

## Antihistamines and Decongestants

### Key Terms

anticholinergic effects  
antihistamine

decongestant  
histamine

### Chapter Objectives

On completion of this chapter, the student will:

- Describe the uses, general drug action, general adverse reactions, contraindications, precautions, and interactions of the antihistamines and decongestants.
- Discuss important preadministration and ongoing assessment activities the nurse should perform on the patient taking an antihistamine or a decongestant.
- List some nursing diagnoses particular to a patient taking an antihistamine or a decongestant.
- Discuss ways to promote an optimal response to therapy, how to manage common adverse reactions, and important points to keep in mind when educating a patient about the use of an antihistamine or a decongestant.

The respiratory system consists of the upper and lower airways, the lungs, and the thoracic cavity. The function of the respiratory system is to provide a mechanism for the exchange of oxygen and carbon dioxide in the lungs. Any change in the respiratory status has the potential to affect every other body system because all cells need an adequate supply of oxygen for optimal functioning. This chapter focuses on drugs used to treat some of the more common disorders affecting the respiratory system, particularly allergies and the congestion associated with certain respiratory disorders.

### ANTIHISTAMINES

**Histamine** is a substance present in various tissues of the body, such as the heart, lungs, gastric mucosa, and skin (Fig. 36-1). The highest concentration of histamine is found in the basophil (a type of white blood cell) and mast cells that are found near capillaries. Histamine is produced in response to injury. It acts on areas such as the vascular system and smooth muscle, producing dilatation of arterioles and an increased permeability of capillaries and venules. Dilatation of the arterioles results in localized redness. An increase in the permeability of

small blood vessels produces an escape of fluid from these blood vessels into the surrounding tissues, which produces localized swelling. Thus, the release of histamine produces an inflammatory response. Histamine is also released in allergic reactions or hypersensitivity reactions, such as anaphylactic shock.

**Antihistamines** are drugs used to counteract the effects of histamine on body organs and structures. Examples of antihistamines include diphenhydramine (Benadryl), loratadine (Claritin), fexofenadine (Allegra), and cetirizine (Zyrtec). A new antihistamine, desloratadine (Clarinex), is the active metabolite of loratadine and is intended to eventually replace loratadine (Claritin). Topical corticosteroid nasal sprays such as fluticasone propionate (Flonase) or triamcinolone acetonide (Nasacort AQ) are also used for nasal allergy symptoms. See Chapter 56 for more information on the topical corticosteroids.

### ACTIONS

Antihistamines block most, but not all, of the effects of histamine. They do this by competing for histamine at histamine receptor sites, thereby preventing histamine

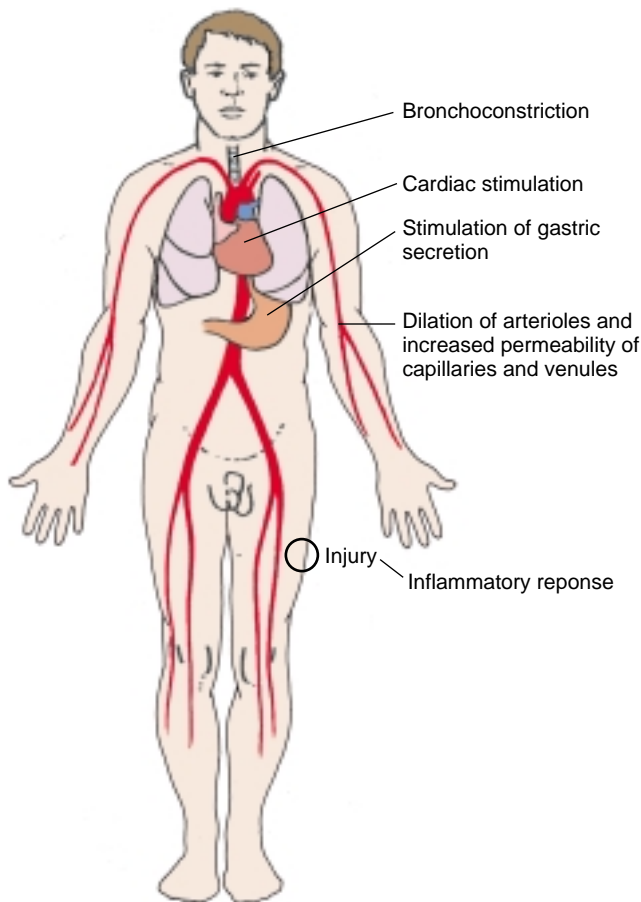


FIGURE 36-1. Effects of histamine in the body.

from entering these receptor sites and producing an effect on body tissues. Some antihistamines have additional effects, such as antipruritic, antiemetic, and sedative effects.

## USES

The general uses of the antihistamines include:

- Relief of the symptoms of seasonal and perennial allergies
- Allergic and vasomotor rhinitis
- Allergic conjunctivitis
- Mild and uncomplicated angioneurotic edema and urticaria
- Relief of allergic reactions to drugs, blood, or plasma
- Relief of coughs caused by colds or allergy
- Adjunctive therapy in anaphylactic shock
- Treatment of parkinsonism
- Relief of nausea and vomiting
- Relief of motion sickness
- Sedation
- Adjuncts to analgesics

Each antihistamine may be used for one or more of these reasons. The more specific uses of the various antihistamine preparations are given in the Summary Drug Table: Antihistamines.

## ADVERSE REACTIONS

Drowsiness and sedation are common adverse reactions seen with the use of many of the antihistamines. Some antihistamines appear to cause more drowsiness and sedation than others. These drugs may also have varying degrees of **anticholinergic** (cholinergic blocking) **effects**, which may result in dryness of the mouth, nose, and throat and a thickening of bronchial secretions. Several newer preparations (eg, loratadine) cause little, if any, drowsiness and fewer anticholinergic effects than some of the other antihistamines. Photosensitivity may occur with the use of the antihistamines.

Some antihistamines may cause dizziness, disturbed coordination, fatigue, hypotension, headache, epigastric distress, and photosensitivity (exaggerated response to brief exposure to the sun, resulting in moderately severe to severe sunburn).

Although these drugs are sometimes used to treat allergies, a drug allergy can occur with the use of an antihistamine. Symptoms that may indicate an allergy to these drugs include skin rash, urticaria, and anaphylactic shock.

## CONTRAINDICATIONS

Antihistamines are contraindicated in patients with known hypersensitivity to the drugs and during pregnancy. Although the antihistamines are classified in Pregnancy Category B (chlorpheniramine, dexchlorpheniramine, clemastine, diphenhydramine, and loratadine) and C (fexofenadine, hydroxyzine, and promethazine), they are generally contraindicated during pregnancy. Several possible associations with malformations have been reported along with jaundice, hyperreflexia, and prolonged extrapyramidal symptoms in infants whose mothers have received antihistamines (particularly promethazine) during pregnancy. Use of antihistamines during the third trimester of pregnancy has been associated with severe reactions (convulsions) in the infant. The antihistamines are contraindicated in lactating women; these drugs pass readily into breast milk and may adversely affect newborns.

## PRECAUTIONS

The antihistamines are used cautiously in patients with bronchial asthma, cardiovascular disease, narrow-angle glaucoma, symptomatic prostatic hypertrophy, hypertension, impaired kidney function, peptic ulcer, urinary

## SUMMARY DRUG TABLE ANTIHISTAMINES

GENERIC NAME	TRADE NAME*	USES	ADVERSE REACTIONS	DOSAGE RANGES
brompheniramine maleate <i>brome-fen-ir'-a-meen</i>	Bromphen, Dimetane, generic	Allergic symptoms; allergic reactions to blood or plasma; adjunctive therapy in anaphylactic reactions	Drowsiness, sedation, dizziness, disturbed coordination, hypotension, headache, blurred vision, thickening of bronchial secretions	4 mg PO q4–6h; 8–12 mg PO of sustained-release form q12h; maximum dosage, 40 mg/d IM, SC, IV in divided doses
cetirizine HCl <i>se-tear'-i-zeen</i>	Zyrtec	Seasonal rhinitis, chronic urticaria	Sedation, diarrhea, somnolence	5–10 mg daily PO; maximum dosage, 20 mg/d
chlorpheniramine maleate <i>klor-fen-eer'-a-meen</i>	Aller-Chlor, Chlor-Trimeton, generic	Allergic symptoms, hypersensitivity reactions, including anaphylaxis and transfusion reactions	Drowsiness, sedation, hypotension, palpitations, blurred vision, dry mouth, urinary hesitancy	4 mg PO q4–6h; sustained-release form: 8–12 mg PO q8–12h; 5–20 mg IM, SC, IV
clemastine fumarate <i>klem'-as-teen</i>	Tavist	Allergic rhinitis, urticaria	Drowsiness, sedation, hypotension, palpitations, blurred vision, dry mouth, urinary hesitancy	1.34 mg PO BID to 8.04 mg/d
desloratadine <i>des-low-rah'-tah-deen</i>	Clarinetx	Seasonal or perennial allergic rhinitis	Headache, fatigue, drowsiness, dry mouth, nose, and throat	Adults and children 12 years and older: 5 mg once daily PO
diphenhydramine hydrochloride <i>dye-fen-hye'-dra-meen</i>	Benadryl, Hyrexin, Tusstat, generic	Allergic symptoms, hypersensitivity reactions, including anaphylaxis and transfusion reactions, motion sickness, sleep aid, antitussive, parkinsonism	Drowsiness, dry mouth, anorexia, blurred vision, urinary frequency	25–50 mg PO q4–6h; 10–400 mg IM, IV
fexofenadine <i>fecks-oh-fen'-a-deen</i>	Allegra	Seasonal rhinitis, urticaria	Drowsiness, nausea, headache, back pain, upper respiratory infection	30–60 mg PO BID; maximum dosage, 180 mg/d
hydroxyzine <i>hye-drox'-i-zeen</i>	Atarax, Vistaril, generic	Pruritus, sedation (oral only), adjunctive therapy for analgesia (parenteral only), antiemetic (parenteral)	Drowsiness, dry mouth, dizziness, wheezing, chest tightness	25 mg 3–4 times a day PO; 25–100 mg IM; sedation, 50–100 mg PO
loratadine <i>lor-a'-ta-dine</i>	Claritin, Claritia, Reditabs	Allergic rhinitis	Dizziness, migraine headache, tremors, conjunctivitis, blurred vision, altered salivation	PO 10 mg/d
promethazine HCl <i>proe-meth'-a-zeen</i>	Anergan, Phenergan, generic	Allergic symptoms, motion sickness, nausea and vomiting associated with anesthesia and surgery, adjunct to analgesics, sedation and apprehension, preoperative and postoperative sedation	Excessive sedation, confusion, disorientation, dizziness, fatigue, blurred vision, dry mouth	Allergy: 12.5–25 mg PO, 25 mg IM, IV; motion sickness, 25 mg BID; nausea, vomiting: 12.5–25 mg PO, IM, IV; preoperative: 50 mg IM or PO the night before surgery
tripelennamine HCl <i>trip-el-en'-a-meen</i>	PBZ, PBZ-SR	Seasonal allergic rhinitis	Moderate sedation, mild gastrointestinal distress, paradoxical excitation	PO 25–50 mg q4–6h; SR: 1 (100-mg) tablet in AM and 1 tablet in PM

\*The term *generic* indicates the drug is available in generic form.

retention, pyloroduodenal obstruction, or hyperthyroidism.

## INTERACTIONS

There is an increase in anticholinergic effects when antihistamines are administered with the monamine oxidase inhibitors (MAOIs) and additive sedative effects if administered with central nervous system depressants (eg, narcotic analgesics or alcohol). When cimetidine and loratadine are administered together there is a risk for increased loratadine levels.

## NURSING PROCESS

### ● The Patient Receiving an Antihistamine

#### ASSESSMENT

##### *Preadministration Assessment*

The preadministration assessment of the patient receiving these drugs depends on the reason for use. Examples of assessments the nurse may perform include an assessment of the involved areas (eyes, nose, and upper and lower respiratory tract) if the patient is receiving an antihistamine for the relief of symptoms of an allergy. If promethazine (Phenergan) is used with a narcotic to enhance the effects and reduce the dosage of the narcotic, the nurse should take the patient's blood pressure, pulse, and respiratory rate before giving the drug.

##### *Ongoing Assessment*

The nurse usually gives these drugs in the outpatient setting. If the patient is in the hospital or clinic, the nurse observes the patient for the expected effects of the antihistamine and for adverse reactions. The nurse reports adverse reactions to the primary health care provider. In some instances, drowsiness or sedation may occur. When the drug is given to relieve preoperative anxiety, these adverse reactions are expected and are allowed to occur.

If the antihistamine is given for a serious situation, such as a blood transfusion reaction or a severe drug allergy, the nurse assesses the patient at frequent intervals until the symptoms appear relieved and for about 24 hours after the incident.

#### NURSING DIAGNOSES

Drug-specific nursing diagnoses are highlighted in the Nursing Diagnoses Checklist. Other nursing diagnoses applicable to these drugs are discussed in depth in Chapter 4.

### Nursing Diagnoses Checklist

- ✓ **Impaired Oral Mucous Membranes** related to adverse drug effects (dry mouth, nose, and throat)
- ✓ **Risk for Injury** related to adverse drug reactions (drowsiness, dizziness, disturbed coordination)

#### PLANNING

The expected outcomes of the patient vary according to the reason the drug was administered and may include an optimal response to drug therapy, management of common adverse drug reactions, and an understanding of and compliance with the prescribed therapeutic regimen.

#### IMPLEMENTATION

##### *Promoting an Optimal Response to Therapy*

Most antihistamines are given orally with food to prevent gastrointestinal upset. The nurse gives loratadine to the patient whose stomach is empty, at least 2 hours after meals or 1 hour before meals. Loratadine disintegrating tablets can be administered with or without water and are placed on the tongue where the tablet disintegrates rapidly. When administering the antihistamines parenterally, the nurse should give the drug deep intramuscularly, rather than subcutaneously, because many of the antihistamines are irritating to subcutaneous tissue.

#### Nursing Alert

*The nurse must not administer antihistamines to patients with lower respiratory tract diseases. If the nurse administers these drugs to patients with disorders such as asthma, the drying effect on the respiratory tract may cause thickening of the respiratory secretions and make expectoration more difficult.*

##### *Monitoring and Managing Adverse Reactions*

Dryness of the mouth, nose, and throat may occur. The nurse offers the patient frequent sips of water to relieve these symptoms.

#### Gerontologic Alert

*Older adults are more likely to experience anticholinergic effects (eg, dryness of the mouth, nose, and throat), dizziness, sedation, hypotension, and confusion from the antihistamines. A dosage reduction may be necessary if these symptoms persist.*

If the patient experiences dizziness or drowsiness, it is important to provide assistance with ambulation. If drowsiness is severe or if other problems such as dizziness or a disturbance in muscle coordination occur, the patient may require assistance with ambulation and other activities. The nurse places the call light within easy reach and instructs the patient to call before attempting to get out of bed or ambulate. The nurse informs the patient that this adverse reaction may lessen with continued use of the drug.

### Educating the Patient and Family

The nurse reviews the dosage regimen and possible adverse drug reactions with the patient. The following points are included in the patient teaching plan:

- Do not drive or perform other hazardous tasks if drowsiness occurs. This effect may diminish with continued use.
- Avoid the use of alcohol, as well as other drugs that cause sleepiness or drowsiness, while taking these drugs.
- These drugs may cause dryness of the mouth and throat. Frequent sips of water, hard candy, or chewing gum (preferably sugarless) may relieve this problem.
- If gastric upset occurs, take this drug with food or meals. Loratadine should be taken on an empty stomach, if possible. If the gastric upset is not relieved, discuss this with the primary health care provider.
- Avoid ultraviolet light or sunlight because of the possibility of photosensitivity. Wear sunglasses, protective clothing, and a sunscreen when exposed to sunlight.
- Do not crush or chew sustained-release preparations.

### EVALUATION

- The therapeutic effect is achieved.
- Adverse reactions are identified, reported to the primary health care provider, and managed successfully through nursing interventions.
- No evidence of injury is seen.
- Mucous membranes are kept moist.
- The patient demonstrates an understanding of the drug regimen and adverse effects of the drug.

## DECONGESTANTS

A **decongestant** is a drug that reduces swelling of the nasal passages, which, in turn, opens clogged nasal passages and enhances drainage of the sinuses. These drugs are used for the temporary relief of nasal congestion caused by the common cold, hay fever, sinusitis, and other respiratory allergies.

## ACTIONS

The nasal decongestants are sympathomimetic drugs, which produce localized vasoconstriction of the small blood vessels of the nasal membranes. Vasoconstriction reduces swelling in the nasal passages (decongestive activity). Nasal decongestants may be applied topically, and a few are available for oral use. Examples of nasal decongestants include phenylephrine (Neo-Synephrine) and oxymetazoline (Afrin), which are available as nasal sprays or drops, and pseudoephedrine (Sudafed), which is taken orally. Additional nasal decongestants are listed in the Summary Drug Table: Systemic and Topical Nasal Decongestants.

## USES

Decongestants are used to treat the congestion associated with rhinitis, hay fever, allergic rhinitis, sinusitis, and the common cold. In addition, they are used in adjunctive therapy of middle ear infections to decrease congestion around the eustachian tube. Nasal inhalers may relieve ear block and pressure pain during air travel. Many can be administered orally as well as topically, but topical application is more effective than the oral route.

## ADVERSE REACTIONS

When used topically in prescribed doses, there are usually minimal systemic effects in most individuals. On occasion, nasal burning, stinging, and dryness may be seen. When the topical form is used frequently or if the liquid is swallowed, the same adverse reactions seen with the oral decongestants may occur.

Use of oral decongestants may result in tachycardia and other cardiac arrhythmias, nervousness, restlessness, insomnia, blurred vision, nausea, and vomiting.

## CONTRAINDICATIONS

The decongestants are contraindicated in patients with known hypersensitivity, hypertension, and severe coronary artery disease. These drugs are also contraindicated in patients taking monoamine oxidase inhibitors (MAOIs). Naphazoline is contraindicated in patients with glaucoma.

## PRECAUTIONS

The decongestants are used cautiously in patients with hyperthyroidism, diabetes mellitus, prostatic hypertrophy, ischemic heart disease, and glaucoma. Safe use of the

## SUMMARY DRUG TABLE SYSTEMIC AND TOPICAL NASAL DECONGESTANTS

GENERIC NAME	TRADE NAME*	USES	ADVERSE REACTIONS	DOSAGE RANGES
ephedrine <i>e-fed'-rin</i>	Pertz-D	Nasal congestion	Nasal burning, stinging, dryness, rebound nasal congestion	2–3 drops or small amount of jelly in each nostril q4h; maximum use, 3–4 d
epinephrine HCl <i>ep-i-nef'-rin</i>	Adrenalin Chloride	Nasal congestion	Same as ephedrine	2–3 drops or spray in each nostril q4–6h
naphazoline HCl <i>na-faz'-o-line</i>	Privine	Nasal congestion	Same as ephedrine	1–2 drops in each nostril PRN maximum dosage, q3h for drops and q4–6h for spray
oxymetazoline HCl <i>oxy-met-az'-oh-leen</i>	Afrin, Dristan 12-hour Nasal, generic	Nasal congestion	Same as ephedrine	2–3 drops or sprays q10–12h
phenylephrine HCl <i>fen-ill-ef'-rin</i>	Alconefrin, Neo-Synephrine	Nasal congestion	Same as ephedrine	1–2 sprays of 0–25% solution q3–4h
phenylpropanolamine HCl <i>fen-ill-proe-pan-ole'-a-meen</i>	Propagest, generic	Nasal congestion	Anxiety, restlessness, anorexia, arrhythmias, nervousness, nausea, vomiting, blurred vision	25 mg PO q4h; maximum dosage, 150 mg/d; discontinued in US
pseudoephedrine HCl <i>soo-dow-e-fed'-rin</i>	Sudafed, generic	Nasal congestion	Same as phenylpropanolamine HCl	60 mg PO q4–6h
tetrahydrozoline HCl <i>tet-rah-hi-draz'-oh-leen</i>	Tyzine	Nasal congestion	Same as phenylpropanolamine HCl	2–4 drops in each nostril 3–4 times/d
xylometazoline HCl <i>zye-low-met-az'-oh-leen</i>	Otrivin	Nasal congestion	Same as ephedrine	2–3 drops or sprays in each nostril q8–10h

\*The term *generic* indicates the drug is available in generic form.

decongestants during pregnancy (Pregnancy Category C) and lactation has not been established. Pregnant women should consult with their primary health care provider before using these drugs.

## INTERACTIONS

Additive sympathomimetic effects may develop when decongestants are administered with other sympathomimetic drugs (see Chap. 22). Use of the nasal decongestants with the MAOIs may cause hypertensive crisis. Use of a decongestant with beta-adrenergic blocking drugs may cause hypertension or bradycardia. When ephedrine is administered with theophylline, the patient is at increased risk for theophylline toxicity.

## NURSING PROCESS

### ● The Patient Using a Nasal Decongestant

#### ASSESSMENT

##### *Preadministration Assessment*

As part of the preadministration assessment, the nurse assesses the patient's blood pressure, pulse, and congestion before administering a decongestant. The nurse assesses lung sounds and bronchial secretions, which are noted in the patient's record. It is important to obtain a history of the use of these products, including the name of the product used and the frequency of use.

##### *Ongoing Assessment*

The ongoing assessment usually occurs when the patient comes to an outpatient clinic for follow-up

### Nursing Diagnoses Checklist

- ✓ **Ineffective Airway Clearance** related to congestion, excessive secretions, rebound effect of drug
- ✓ **Risk for Ineffective Breathing Pattern** related to congestion, excessive secretions, rebound effect of drug

treatment with the primary health care provider. The nurse assesses the patient's blood pressure, pulse, and congestion. The nurse questions the patient about attaining a therapeutic effect and the presence of any adverse reactions to the drug.

### NURSING DIAGNOSES

Drug-specific nursing diagnoses are highlighted in the Nursing Diagnoses Checklist. Other nursing diagnoses applicable to these drugs are discussed in depth in Chapter 4.

### PLANNING

The expected outcomes of the patient may include an optimal response to therapy and an understanding of the use of the nasal decongestants.

### IMPLEMENTATION

#### *Promoting an Optimal Response to Therapy*

Decongestants are used only occasionally in the clinical setting. Because some of these products are available without a prescription, their use may be discovered during a patient history for other medical disorders. Nonprescription nasal decongestants should not be used by those with hypertension or heart disease unless such use is approved by the primary health care provider. After administering a topical nasal decongestant, some patients may experience a mild, transient stinging sensation. This usually disappears with continued use. To minimize the occurrence of rebound nasal congestion, the drug therapy should be discontinued gradually by initially discontinuing the medication in one nostril, followed by withdrawal from the other nostril.

### Nursing Alert

Overuse of the topical form of these drugs can cause "rebound" nasal congestion. This means that the congestion becomes worse with the use of the drug. Although congestion may be relieved for a brief time after the drug is used, it recurs within a short time, which prompts the patient to use the drug at more frequent intervals, perpetuating the rebound congestion.

### Gerontologic Alert

Patients older than 60 years are at greater risk for experiencing adverse reactions to the decongestants. Overdosage may cause hallucinations, convulsion, and central nervous system depression.

### Educating the Patient and Family

The nurse includes the following points in the patient teaching plan:

- Use this product as directed by the primary health care provider or on the container label.
- Understand that overuse of topical nasal decongestants can make the symptoms worse.
- Nasal burning and stinging may occur with the topical decongestants. This effect usually disappears with use. If burning or stinging becomes severe, discontinue use and discuss this problem with the primary health care provider, who may prescribe or recommend another drug.
- If using a spray, do not allow the tip of the container to touch the nasal mucosa and do not share the container with anyone.
- To administer the spray, sit upright and sniff hard for a few minutes after administration.
- To administer drops, recline on a bed and hang your head over the edge. After using the drops, remain with the head down and turn the head from side to side.
- If using inhalers, warm the inhaler in the hand before use; wipe the inhaler after each use.
- If symptoms do not improve in 7 days or are accompanied by a high fever, consult the primary care provider before continuing use.

### EVALUATION

- The therapeutic effect is achieved.
- Adverse reactions are identified, reported to the primary health care provider, and managed successfully through nursing interventions.
- No evidence of injury is seen.
- Swelling of the nasal passages is reduced.
- The patient demonstrates an understanding of the drug regimen and adverse effects of the drug.

### Critical Thinking Exercises

1. A number of the antihistamines have anticholinergic effects. Discuss this term and identify nursing interactions important when caring for a patient experiencing anticholinergic effects while taking an antihistamine.

2. Discuss important teaching points that should be included in developing a teaching plan for a patient taking a nasal decongestant. Determine what teaching points would be the most important. Provide a rationale for your answer.

### ● Review Questions

- Which of the following is a common adverse reaction seen when administering an antihistamine?
  - Sedation
  - Blurred vision
  - Headache
  - Hypertension
- Antihistamines are not routinely given to patient with lower respiratory disorders because \_\_\_\_\_.
  - the depressant effects may cause a hypotensive crisis
  - stimulation of the central nervous system may occur, resulting in paradoxical excitement
  - the effects of these drugs on the respiratory tract may cause secretions to thicken
  - antihistamines may irritate the bronchi, causing bronchospasm
- When antihistamines are administered to patients receiving central nervous system depressants, the nurse monitors the patient for \_\_\_\_\_.
  - an increase in anticholinergic effects
  - excessive sedation
  - seizure activity
  - loss of hearing
- A patient receives a prescription for phenylephrine (Neo-Synephrine). The nurse explains that overuse of this drug may \_\_\_\_\_.
  - result in hypotensive episodes
  - decrease sinus drainage
  - cause rebound nasal congestion
  - dilate capillaries in the nasal mucosa

### ● Medication Dosage Problems

- Loratadine (Claritin) 10 mg is prescribed. The drug is available in a syrup containing 1 mg/mL. The nurse prepares to administer \_\_\_\_\_.
- A patient is to receive 50 mg of diphenhydramine hydrochloride orally. The drug is available in 25-mg tablets. The nurse administers \_\_\_\_\_.