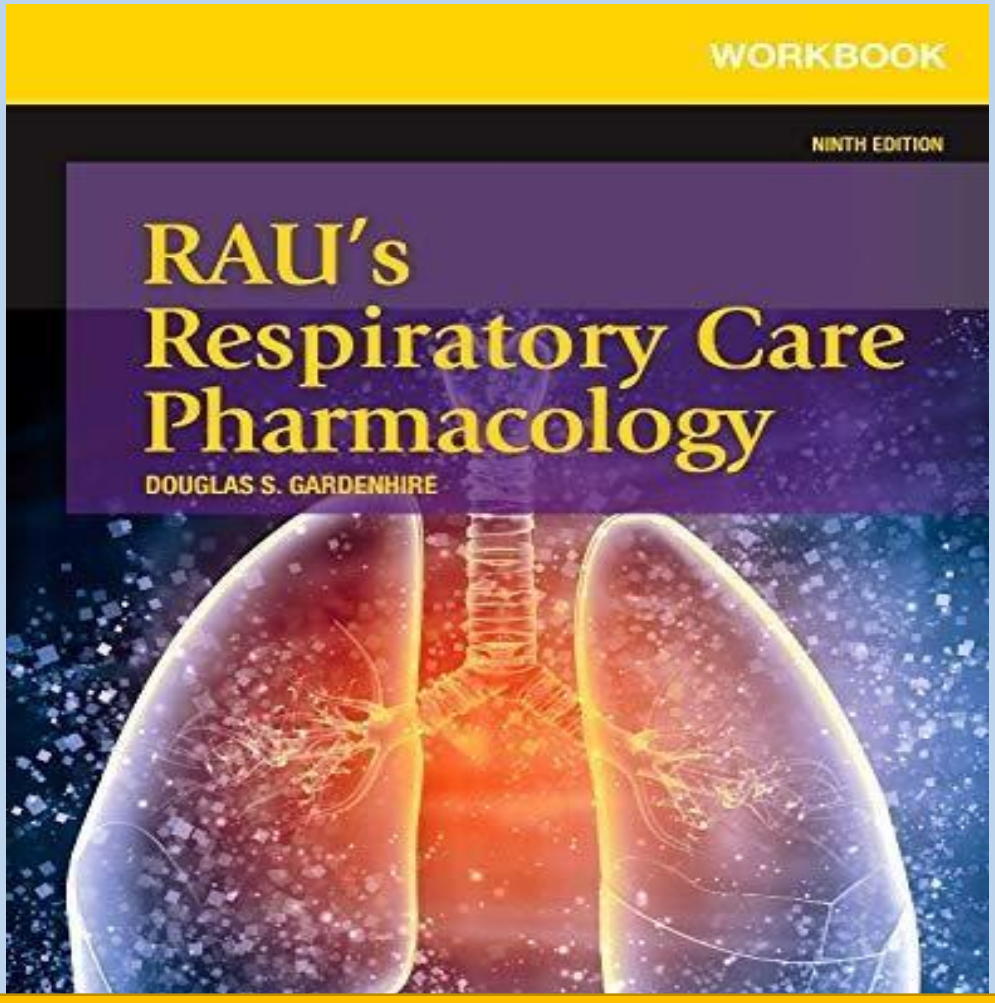
TEST BANK

RAU's Respiratory Care Pharmacology

9TH EDITION

BY GARDENHIRE



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Description

Test Bank for Rau's Respiratory Care Pharmacology 9th Edition Gardenhire

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Chapter 01: Introduction to Respiratory Care Pharmacology

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MULTIPLE CHOICE

1. What is the name of the receptor sites that are located in the peripheral vasculature, the heart, bronchial muscle, and bronchial blood vessels?
   a. Beta 2 receptors
   b. Gamma receptors
   c. Alpha receptors
   d. Beta 1 receptors

   ANS: C
   Alpha receptors are located in the peripheral vasculature, the heart, bronchial muscle, and bronchial blood vessels.

   PTS: 1

2. Which receptor site results in tachycardia, an increased potential for arrhythmias, and an increased cardiac output?
   a. Beta 1 receptor
   b. Beta 2 receptor
   c. Alpha receptor
   d. Delta receptor

   ANS: A
   Stimulation of the **beta-1 receptors** results in tachycardia, an increased potential for arrhythmias, and an increased cardiac output. In administering drugs to the pulmonary system, stimulation of the beta-1 sites is not desired. However, most respiratory pharmacologic agents have some beta-1 stimulatory effect.

   PTS: 1

3. Stimulation of the beta 2 receptors causes _____
   a. peripheral vasoconstriction and mild bronchoconstriction in the lungs.
   b. tachycardia, an increased potential for arrhythmias, and an increased cardiac output.
   c. bronchodilation.
   d. peripheral vasodilation, bradycardia, and decreased cardiac output.

   ANS: C
   Stimulation of the beta-2 receptors in the lungs causes **bronchodilation.**

   PTS: 1

4. Acetylcholine stimulates _____
   a. the Vagus nerve.
   b. the adrenergic receptors.
   c. the sympathetic nervous system.
   d. the cholinergic receptors.

   ANS: D
   Acetylcholine stimulates the **cholinergic receptors.**

   PTS: 1

5. What immunoglobulin antibody sensitizes the mast cell?
   a. Leukotrienes
   c. Histamine

b. IgE
d. Prostaglandins

ANS: B
The **IgE** (reagin) antibodies sensitize the mast cell. Repeated exposure to the antigen causes the degranulation of the mast cell.

PTS: 1

6. Which of the following is caused by histamine release from the mast cells?
   I. Bronchodilation
   II. Increased bronchial gland secretion
   III. Increased amount of mucus present in the airways
   a. I and II only
   b. II and III only
   c. III only
   d. I, II, III

ANS: B
Histamine is also a potent bronchoconstrictor. In addition to its bronchoconstrictive activity, histamine **II) increases bronchial gland secretion, causing III) an increase in the amount of mucus present in the airways.** Histamine may also have an effect on vascular permeability similar to the effect of-SRS-A.

PTS: 1

7. A sympathomimetic drug would cause _____
   a. bronchodilation.
   b. bronchoconstriction.
   c. Histamine release.
   d. Vagus nerve stimulation.

ANS: A
A sympathomimetic drug would cause **bronchodilation.** Sympathomimetic agents are the drugs most commonly used to reverse bronchospasm.

PTS: 1

8. Stimulation of the sympathetic nervous system causes _____
   a. vascular permeability.
   b. decreased blood pressure.
   c. bronchodilation.
   d. bronchoconstriction.

ANS: C
Sympathetic nervous system stimulation causes **bronchodilation.**

PTS: 1

9. Which of the following would NOT cause a bronchospasm or bronchoconstriction?
   a. Leukotrienes
   b. Beta 1 receptors
   c. Histamine
   d. Prostaglandins

ANS: B
Beta-1 receptors would not cause a bronchospasm or bronchoconstriction. Leukotrienes are one of many chemical mediators released by the mast cells. Leukotrienes cause a direct, strong bronchoconstriction. Histamine is also a potent bronchoconstrictor. Prostaglandins cause a strong bronchospasm, especially in asthmatic patients.

PTS: 1

10. Place the following intracellular events of the Beta 2 receptor stimulation in order.
    I. Phosphodiesterase breaks down cyclic 3', 5'-AMP into 5'-AMP
    II. Adenylate cyclase combines with magnesium and ATP to form cyclic 3',5'-AMP
    III. Cyclic 3',5'-AMP results in bronchial smooth muscle relaxation
    IV. Beta-2 stimulation causes the formation of adenylate cyclase
    a. I, II, III, IV
    b. III, IV, I, II
    c. IV, II, III, I
    d. IV, III, II, I

    ANS: C
    The following order is correct: **IV)** Beta-2 stimulation causes the formation of adenylate cyclase. **II)** Adenylate cyclase combines with magnesium and ATP (adenosine triphosphate) to form cyclic 3',5'-AMP (adenosine monophosphate). **III)** Cyclic 3',5'-AMP results in bronchial smooth muscle relaxation and hence bronchodilation. Cyclic 3',5'-AMP is not a long-lived agent. It is readily broken down by another enzyme present in the lungs called phosphodiesterase. **I)** Phosphodiesterase breaks 3',5'-AMP down into 5'-AMP, which no longer causes bronchodilation.

    PTS: 1

11. Release of acetylcholine will cause _____
    a. bronchodilation.
    b. Mast cell stabilization.
    c. stimulation of cyclic 3'5' AMP.
    d. bronchospasm.

    ANS: D
    Cholinergic receptors are cells that respond when stimulated by acetylcholine. Cholinergic receptors cause **profound bronchospasm** in the lungs when stimulated. Cholinergic receptors are found in the parasympathetic nervous system.

    PTS: 1

12. Which of the following is NOT an example of a sympathomimetic drug?
    a. Salmeterol Xinafoate
    b. Formoterol fumarate
    c. Pirbuterol Acetate
    d. Atropine Sulfate

    ANS: D
    Atropine sulfate is a anti-cholinergic bronchodilator. Salmeterol, formoterol, and pirbuterol are all sympathomimetic bronchodilators.

    PTS: 1

13. Which of the following sympathomimetic drugs are intended for maintenance therapy only?
    I. Levalbuterol
    II. Salmeterol
    III. Formoterol
    IV. Pirbuterol
    a. II, III, and IV
    b. I and IV
    c. II and III
    d. I, II, III, and IV

    ANS: C
    II) Salmeterol and III) Formoterol are intended for maintenance therapy only.

    PTS: 1

14. A pediatric patient is admitted to the emergency department from a physician's office with the suspected diagnosis of croup. An inspiratory stridor is heard. Which aerosolized sympathomimetic would you recommend to decrease the stridor?

a. Racemic epinephrine
b. Albuterol
c. Levalbuterol
d. Isoproterenol

ANS: A
Racemic epinephrine (Vaponephrine) is a sympathomimetic drug. However, its alpha effects are strong and it is commonly used to relieve croup and epiglottitis symptoms in children.

PTS: 1

15. Aminophylline causes bronchodilation by _____
a. stimulating the production of cyclic 3'5' AMP.
b. blocking the parasympathetic nervous system.
c. inhibiting the enzyme phosphodiesterase.
d. causing Mast cell degranulation.

ANS: C
Aminophylline is a **phosphodiesterase inhibitor.** It is an example of drugs in the xanthine group. Common phosphodiesterase drugs are found in the methylxanthine group. Cyclic 3',5'-AMP is broken down into 5'-AMP by the enzyme phosphodiesterase. If the action of phosphodiesterase can be blocked or inhibited, more 3',5'-AMP will remain in the lungs, resulting in better bronchodilation. Phosphodiesterase inhibitors act in this way.

PTS: 1

16. Inhibition of the sympathetic nervous system would cause _____
a. bronchoconstriction.
b. stridor.
c. bronchodilation.
d. relaxation of the bronchial smooth muscle.

ANS: A
If the sympathetic nervous system is inhibited, it would cause **bronchoconstriction.**

PTS: 1

17. Which of the following drugs cause bronchodilation by inhibiting the effects of the parasympathetic nervous system?
I. Atropine sulfate
II. Ipratropium bromide
III. Tiotropium bromide
IV. Terbutaline sulfate
a. I and IV
b. II and III
c. I, II, III
d. IV only

ANS: C
I) Atropine, II) ipratropium, and III) tiotropium are all examples of antocholinergic bronchodilators (bronchodilators that work by blocking the parasympathetic nervous system). Anticholinergic drugs block the cholinergic receptor sites, preventing that route of bronchospasm.

PTS: 1

18. Corticosteroids:
a. cause brondilation directly.
b. reduce inflammation.
c. stabilize Mast cells.

d. should always be administered with a bronchodilator.

ANS: B
Corticosteroids are widely used in the management of the **inflammatory process** associated with asthma, reactive airways disease, and other pulmonary disorders.

PTS: 1

19. A patient is ready to be discharged to her home. At home the patient has a compressor and a small volume nebulizer. Which of the following corticosteroids is in solution and is intended to be administered via a small volume nebulizer?
    a. Prednisone
    b. Dexamethasone
    c. Budesonide
    d. Triamcinolone

ANS: C
Budesonide (Pulmocort) is available as both an inhalant solution (0.25 mg/ mL once daily) and a dry powder formulation (200 mcg/dose twice daily). In aerosol form, this anti-inflammatory medication targets the lungs specifically with fewer side effects.

PTS: 1

20. Salmeterol and Fluticasone are combined into a DPI preparation. What is the purpose of these two drugs combined?
    a. Maintenance bronchodilation and Mast cell stabilization
    b. Mucolysis and anti-inflammation
    c. Bronchodilation by stimulating the sympathetic nervous system and inhibiting the parasympathetic nervous system
    d. Maintenance bronchodilation and anti-inflammation

ANS: D
Fluticasone propionate (Flovent) and salmeterol (Serevent) have been combined into a DPI preparation containing 100 mcg of fluticasone propionate and 50 mcg of salmeterol. By taking both drugs together, the long-term effects of both **d) maintenance bronchodilation and anti-inflamation** can be achieved.

PTS: 1

21. Which of the following drugs stabilize mast cells?
    a. Ipratropium
    b. Cromolyn sodium
    c. Albuterol
    d. Fluticasone

ANS: B
Cromolyn sodium is a prophylactic agent; it prevents mast cell degranulation. A patient must use the drug on a regular basis to prevent acute bronchospastic episodes.

PTS: 1

22. Montelukast, Zarfirlukast, and Zileuton are all used as maintenance therapy for asthma. How do they work?
    a. They stabilize the Mast cells.
    b. The cause bronchodilation.
    c. They are mucolytics.
    d. They are leukotriene inhibitors.