settings associated with seizures. Monitor patients with a history of seizure disorders for worsened seizure control during MEPERGAN Injection therapy. Prolonged

meperidine use may increase the risk of toxicity (e.g., seizures) from the accumulation of the meperidine metabolite, normeperidine.

5.14 Withdrawal

Avoid the use of mixed agonist/antagonist (e.g., pentazocine, nalbuphine, and butorphanol) or partial agonist (e.g., buprenorphine) analgesics in patients who are receiving a full opioid agonist analgesic, including MEPERGAN Injection. In these patients, mixed agonist/antagonist and partial agonist analgesics may reduce the analgesic effect and/or precipitate withdrawal symptoms [see *Drug Interactions (7)*].

When discontinuing MEPERGAN Injection, gradually taper the dosage [see *Dosage and Administration (2.4)*]. Do not abruptly discontinue MEPERGAN Injection [see *Drug Abuse and Dependence (9.3)*].

5.15 Risk of Driving and Operating Machinery

MEPERGAN Injection may impair the mental or physical abilities needed to perform potentially hazardous activities such as driving a car or operating machinery. Warn patients not to drive or operate dangerous machinery unless they are tolerant to the effects of MEPERGAN Injection and know how they will react to the medication.

5.16 Risks in Patients with Pheochromocytoma

In patients with pheochromocytoma, meperidine has been reported to provoke hypertension.

5.17 Risk of Use in Patients with Atrial Flutter and Other Supraventricular Tachycardias

MEPERGAN Injection should be used with caution in patients with atrial flutter and other supraventricular tachycardias because of a possible vagolytic action which may produce a significant increase in the ventricular response rate.

5.18 Sulfite Sensitivity

MEPERGAN Injection 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 nonasthmatic people.

5.19 Inadvertent Intra-Arterial Injection

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 inadvertent intra-arterial injection of MEPERGAN. Reports compatible with inadvertent intra-arterial injection suggest that pain, severe chemical irritation, severe spasm of distal vessels, and resultant gangrene requiring amputation is 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 this condition after it occurs, although sympathetic block and heparinization are commonly employed during the acute management 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 promethazine. Use of syringes with rigid plungers or of small bore needles might obscure typical arterial backflow if this is relied upon alone.

5.20 Intravenous Use

If necessary, MEPERGAN Injection may be given intravenously, but the injection should be given very slowly, preferably in the form of a diluted solution. Rapid intravenous injection of MEPERGAN Injection, increases the incidence of adverse reactions; severe respiratory depression, apnea, hypotension, peripheral circulatory collapse, and cardiac arrest have occurred. MEPERGAN Injection should not be administered intravenously unless a narcotic antagonist and the facilities for assisted or controlled respiration are immediately available. When MEPERGAN Injection is given parenterally, especially intravenously, the patient should be lying down.

When used intravenously, MEPERGAN Injection should be given at a rate not to exceed 1 mL (25 mg of each component) 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 MEPERGAN, the injection should immediately be stopped to provide for evaluation of possible arterial placement or perivascular extravasation.

5.21 Laboratory Tests

In patients receiving promethazine, diagnostic pregnancy tests based on immunological reactions between HCG and anti-HCG may result in false negative or false positive results.

Glucose tolerance may appear increased during glucose tolerance tests in patients receiving promethazine.

6 ADVERSE REACTIONS

The following serious adverse reactions are described, or described in greater detail, in other sections:

- Addiction, Abuse, and Misuse [*see Warnings and Precautions (5.1)*]
- Life-Threatening Respiratory Depression [*see Warnings and Precautions (5.2)*]
- Neonatal Opioid Withdrawal Syndrome [*see Warnings and Precautions (5.3)*]
- Concomitant Use with Benzodiazepines or Other CNS Depressants [*see Warnings and Precautions (5.5)*]
- Serotonin Syndrome [*see Warnings and Precautions (5.8)*]
- Adrenal Insufficiency [*see Warnings and Precautions (5.9)*]
- Severe Hypotension [*see Warnings and Precautions (5.10)*]
- Gastrointestinal Adverse Reactions [*see Warnings and Precautions (5.12)*]
- Seizures [*see Warnings and Precautions (5.11)*]
- Withdrawal [*see Warnings and Precautions (5.14)*]

The following adverse reactions associated with the use of meperidine were identified in clinical studies or postmarketing reports. Because some of these reactions were reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

The major hazards of meperidine, as with other opioid analgesics, are respiratory depression and, to a lesser degree, circulatory depression; respiratory arrest, shock, and cardiac arrest .

The most frequently observed adverse reactions include light-headedness, dizziness, sedation, nausea, vomiting, and sweating. These effects seem to be more prominent in ambulatory patients and in those who are not experiencing severe pain. In such individuals, lower doses are advisable. Some adverse reactions in ambulatory patients may be alleviated if the patient lies down.

Other adverse reactions include:

Central Nervous System: Euphoria, dysphoria, weakness, headache, agitation, tremor, uncoordinated muscle movements, transient hallucinations and disorientation, visual disturbances and, rarely, extrapyramidal reactions.

Gastrointestinal: Dry mouth, constipation, biliary-tract spasm.

Cardiovascular: Flushing of the face, tachycardia, bradycardia, palpitation, faintness, syncope, increased blood pressure, decreased blood pressure

Venous thrombosis at the injection site has been reported. Intra-arterial injection of MEPERGAN may result in gangrene of the affected extremity.

Genitourinary: Urinary retention.

Allergic: Pruritus, urticaria, other skin rashes, wheal and flare over the vein with IV injection, photosensitivity.

Photosensitivity, although extremely rare, has been reported. Occurrence of photosensitivity may be a contraindication to further treatment with promethazine or related drugs.

Other: Pain at injection site; local tissue irritation, induration, and possible tissue necrosis, particularly when injection is repeated at same site; antidiuretic effect.

Patients may occasionally complain of autonomic reactions, such as dryness of the mouth, blurring of vision and, rarely, dizziness following the use of promethazine.

Very rare cases have been reported where patients receiving promethazine have developed leukopenia. In one instance agranulocytosis has been reported. In nearly every instance reported, other toxic agents known to have caused these conditions have been associated with the administration of promethazine.

Serotonin syndrome: Cases of serotonin syndrome, a potentially life-threatening condition, have been reported during concomitant use of opioids with serotonergic drugs.

Adrenal insufficiency: Cases of adrenal insufficiency have been reported with opioid use, more often following greater than one month of use.

Anaphylaxis: Anaphylaxis has been reported with ingredients contained in MEPERGAN Injection.

Androgen deficiency: Cases of androgen deficiency have occurred with chronic use of opioids [*see Clinical Pharmacology (12.2)*].

7 DRUG INTERACTIONS

The table below includes clinically significant drug interactions with MEPERGAN Injection.

| Clinically Significant Drug Interactions with MEPERGAN Injection | |
|---|--|
| Monoamine Oxidase Inhibitors (MAOIs) | |
| <i>Clinical Impact:</i> | Meperidine is contraindicated in patients who are receiving monoamine oxidase (MAO) inhibitors or those who have recently received such agents. Therapeutic doses of meperidine have occasionally precipitated unpredictable, severe, and occasionally fatal reactions in patients who have received such agents within 14 days. The mechanism of these reactions is unclear, but may be related to a preexisting hyperphenylalaninemia. Some have been characterized by coma, severe respiratory depression, cyanosis, and hypotension, and have resembled the syndrome of acute narcotic overdose. Serotonin syndrome with agitation, hyperthermia, diarrhea, tachycardia, sweating, tremors and impaired consciousness may also occur. In other reactions the predominant manifestations have been hyperexcitability, convulsions, tachycardia, hyperpyrexia, and hypertension. |
| <i>Intervention:</i> | Do not use MEPERGAN Injection in patients taking MAOIs or within 14 days of stopping such treatment. Intravenous hydrocortisone or prednisolone have been used to treat severe reactions, with the addition of intravenous chlorpromazine in those cases exhibiting hypertension and hyperpyrexia. The usefulness and safety of narcotic antagonists in the treatment of these reactions is unknown.) |
| <i>Examples:</i> | phenelzine, tranylcypromine, linezolid |
| Inhibitors of CYP3A4 and CYP2B6 | |

| | |
|--|---|
| <i>Clinical Impact:</i> | The concomitant use of MEPERGAN Injection and CYP3A4 or CYP2B6 inhibitors can increase the plasma concentration of meperidine, resulting in increased or prolonged opioid effects. These effects could be more pronounced with concomitant use of MEPERGAN Injection and CYP2B6 and CYP3A4 inhibitors, particularly when an inhibitor is added after a stable dose of MEPERGAN Injection is achieved [see <i>Warnings and Precautions (5.4)</i>]. After stopping a CYP3A4 inhibitor, as the effects of the inhibitor decline, the meperidine plasma concentration will decrease [see <i>Clinical Pharmacology (12.3)</i>], resulting in decreased opioid efficacy or a withdrawal syndrome in patients who had developed physical dependence to meperidine. |
| <i>Intervention:</i> | If concomitant use is necessary, consider dosage reduction of MEPERGAN Injection until stable drug effects are achieved. Monitor patients for respiratory depression and sedation at frequent intervals. If a CYP3A4 or CYP2B6 inhibitor is discontinued, consider increasing the MEPERGAN Injection dosage until stable drug effects are achieved. Monitor for signs of opioid withdrawal. |
| <i>Examples:</i> | Macrolide antibiotics (e.g., erythromycin), azole-antifungal agents (e.g. ketoconazole), protease inhibitors (e.g., ritonavir) |
| CYP3A4 and CYP2B6 Inducers | |
| <i>Clinical Impact:</i> | The concomitant use of MEPERGAN Injection and CYP3A4 inducers, or CYP2B6 inducers can decrease the plasma concentration of meperidine [see <i>Clinical Pharmacology (12.3)</i>], resulting in decreased efficacy or onset of a withdrawal syndrome in patients who have developed physical dependence to meperidine [see <i>Warnings and Precautions (5.4)</i>]. After stopping a CYP3A4 or CYP2B6 inducer, as the effects of the inducer decline, the meperidine plasma concentration will increase [see <i>Clinical Pharmacology (12.3)</i>], which could increase or prolong both the therapeutic effects and adverse reactions, and may cause serious respiratory depression. |
| <i>Intervention:</i> | If concomitant use is necessary, consider increasing the MEPERGAN Injection dosage until stable drug effects are achieved. Monitor for signs of opioid withdrawal. If a CYP3A4 or CYP2B6 inducer is discontinued, consider MEPERGAN Injection dosage reduction and monitor for signs of respiratory depression. |
| <i>Examples:</i> | Rifampin, carbamazepine, phenytoin |
| Benzodiazepine and Other Central Nervous System (CNS) Depressants | |
| <i>Clinical Impact:</i> | Due to the additive pharmacologic effect, the concomitant use of benzodiazepines or other CNS depressants, including alcohol, can increase the risk of hypotension, respiratory depression, profound sedation, coma, and death. |
| <i>Intervention:</i> | Reserve concomitant prescribing of these drugs for use in patients for whom alternative treatment options are inadequate. Limit dosages and durations to the minimum required. Follow patients closely for signs of respiratory depression and sedation [see <i>Warnings and Precautions (5.5)</i>]. |
| <i>Examples:</i> | Benzodiazepines and other sedatives/hypnotics, anxiolytics, barbiturates, tranquilizers, muscle relaxants, general anesthetics, antipsychotics, other opioids, alcohol. |
| Serotonergic Drugs | |
| <i>Clinical Impact:</i> | The concomitant use of opioids with other drugs that affect the serotonergic neurotransmitter system has resulted in serotonin syndrome [see <i>Warnings and Precautions (5.6)</i>]. |
| <i>Intervention:</i> | If concomitant use is warranted, carefully observe the patient, particularly during treatment initiation and dose adjustment. Discontinue MEPERGAN Injection if serotonin syndrome is suspected. |
| <i>Examples:</i> | Selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors (SNRIs), tricyclic antidepressants (TCAs), triptans, 5-HT ₃ receptor antagonists, drugs that affect the serotonin neurotransmitter system (e.g., mirtazapine, trazodone, tramadol), monoamine oxidase (MAO) inhibitors (those intended to treat psychiatric disorders and also others, such as linezolid and intravenous methylene blue). |

| Mixed Agonist/Antagonist and Partial Agonist Opioid Analgesics | |
|---|---|
| <i>Clinical Impact:</i> | May reduce the analgesic effect of MEPERGAN Injection and/or precipitate withdrawal symptoms. |
| <i>Intervention:</i> | Avoid concomitant use. |
| <i>Examples:</i> | Butorphanol, nalbuphine, pentazocine, buprenorphine. |
| Muscle Relaxants | |
| <i>Clinical Impact:</i> | MEPERGAN Injection may enhance the neuromuscular blocking action of skeletal muscle relaxants and produce an increased degree of respiratory depression. |
| <i>Intervention:</i> | Monitor patients for signs of respiratory depression that may be greater than otherwise expected and decrease the dosage of MEPERGAN Injection and/or the muscle relaxant as necessary. |
| Diuretics | |
| <i>Clinical Impact:</i> | Opioids can reduce the efficacy of diuretics by inducing the release of antidiuretic hormone. |
| <i>Intervention:</i> | Monitor patients for signs of diminished diuresis and/or effects on blood pressure and increase the dosage of the diuretic as needed. |
| Anticholinergic Drugs | |
| <i>Clinical Impact:</i> | The concomitant use of anticholinergic drugs may increase risk of urinary retention and/or severe constipation, which may lead to paralytic ileus. |
| <i>Intervention:</i> | Monitor patients for signs of urinary retention or reduced gastric motility when MEPERGAN Injection is used concomitantly with anticholinergic drugs. |
| Acyclovir | |
| <i>Clinical Impact:</i> | The concomitant use of acyclovir may increase the plasma concentrations of meperidine and its metabolite, normeperidine. |
| <i>Intervention:</i> | If concomitant use of acyclovir and MEPERGAN Injection is necessary, monitor patients for respiratory depression and sedation at frequent intervals. |
| Cimetidine | |
| <i>Clinical Impact:</i> | The concomitant use of cimetidine may reduce the clearance and volume of distribution of meperidine also the formation of the metabolite, normeperidine, in healthy subjects |
| <i>Intervention:</i> | If concomitant use cimetidine and MEPERGAN Injection is necessary, monitor patients for respiratory depression and sedation at frequent intervals. |

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

Prolonged use of opioid analgesics during pregnancy may cause neonatal opioid withdrawal syndrome [*see Warnings and Precautions (5.3)*]. Available data with MEPERGAN Injection in pregnant women are insufficient to inform a drug-associated risk for major birth defects and miscarriage.

Formal animal reproduction studies have not been conducted with meperidine, promethazine, or the combination. Neural tube defects (exencephaly and cranioschisis) have been reported in hamsters administered a single bolus dose of meperidine during a critical period of organogenesis at 2.6 and 4.4 times the total human daily dose of 400 mg meperidine hydrochloride. Increased resorptions of fetuses in pregnant mice and rats and skeletal fragility, decreased pup weight, and developmental delays were reported in rat pups born to dams treated with promethazine during gestation at doses within the human dosing range during gestation have been reported [*see Data*].

The estimated background risk of major birth defects and miscarriage for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2-4% and 15-20%, respectively.

Clinical Considerations

Fetal/Neonatal Adverse Reactions

Prolonged use of opioid analgesics during pregnancy for medical or nonmedical purposes can result in physical dependence in the neonate and neonatal opioid withdrawal syndrome shortly after birth.

Neonatal opioid withdrawal syndrome presents as irritability, hyperactivity and abnormal sleep pattern, high pitched cry, tremor, vomiting, diarrhea, and failure to gain weight. The onset, duration, and severity of neonatal opioid withdrawal syndrome vary based on the specific opioid used, duration of use, timing and amount of last maternal use, and rate of elimination of the drug by the newborn. Observe newborns for symptoms of neonatal opioid withdrawal syndrome and manage accordingly [*see Warnings and Precautions (5.3)*].

Labor or Delivery

Opioids cross the placenta and may produce respiratory depression and psycho-physiologic effects in neonates. An opioid antagonist, such as naloxone, must be available for reversal of opioid-induced respiratory depression in the neonate. MEPERGAN Injection is not recommended for use in pregnant women during or immediately prior to labor, when other analgesic techniques are more appropriate. Opioid analgesics, including MEPERGAN Injection, can prolong labor through actions which temporarily reduce the strength, duration, and frequency of uterine contractions. However, this effect is not consistent and may be offset by an increased rate of cervical dilation, which tends to shorten labor. Monitor neonates exposed to opioid analgesics during labor for signs of excess sedation and respiratory depression.

Data

Animal Data

Formal reproductive and developmental toxicology studies for meperidine, promethazine, or the combination have not been completed.

In a published study, neural tube defects (exencephaly and cranioschisis) were noted following subcutaneous administration of meperidine hydrochloride (127 and 218 mg/kg, respectively) on Gestation Day 8 to pregnant hamsters (2.6 and 4.4 times the total daily dose of 400 mg meperidine hydrochloride/day based on body surface area). The findings cannot be clearly attributed to maternal toxicity.

No evidence of embryotoxicity or malformations were reported in a published study in which pregnant rats were treated with promethazine hydrochloride from Gestation Day 1 to 15 or 10 through 15 via oral gavage doses of 50 to 250 mg/kg/day (1.2 to 6.1 times the HDD of 400 mg/day based on body surface area).

Increased resorptions were reported in a published study in which pregnant rats were treated orally from Gestation Day 5 to 16 with 20 mg/kg promethazine hydrochloride (0.5 times the human daily dose of 400 mg). Increased resorptions were reported in a second published study in which pregnant mice were treated intraperitoneally from Gestation Day 1 to 5 with 1 mg/kg promethazine hydrochloride (0.01 times the human daily dose of 400 mg based on body surface area).

Skeletal fragility of pups was reported in a published study in which pregnant Lister Hooded rats were treated orally from Gestation Day 7 to 13 with 5 or 10 mg/kg promethazine hydrochloride (0.12 or 0.24 times the human daily dose of 400 mg based on body surface area). No malformations or maternal toxicity were reported. Subsequent studies suggested that the effect was most prominent when treated on Days 10 to 12 of gestation.

Decreased pup weight and delays in initial occurrence of behavioral/reflex responses in pups were reported in a published study in which pregnant rats were treated orally from Gestation Day 10 to 12 with 10 mg/kg promethazine hydrochloride (0.24 times the human daily dose of 400 mg based on body surface area).

8.2 Lactation

Risk Summary

Meperidine appears in the milk of nursing mothers receiving the drug. Promethazine can inhibit prolactin release and therefore may interfere with lactation.

The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for MEPERGAN Injection and any potential adverse effects on the breastfed infant from MEPERGAN Injection or from the underlying maternal condition.

Clinical Considerations

Infants exposed to MEPERGAN Injection through breast milk should be monitored for excess sedation and respiratory depression. Withdrawal symptoms can occur in breastfed infants when maternal administration of an opioid analgesic is stopped, or when breast-feeding is stopped.

8.3 Females and Males of Reproductive Potential

Infertility

Chronic use of opioids may cause reduced fertility in females and males of reproductive potential. It is not known whether these effects on fertility are reversible [*see Adverse Reactions (6), Clinical Pharmacology (12.2), Nonclinical Pharmacology (13.1)*].

8.4 Pediatric Use

The safety and efficacy of MEPERGAN Injection in pediatric patients has not been established.

8.5 Geriatric Use

Elderly patients (aged 65 years or older) may have increased sensitivity to meperidine. In general, use caution when selecting a dosage for an elderly patient, usually starting at the low end of the dosing range, reflecting the greater frequency of decreased hepatic, renal, or cardiac function and of concomitant disease or other drug therapy.

Respiratory depression is the chief risk for elderly patients treated with opioids, and has occurred after large initial doses were administered to patients who were not opioid-tolerant or when opioids were co-administered with other agents that depress respiration. Titrate the dosage of MEPERGAN Injection slowly in geriatric patients and monitor closely for signs of central nervous system and respiratory depression [*see Warnings and Precautions (5.7)*].

Meperidine and promethazine are known to be substantially excreted by the kidney, and the risk of adverse reactions to this drug may be greater in patients with impaired renal function. Because elderly patients are more likely to have decreased renal function, care should be taken in dose selection, and it may be useful to monitor renal function.

8.6 Hepatic Impairment

Accumulation of meperidine and/or its active metabolite, normeperidine, can occur in patients with hepatic impairment. Elevated serum levels have been reported to cause central nervous system excitatory effects. Meperidine should therefore be used with caution in patients with hepatic impairment. Titrate the dosage of MEPERGAN Injection slowly in patients with renal impairment and monitor closely for signs of central nervous system and respiratory depression.

8.7 Renal Impairment

Accumulation of meperidine and/or its active metabolite, normeperidine, can also occur in patients with renal impairment. Meperidine should therefore be used with caution in patients with renal impairment. Titrate the dosage of MEPERGAN Injection slowly in patients with renal impairment and monitor closely for signs of central nervous system and respiratory depression.

8.6 Special Risk Patients

Antiemetics such as promethazine may mask the symptoms of an unrecognized disease and thereby interfere with diagnosis.

Patients in pain who have received inadequate or no analgesia have been noted to develop "athetoid-like" movements of the upper extremities following the parenteral administration of promethazine. These symptoms usually disappear upon adequate control of the pain.

9 DRUG ABUSE AND DEPENDENCE

9.1 Controlled Substance

MEPERGAN Injection contains meperidine, a Schedule II controlled drug substance.

9.2 Abuse

MEPERGAN Injection contains meperidine, a substance with a high potential for abuse similar to other opioids including hydrocodone, hydromorphone, methadone, morphine, oxycodone, oxymorphone, and tapentadol. MEPERGAN Injection can be abused and is subject to misuse, addiction, and criminal diversion [*see Warnings and Precautions (5.1)*].

All patients treated with opioids require careful monitoring for signs of abuse and addiction, because use of opioid analgesic products carries the risk of addiction even under appropriate medical use.

Prescription drug abuse is the intentional non-therapeutic use of a prescription drug, even once, for its rewarding psychological or physiological effects.

Drug addiction is a cluster of behavioral, cognitive, and physiological phenomena that develop after repeated substance use and includes: a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal.

“Drug-seeking” behavior is very common in persons with substance use disorders. Drug-seeking tactics include emergency calls or visits near the end of office hours, refusal to undergo appropriate examination, testing, or referral, repeated “loss” of prescriptions, tampering with prescriptions, and reluctance to provide prior medical records or contact information for other treating healthcare provider(s). “Doctor shopping” (visiting multiple prescribers to obtain additional prescriptions) is common among drug abusers and people suffering from untreated addiction. Preoccupation with achieving adequate pain relief can be appropriate behavior in a patient with poor pain control.

Abuse and addiction are separate and distinct from physical dependence and tolerance. Health care providers should be aware that addiction may not be accompanied by concurrent tolerance and symptoms of physical dependence in all addicts. In addition, abuse of opioids can occur in the absence of true addiction.

MEPERGAN Injection, like other opioids, can be diverted for non-medical use into illicit channels of distribution. Careful record-keeping of prescribing information, including quantity, frequency, and renewal requests, as required by state and federal law, is strongly advised.

Proper assessment of the patient, proper prescribing practices, periodic re-evaluation of therapy, and proper dispensing and storage are appropriate measures that help to limit abuse of opioid drugs.

Risks Specific to Abuse of MEPERGAN Injection

Abuse of MEPERGAN Injection poses a risk of overdose and death. The risk is increased with concurrent abuse of MEPERGAN Injection with alcohol and other central nervous system depressants.

Parenteral drug abuse is commonly associated with transmission of infectious diseases such as hepatitis and HIV.

9.3 Dependence

Both tolerance and physical dependence can develop during chronic opioid therapy. Tolerance is the need for increasing doses of opioids to maintain a defined effect such as analgesia (in the absence of disease progression or other external factors). Tolerance may occur to both the desired and undesired effects of drugs, and may develop at different rates for different effects.

Physical dependence results in withdrawal symptoms after abrupt discontinuation or a significant dosage reduction of a drug. Withdrawal also may be precipitated through the administration of drugs with opioid antagonist activity (e.g., naloxone, nalmefene), mixed agonist/antagonist analgesics (e.g., pentazocine, butorphanol, nalbuphine), or partial agonists (e.g., buprenorphine). Physical dependence may not occur to a clinically significant degree until after several days to weeks of continued opioid usage.

MEPERGAN Injection should not be abruptly discontinued in a physically-dependent patient [*see Dosage and Administration (2.4)*]. If MEPERGAN Injection is abruptly discontinued in a physically-dependent patient, a withdrawal syndrome may occur. Some or all of the following can characterize this syndrome: restlessness, lacrimation, rhinorrhea, yawning, perspiration, chills, myalgia, and mydriasis. Other signs and symptoms also may develop, including irritability, anxiety, backache, joint pain, weakness, abdominal cramps, insomnia, nausea, anorexia, vomiting, diarrhea, or increased blood pressure, respiratory rate, or heart rate.

Infants born to mothers physically dependent on opioids will also be physically dependent and may exhibit respiratory difficulties and withdrawal signs [*see Use in Specific Populations (8.1)*].

10 OVERDOSAGE

Clinical Presentation

Acute overdose with MEPERGAN Injection can be manifested by respiratory depression, somnolence progressing to stupor or coma, skeletal muscle flaccidity, cold and clammy skin, constricted pupils, and, in some cases, pulmonary edema, bradycardia, hypotension, partial or complete airway obstruction, atypical snoring, and death. Marked mydriasis rather than miosis may be seen with hypoxia in overdose situations [*See Clinical Pharmacology (12.2)*]. In severe overdose, particularly by the intravenous route, apnea, circulatory collapse, cardiac arrest, and death may occur.

Accumulation of normeperidine as in chronic use or possibly following introduction of a concomitant CYP3A4 inducer presents as excitatory syndrome including hallucinations, tremors, muscle twitches, dilated pupils, hyperactive reflexes, and convulsions.

Treatment of Overdose

In case of overdose, priorities are the reestablishment of a patent and protected airway and institution of assisted or controlled ventilation, if needed. Employ other supportive measures (including oxygen and vasopressors) in the management of circulatory shock and pulmonary edema as indicated. Cardiac arrest or arrhythmias will require advanced life-support techniques.

The opioid antagonists, naloxone or nalmefene, are specific antidotes to respiratory depression resulting from opioid overdose. For clinically significant respiratory or circulatory depression secondary to meperidine overdose, administer an opioid antagonist. Opioid antagonists should not be administered in the absence of clinically significant respiratory or circulatory depression secondary to meperidine overdose.

Because the duration of opioid reversal is expected to be less than the duration of action of meperidine in MEPERGAN Injection, carefully monitor the patient until spontaneous respiration is reliably reestablished. If the response to an opioid antagonist is suboptimal or only brief in nature, administer additional antagonist as directed by the product's prescribing information.

In an individual physically dependent on opioids, administration of the recommended usual dosage of the antagonist will precipitate an acute withdrawal syndrome. The severity of the withdrawal symptoms experienced will depend on the degree of physical dependence and the dose of the antagonist administered. If a decision is made to treat serious respiratory depression in the physically dependent patient, administration of the antagonist should be initiated with care and by titration with smaller than usual doses of the antagonist.

Attempted suicides with promethazine have resulted in deep sedation, coma, rarely convulsions and cardiorespiratory symptoms compatible with the depth of sedation present. Extrapyramidal reactions may be treated with anticholinergic antiparkinson agents, diphenhydramine, or barbiturates.

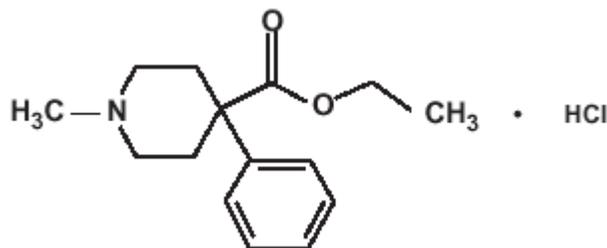
If severe hypotension occurs, levarterenol or phenylephrine may be indicated. Avoid epinephrine as promethazine overdose could produce a partial alpha-adrenergic blockade.

A paradoxical reaction, characterized by hyperexcitability and nightmares, has been reported in children receiving large single doses of promethazine.

11 DESCRIPTION

MEPERGAN Injection is a combination product containing meperidine HCl, an opioid agonist, and promethazine HCl, a phenothiazine, for intramuscular and intravenous use. Meperidine hydrochloride is an opioid agonist with multiple actions qualitatively similar to those of morphine. Promethazine hydrochloride is a phenothiazine derivative that has several different pharmacologic properties, including antihistaminic, sedative, and antiemetic actions.

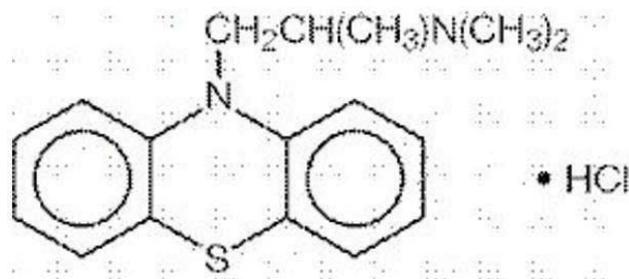
The chemical name for meperidine hydrochloride is 4-Piperidinecarboxylic acid, 1-methyl-4-phenyl-,ethyl ester, hydrochloride. The molecular weight is 283,80. Its molecular formula is $C_{15}H_{21}NO_2 \cdot HCl$, and it has the following chemical structure.



Meperidine hydrochloride is a white crystalline substance with a melting point of 186° C to 189° C. It is readily soluble in water and has a neutral reaction and a slightly bitter taste. The solution is not decomposed by a short period of boiling.

Promethazine HCl is a racemic compound; the empirical formula is $C_{17}H_{20}N_2S \cdot HCl$ and its molecular weight is 320.88.

Promethazine HCl, a phenothiazine derivative, is designated chemically as 10*H*-Phenothiazine-10-ethanamine, *N,N*, \square -trimethyl-, monohydrochloride, (\pm)- with the following destructural formula::



Promethazine hydrochloride occurs as a white to faint yellow, practically odorless, crystalline powder which slowly oxidizes and turns blue on prolonged exposure to air. It is soluble in water and freely soluble in alcohol.

MEPERGAN Injection provides 25 mg each of meperidine hydrochloride and promethazine hydrochloride per mL with 0.1 mg edetate disodium, 0.04 mg calcium chloride, and not more than 0.75 mg sodium formaldehyde sulfoxylate, 0.25 mg sodium metabisulfite, and 5 mg phenol with sodium acetate buffer.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Meperidine hydrochloride is an opioid agonist. Promethazine, a phenothiazine, is believed to primarily function as a histamine H1 receptor antagonist, muscarinic antagonist, and dopamine D2 receptor antagonist.

12.2 Pharmacodynamics

Effects on the Central Nervous System

Meperidine produces respiratory depression by direct action on brain stem respiratory centers. The respiratory depression involves a reduction in the responsiveness of the brain stem respiratory centers to both increases in carbon dioxide tension and electrical stimulation.

Meperidine causes miosis, even in total darkness. Pinpoint pupils are a sign of opioid overdose but are not pathognomonic (e.g., pontine lesions of hemorrhagic or ischemic origins may produce similar findings). Marked mydriasis rather than miosis may be seen due to hypoxia in overdose situations.

Effects on the Gastrointestinal Tract and Other Smooth Muscle

Meperidine causes a reduction in motility associated with an increase in smooth muscle tone in the antrum of the stomach and duodenum. Digestion of food in the small intestine is delayed and propulsive contractions are decreased. Propulsive peristaltic waves in the colon are decreased, while tone may be increased to the point of spasm, resulting in constipation. Other opioid-induced effects may include a reduction in biliary and pancreatic secretions, spasm of sphincter of Oddi, and transient elevations in serum amylase.

Effects on the Cardiovascular System

Meperidine produces peripheral vasodilation which may result in orthostatic hypotension or syncope. Manifestations of histamine release and/or peripheral vasodilation may include pruritus, flushing, red eyes, sweating, and/or orthostatic hypotension.

Effects on the Endocrine System

Opioids inhibit the secretion of adrenocorticotropic hormone (ACTH), cortisol, and luteinizing hormone (LH) in humans [See *Adverse Reactions (6)*]. They also stimulate prolactin, growth hormone (GH) secretion, and pancreatic secretion of insulin and glucagon [See *Adverse Reactions (6)*].

Chronic use of opioids may influence the hypothalamic-pituitary-gonadal axis, leading to androgen deficiency that may manifest as low libido, impotence, erectile dysfunction, amenorrhea, or infertility. The causal role of opioids in the clinical syndrome of hypogonadism is unknown because the various medical, physical, lifestyle, and psychological stressors that may influence gonadal hormone levels have not been adequately controlled for in studies conducted to date [see *Adverse Reactions (6)*].

Effects on the Immune System

Opioids have been shown to have a variety of effects on components of the immune system in *in vitro* and animal models. The clinical significance of these findings is unknown. Overall, the effects of opioids appear to be modestly immunosuppressive.

Concentration – Efficacy Relationships

The minimum effective analgesic concentration will vary widely among patients, especially among patients who have been previously treated with potent agonist opioids. The minimum effective analgesic concentration of meperidine for any individual patient may increase over time due to an increase in pain, the development of a new pain syndrome, and/or the development of analgesic tolerance [See *Dosage and Administration (2.1)*].

Concentration – Adverse Reaction Relationships

There is a relationship between increasing meperidine plasma concentration and increasing frequency of dose-related opioid adverse reactions such as nausea, vomiting, CNS effects, and respiratory depression. In opioid-tolerant patients, the situation may be altered by the development of tolerance to opioid-related adverse reactions [See *Dosage and Administration (2.1)*].

12.3 Pharmacokinetics

Meperidine

Elimination

The elimination half-life of meperidine is 3 to 8 hours in healthy volunteers. The only bioactive metabolite of meperidine is normeperidine which has an average elimination half-life of 20.6 hours.

Metabolism

Meperidine is metabolized through biotransformation. *In vitro* data show meperidine is metabolized to normeperidine in liver mainly by CYP3A4 and CYP2B6.

Excretion

Meperidine and normeperidine are excreted by kidneys.

Age

In clinical studies reported in the literature, changes in several meperidine pharmacokinetic parameters with increasing age have been observed. The initial volume of distribution and steady-state volume of distribution of meperidine may be higher in elderly patients than in younger patients. The free fraction of meperidine in plasma may be higher in patients over 45 years of age than in younger patients.

Hepatic impairment

The elimination half-life of meperidine is 3 to 8 hours in healthy volunteers and is 1.3 to 2 times greater in post-operative or cirrhotic patients.

Promethazine

Elimination

Promethazine is metabolized by the liver and its metabolites can be found in urine.

Metabolism

Promethazine is metabolized by the liver to a variety of compounds.

Excretion

The sulfoxides of promethazine and N-demethylpromethazine are the predominant metabolites appearing in the urine.

Drug Interactions Studies with Meperidine

Phenytoin

The hepatic metabolism of meperidine may be enhanced by phenytoin. Concomitant administration resulted in reduced half-life and bioavailability with increased clearance of meperidine in healthy subjects; however, blood concentrations of normeperidine were increased (*See Drug Interactions, 7*).

Ritonavir

Plasma concentrations of the active metabolite normeperidine may be increased by ritonavir (*See Drug Interactions, 7*).

Acyclovir

Plasma concentrations of meperidine and its metabolite, normeperidine, may be increased by acyclovir (*See Drug Interactions, 7*).

Cimetidine

Cimetidine reduced the clearance and volume of distribution of meperidine and also the formation of the metabolite, normeperidine, in healthy subjects (*See Drug Interactions, 7*).

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

Carcinogenesis

No evidence of carcinogenic potential was noted in long-term studies in rats and mice treated with oral promethazine hydrochloride doses up to 33 and 45 mg/kg (0.8 and 0.5 times the maximum human daily dose of 400 mg/day on a mg/m² basis, respectively).

Long-term studies in animals to evaluate the carcinogenic potential of meperidine have not been conducted.

Mutagenesis

Promethazine tested positive in the presence of a metabolic activator (S9 mix) and negative in the absence of it in the in vitro sister chromatid exchange assay. Negative results were reported in the in vitro bacterial reverse mutation assay and the in vitro chromosome aberration assay.

Studies to assess the mutagenic potential of meperidine have not been conducted.

Impairment of Fertility

Studies in animals to determine the effect of meperidine or promethazine on fertility have not been conducted.

16 HOW SUPPLIED/STORAGE AND HANDLING

MEPERGAN (meperidine HCl and promethazine HCl) Injection is available in TUBEX® BLUNT POINTETM Sterile Cartridge Units and Sterile Cartridge-Needle Units, in boxes of 10 TUBEX in TAMP-R-TEL® tamper-resistant packages as follows:

NDC XXXX-XXXX-XX, 2 mL size Blunt PointeTM.

NDC XXXX-XXXX-XX, 2 mL size (22 gauge x 1-1/4 inch needle).

MEPERGAN (meperidine HCl and promethazine HCl) Injection is also available in vials as follows:

NDC XXXX-XXXX-XX, 10 mL vial.

Do not use if solution is discolored or contains a precipitate

Protect from light

Use carton to protect contents from light

Store at room temperature, approximately 25° C (77° F)

17 PATIENT COUNSELING INFORMATION

Serotonin Syndrome

Inform patients that opioids could cause a rare but potentially life-threatening condition resulting from concomitant administration of serotonergic drugs. Warn patients of the symptoms of serotonin syndrome and to seek medical attention right away if symptoms develop. Instruct patients to inform their healthcare provider if they are taking, or plan to take serotonergic medications [see *Warnings and Precautions (5.8)*, *Drug Interactions (7)*].

Constipation

Advise patients of the potential for severe constipation, including management instructions and when to seek medical attention [see *Adverse Reactions (6)*, *Clinical Pharmacology (12.2)*].

Manufactured by:

WW (logo)

**WEST-WARD
A HIKMA COMPANY**

Eatontown, NJ 07724 USA

1-877-845-0699

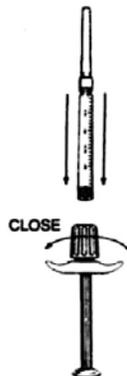
December 2016

**To load a
DOSETTE® Sterile
Cartridge-Needle Unit
into the TUBEX® Injector**



1. Turn the ribbed collar to the "OPEN" position until it stops.

2. Hold the Injector with the open end up and fully insert the DOSETTE® Sterile Cartridge-Needle Unit.



Firmly tighten the ribbed collar in the direction of the "CLOSE" arrow.

3. Thread the plunger rod into the plunger of the DOSETTE® Sterile Cartridge-Needle Unit until slight resistance is felt.



4. Engage the needle-cap assembly by pulling the cap down over the silver cartridge hub. The needle is fully engaged when the silver hub is completely covered.



The Injector is now ready for use in the usual manner.

To administer TUBEX[®]/DOSETTE[®] Sterile Cartridge-Needle Units

Method of administration is the same as with conventional syringe. Remove needle cover by grasping it securely; twist and pull. Introduce needle into patient, aspirate by pulling back slightly on the plunger, and inject.

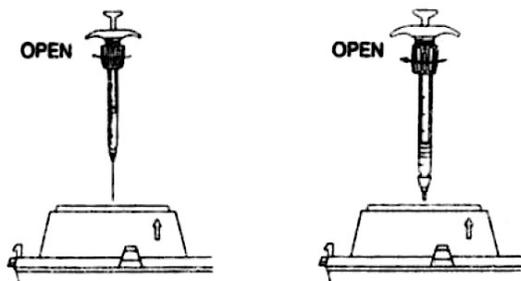
To administer TUBEX[®] BLUNT POINTE[™] Sterile Cartridge Units



"Needle-less" IV set administration is similar to administration with conventional syringes. Remove rubber cover by grasping it securely; twist and pull. For B. Braun Medical's SafSite[®] Reflux Valves, aseptically swab the luer slip fitting of the BLUNT POINTE[™] sterile cartridge tip assembly with a sterile, individually wrapped, saturated 70% Isopropyl Alcohol swab. This action will remove the lubricant coating from the tip to facilitate a tight seal. Introduce TUBEX[®] BLUNT POINTE[™] Sterile Cartridge Unit into the "needle-less" IV set as per manufacturer's "Directions for Use."

To remove the empty TUBEX[®]/DOSETTE[®] Cartridge Unit and dispose into a vertical disposal container

1. Do not recap the needle/point. Disengage the plunger rod.
2. Hold the Injector, needle/point down, over a vertical disposal container and loosen the ribbed collar. TUBEX[®]/DOSETTE[®] Cartridge Unit will drop into the container.



3. Discard the cover.

To remove the empty TUBEX[®]/DOSETTE[®] Cartridge Unit and dispose into a horizontal (mailbox) disposal container

1. Do not recap the needle/point. Disengage the plunger rod.

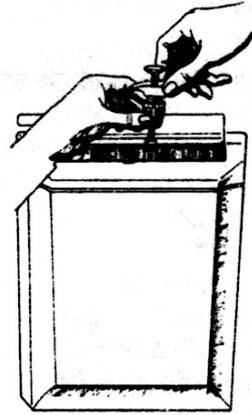
2. Open the horizontal (mailbox) disposal container. Insert TUBEX[®]/DOSETTE[®] Cartridge Unit, needle/point pointing down, into container. Close the container lid on cartridge. Loosen ribbed collar; TUBEX[®]/DOSETTE[®] Cartridge Unit will drop into the container.

3. Discard the cover.

The TUBEX[®] Injector is reusable and should not be discarded.

Used TUBEX[®]/DOSETTE[®] Cartridge Units should not be employed for injections or as multiple-dose containers. They are intended to be used and discarded.

NOTE: Any graduated markings on TUBEX[®]/DOSETTE[®] Sterile Cartridge Units are to be used only as a guide in mixing, withdrawing, or administering measured doses.



halfway

successive
only once