PHARMACOLOGY PROPER

AUTOCOIDS

1. A patient receives a drug that inhibits the lipoxygenase pathway of arachidonic acid metabolism. What naturally occurring metabolite(s) will be produced in lesser amounts in response to this drug?
   a. Leukotrienes
   b. Prostacyclin (PGI2)
   c. Prostaglandins
   d. Thromboxanes
   e. Uric acid
2. For quite a while the "coxibs" (selective COX-2 inhibitors) were prescribed in preference to nonselective cyclooxygenase inhibitors for managing such conditions as rheumatoid arthritis. Now we have basically one drug in this class, celecoxib. Which statement best describes an action or property of this COX-2 inhibitor?
   a. Associated with a lower risk of gastric or duodenal ulceration
   b. Cures arthritis, rather than just give symptom relief
   c. Effectively inhibits uric acid synthesis
   d. Has a lower risk of adverse or fatal cardiac events
   e. Has significantly faster onset of action
3. Glucocorticoids are widely used for a host of inflammatory reactions and the diseases they cause. In terms of inflammatory responses and underlying metabolic reactions, which enzyme or process is the main target of these drugs when they are given at pharmacologic (supraphysiologic) doses?
   a. Xanthine oxidase
   b. Phospholipase A2
   c. Cyclooxygenases (COX-1 and -2)
   d. 5′-Lipoxygenase
4. Which of the following statements about autocoids is not true:
   a. Leukotrienes and prostaglandins are two examples of eicosanoids
   b. Corticosteroids inhibit phospholipase A_2
   c. Eicosanoids are synthesised from arachidonic acid
   d. 5-lipoxygenase enzyme work on arachidonic acid to form thromboxane
5. The actions of thromboxane(TXA2) do not include which of the following statements
   a. Bronchoconstriction
   b. Vasoconstriction

c. Promote platelet aggregation
d. Increase glomerular filtration rate

6. Which of the following statements is most accurate?
   a. Antihistamines are the preferred agent in the treatment of acute anaphylaxis
   b. Antihistamine agents are generally used in the treatment of asthma
   c. Second generation antihistamines have fewer anti-cholinergic and sedating effects than first generation antihistamines
   d. Antihistamine agents used for allergic rhinitis have antagonistic activity against both H1 and H2 receptors
7. The common use of second generation histamine-H1 receptor blocker is the treatment of which of the following complaints?
   a. Hay fever
   b. Sleeplessness
   c. Cough associated with influenza
   d. Motion sickness

Drugs Used In the Management of Bronchial Asthma

1. Certain adrenergic agonists clearly play a role in managing some patients with asthma, whether for prophylaxis (control medication) or for rescue therapy. Which drug is classified as an adrenergic agonist, but has no physiologically relevant or clinically useful effects on airway smooth muscle tone?
   a. Albuterol
   b. Epinephrine
   c. Norepinephrine
   d. Salmeterol
   e. Terbutaline
   f. Theophylline
2. The attending in the outpatient pulmonary clinic states she is going to start omalizumab therapy for a 19-year-old with refractory asthma. What most accurately describes the actions, uses, or adverse effects of this drug?
   a. Antibody that binds and therefore inactivates endogenous ACh and histamine
   b. Contraindicated if patient is taking an oral or orally inhaled corticosteroid
   c. Good alternative to albuterol or similar adrenergic bronchodilators for rescue therapy
   d. Immediate- or delayed-onset anaphylactic reactions pose the greatest risk

e. Novel agent likely to become first-line therapy as a control medication for mild but recurrent asthma

3. A 19-year-old moves from a small town to your city, and is now your patient. He has a history of asthma, and his previous primary care physician was managing it with oral theophylline. What best summarizes the efficacy or current status of theophylline in particular, or methylxanthines in general, in such patients as this?
   a. Dosing is simple and convenient, rarely needs to be adjusted
   b. Excellent alternative to an inhaled steroid for "rescue" therapy
   c. Is, at best, a second- or third-line agent for long-term asthma control
   d. Possesses strong and clinically useful anti-inflammatory activity
   e. Sedation is a major side effect, even with therapeutic doses or blood levels
4. A 16-year-old girl treated for asthma develops drug-induced skeletal muscle tremors. What was the most likely cause?
   a. Albuterol
   b. Cromolyn
   c. Ipratropium
   d. Montelukast
5. A 26-year-old patient with asthma is being treated with montelukast. What is the main mechanism by which this drug works?
   a. Blocks receptors for certain proinflammatory and bronchoconstrictor arachidonic acid metabolites
   b. Enhances release of epinephrine from the adrenal (suprarenal) medulla
   c. Increases airway β-adrenergic receptor responsiveness to endogenous norepinephrine
   d. Inhibits cAMP breakdown via phosphodiesterase inhibition
   e. Prevents antigen-antibody reactions that lead to mast cell mediator release
   f. Stimulates ventilatory rates (CNS effect in brain's medulla)
6. A 23-year-old woman with asthma has what is described as "aspirin (hyper)sensitivity" (triad asthma) and experiences severe bronchospasm in response to even small doses of the drug. What is the most likely mechanism by which the aspirin provoked her pulmonary problems?
   a. Blocked synthesis of endogenous prostaglandins that have bronchodilator activity

b. Induced formation of antibodies directed against the salicylate on airway mast cells
c. Induced hypersensitivity of H1 receptors on airway smooth muscles
d. Induced hypersensitivity of muscarinic receptors on airway smooth muscles
e. Prevented epinephrine binding to β2-adrenergic receptors (airways and elsewhere)

7. . Acetylcholinesterase inhibitors, muscarinic agonists such as pilocarpine, and β-blockers are among the drugs used to manage patients with glaucoma. They also share properties that are particularly relevant to patients with asthma. Which statement summarizes best what that relevance is?
   a. Contraindicated, or pose great risks, for people with asthma
   b. Degranulate mast cells, cause bronchoconstriction
   c. Tend to raise intraocular pressure in patients who have both glaucoma and asthma
   d. Trigger bronchoconstriction by directly activating H1 histamine receptors on airway smooth muscle cells
   e. Useful for acute asthma, not for ambulatory patients