Chapter 7
Anticholinergic (Parasympatholytics) Bronchodilators
Study Guide and Application Exercise

1. Read chapter

2. Review objectives (p.122)

3. Review key terms and definitions (p.122)
   Note: Anticholinergic, parasympatholytic, antimuscarinic are essentially same.
   Note: Muscarinic receptor type M2 is located in the heart, type M3 is located in the lungs (i.e., bronchial smooth muscle)

4. What is the primary indication for anticholinergic bronchodilators?

5. What is the primary indication for combined (anticholinergic and β-adrenergic) bronchodilators?

6. What is the primary indication for anticholinergic nasal spray?

7. Review Table 7-1 and study the generic names, brand names, time course for the inhaled anticholinergic bronchodilator agents.
   Note: (A) Combivent Respimat provides a “soft mist”
   (B) Spiriva delivers the med via a device called “Handihaler.”

8. Read the section “Specific Anticholinergic (Parasympatholytic) Agents” and note the clinical usage of these agents. (p.123-125)

9. Describe the characteristics and clinical uses of: (A) ipratropium bromide, (B) ipratropium and albuterol, (C) tiotropium bromide (Spiriva), (D) aclidinium bromide (Tudorza Pressair), (E) tiotropium bromide and olodaterol (Stiolto Respimat), (F) umeclidinium bromide (Incruse Ellipta), and (G) umeclidinium bromide and vilanterol (Anoro Ellipta)

10. Review Table 7-2 and compare the effects of cholinergic and anticholinergic stimulation. (p.127)

11. Review Table 7-3 and compare the effects of tertiary and quaternary anticholinergic agents.

12. Name the common tertiary and quaternary anticholinergic agents.
13. Differentiate bronchoconstriction (A) induced by cholinergic agents and (B) mediated by vagal reflex. What is the purpose of administering cholinergic agents to patients? What should be done to prevent vagally mediated reflex? (p.128-129)

14. Anticholinergic agents produce bronchodilation by _______ (stimulating; blocking) the muscarinic receptor subtypes _______ (M1; M2; M3, M4, M5). Select all M-subtypes that apply.

15. What is the primary pulmonary effect when the selected M-subtypes are stimulated?

16. What are the adverse effects and use precautions of quaternary ammonium antimuscarinic bronchodilators?

17. What are the side effects of anticholinergic aerosol ipratropium? (p131)

18. Describe the advantages and clinical use of antimuscarinic agents for patients with COPD and asthma.

19. Ipratropium has been approved by the FDA specifically for use in the treatment of _______ (asthma, COPD). It is also used to treat _______ (asthma, COPD).

20. _______ is the brand name for tiotropium and it is used _______ (once, twice) per day.

21. The use of monotherapy or in combination of short-acting β agonist and long-acting anticholinergic should be determined by _______ (individual patient response, FDA guidelines, GOLD guidelines, NAEPP guidelines).

GOLD = Global Initiative for Chronic Obstructive Lung Disease
NAEPP = National Asthma Education and Prevention Program

22. Describe the respiratory care assessment of anticholinergic bronchodilator therapy. (p.134-135)

23. Review and complete “Clinical Scenario.” (p.135)

The calculated FEV1/FVC ratio is 65% predicted normal. Based on this value and the FEV1 60% predicted normal, does the patient have obstructive or restrictive lung disease? Explain.