Chapter 6
Adrenergic (Sympathomimetic) Bronchodilators
Application Exercises

The reading assignment and application exercises below are intended to highlight and enhance the understanding of important concepts in respiratory care pharmacology.

1. Perform cursory review of the entire chapter

2. Review objectives (p.96)

3. Review key terms and definitions (p.97)

4. What is the primary indication for short-acting adrenergic agents? (p.97)

5. Is “controller” agent a short-acting or long-acting drug?

6. List the indication for racemic epinephrine.

7. Review Table 6-1 and study the generic names, brand names, receptor preference, onset time and peak time and duration.

8. Add indacaterol (Arcapta) to the last line on Table 6-1. The duration of action for Indacaterol (Arcapta) is _________ (4, 8, 12, 24 (hours). (p.105)

9. Describe the purpose of developing drugs with L-, R- and L and R isomers. (p.99 and 102)

10. Catecholamines are metabolized by an enzyme called _______ that is found in the _______ (liver; kidney; liver and kidneys).

11. Study the figure and table for these drugs: catecholamine, resorcinol and saligenin.

12. What is a prodrug? (p.101)

13. Describe the advantages of levalbuterol (single-isomer) over albuterol (dual-isomer). (p. 102)

14. The extended-release alabuterol is in _______ (DPI, MDI, aerosol, tablet) form.

15. List the duration of action for each drug: salmeterol, formoterol, arformoterol, and indacaterol.
16. Salmeterol and formoterol both _______ (have; do not have) antiinflammatory effects. These two drugs can be used to replace inhaled corticosteroids. (True/False)

17. _______ is the ideal drug to treat status asthmaticus (severe asthma attack). (p.106)


19. Describe the mode of action and clinical use in α, β₁, and β₂ receptor stimulation. (p.107)

20. List the routes of administration for β-adrenergic bronchodilators and describe the special characteristics for each route. (p.109-111)

21. List the adverse side effects of β-adrenergic bronchodilators and describe the signs and symptoms for each side effect. (p.111-115)

22. Is mixing of common bronchodilaotrs a safe practice?

23. Long-acting β agonists may increase asthma hospitalization or cause death. (True/False)

24. Review Respiratory Care Assessment of β-agonists Therapy. (p.116)

25. Review and complete “Clinical Scenario.” (p.117).