RESP-1340: PHARMACOLOGY FOR RESPIRATORY CARE

Cuyahoga Community College

Viewing: RESP-1340 : Pharmacology for Respiratory Care

Board of Trustees:
2014-12-04

Academic Term:
2015-08-25

Subject Code
RESP - Respiratory Care

Course Number:
1340

Title:
Pharmacology for Respiratory Care

Catalog Description:
General principles of pharmacology and calculations of drug dosages. Discussion of pharmacologic principles and agents used in treatment of cardiopulmonary disorders.

Credit Hour(s):
2

Lecture Hour(s):
2

Lab Hour(s):
0

Other Hour(s):
0

Requisites

Prerequisite and Corequisite
RESP-1300 Respiratory Care Equipment and RESP-1310 Cardiopulmonary Physiology.

I. ACADEMIC CREDIT

Academic Credit According to the Ohio Department of Higher Education, one (1) semester hour of college credit will be awarded for each lecture hour. Students will be expected to work on out-of-class assignments on a regular basis which, over the length of the course, would normally average two hours of out-of-class study for each hour of formal class activity. For laboratory hours, one (1) credit shall be awarded for a minimum of three laboratory hours in a standard week for which little or no out-of-class study is required since three hours will be in the lab (i.e. Laboratory 03 hours). Whereas, one (1) credit shall be awarded for a minimum of two laboratory hours in a standard week, if supplemented by out-of-class assignments which would normally average one hour of out-of-class study preparing for or following up the laboratory experience (i.e. Laboratory 02 hours). Credit is also awarded for other hours such as directed practice, practicum, cooperative work experience, and field experience. The number of hours required to receive credit is listed under Other Hours on the syllabus. The number of credit hours for lecture, lab and other hours are listed at the beginning of the syllabus. The standard expectation for an online course is that you will spend 3 hours per week for each credit hour.

Enhance your success in this course. Proper planning, prioritization and dedication will be

II. ACCESSIBILITY STATEMENT

If you need any special course adaptations or accommodations because of a documented disability, please notify your instructor within a reasonable length of time, preferably the first week of the term with formal notice of that need (i.e. an official letter from the Student Accessibility Services (SAS) office). Accommodations will not be made retroactively.

For specific information pertaining to ADA accommodation, please contact your campus SAS office or visit online at http://www.tric.edu/accessprograms. Blackboard accessibility information is available at http://access.blackboard.com.
III. ATTENDANCE TRACKING

Regular class attendance is expected. Tri-C is required by law to verify the enrollment of students who participate in federal Title IV student aid programs and/or who receive educational benefits through other funding sources. Eligibility for federal student financial aid is, in part, based on your enrollment status.

Students who do not attend classes for the entire term are required to withdraw from the course(s). Additionally, students who withdraw from a course or stop attending class without officially withdrawing may be required to return all or a portion of the financial aid based on the date of last attendance. Students who do not attend the full session are responsible for withdrawing from the course(s).

Tri-C is responsible for identifying students who have not attended a course, before financial aid funds can be applied to students’ accounts. Therefore, attendance will be recorded in the following ways:

For in-person courses, students are required to attend the course by the 15th day of the semester, or equivalent for terms shorter than 5-weeks, to be considered attending. Students who have not met all attendance requirements for an in-person course, as described herein, within the first two weeks of the semester, or equivalent, will be considered not attending and will be reported for non-attendance and dropped from the course.

For blended-learning courses, students are required to attend the course by the 15th day of the semester, or equivalent for terms shorter than 5-weeks, or submit an assignment, to be considered attending. Students who have not met all attendance requirements for a blended-learning courses, as described herein, within the first two weeks of the semester, or equivalent, will be considered not attending and will be reported for non-attendance and dropped from the course.

For online courses, students are required to login in at least two (2) times per week and submit one (1) assignment per week for the first two (2) weeks of the semester, or equivalent to the 15th day of the term. Students who have not met all attendance requirements for an online course, as described herein, within the first two weeks of the semester, or equivalent, will be considered not attending and will be reported for non-attendance and dropped from the course.

At the conclusion of the first two weeks of a semester, or equivalent, instructors report any registered students who have “Never Attended” a course. Those students will be administratively withdrawn from that course. However, after the time period in the previous paragraphs, if a student stops attending a class, wants or needs to withdraw, for any reason, it is the student’s responsibility to take action to withdraw from the course. Students must complete and submit the appropriate Tri-C form by the established withdrawal deadline.

Tri-C is required to ensure that students receive financial aid only for courses that they attend and complete. Students reported for not attending at least one of their registered courses will have all financial aid funds held until confirmation of attendance in registered courses has been verified. Students who fail to complete at least one course may be required to repay all or a portion of their federal financial aid funds and may be ineligible to receive future federal financial aid awards. Students who withdraw from classes prior to completing more than 60 percent of their enrolled class time may be subject to the required federal refund policy.

If illness or emergency should necessitate a brief absence from class, students should confer with instructors upon their return. Students having problems with class work because of a prolonged absence should confer with the instructor or a counselor.

IV. CONCEALED CARRY STATEMENT

College policy prohibits the possession of weapons on college property by students, faculty and staff, unless specifically approved in advance as a job-related requirement (i.e., Tri-C campus police officers) or, in accordance with Ohio law, secured in a parked vehicle in a designated parking area only by an individual in possession of a valid conceal carry permit.

As a Tri-C student, your behavior on campus must comply with the student code of conduct which is available on page 29 within the Tri-C student handbook, available athttp://www.tri-c.edu/student-resources/documents/studenthandbook.pdf You must also comply with the College’s Zero Tolerance for Violence on College Property available athttp://www.tri-c.edu/policies-and-procedures/documents/3354-1-20-10-zero-tolerance-for-violence-policy.pdf

Outcomes
Course Outcome(s):
A. Evaluate specific information on various categories of drugs.

Objective(s):
1. Demonstrate an understanding of basic terminology for respiratory care pharmacology.
2. Identify the official drug publication in the U.S.
3. Identify four common sources of drug information.
Course Outcome(s):
B. Describe the basic principles of drug action emphasizing the pharmaceutical phase, pharmacokinetic phase and pharmacodynamic phase.

Objective(s):
1. Identify the three phases involved in drug action.
2. Identify five different routes of administration and give advantages and disadvantages of each route.
3. Identify the four processes involved in the pharmacokinetics phase.
4. Identify the essential concepts involved with the interaction of a drug molecule with its target receptor site.

Course Outcome(s):
C. Calculate and interpret adult dosages for medications given by respiratory care practitioners.

Objective(s):
1. Calculate dosages from percentage strength solutions.
2. Calculate the amount of solute per ml of solution given a ratio.
3. Calculate the ratio of drug to diluent given the amounts of drug and diluent or simple parts.
4. Calculate the amount or volume of drug needed given a medication order and the dose and amount of medication on hand.
5. Calculate a dosage based on a schedule (mg/Kg).
6. Identify correct dose and schedule for adult medications administered by respiratory care practitioners.
7. Convert from one unit to another within the metric system.

Course Outcome(s):
D. Differentiate between drugs affecting the autonomic nervous system, parasympathetic and sympathetic branch and their relationship to the heart and lungs.

Objective(s):
1. Describe the two branches of the autonomic nervous system.
2. Describe the effects that the sympathetic and parasympathetic branches of the ANS have on various body processes.
3. Identify drug representatives for parasympathomimetic (cholinergic) agents.
4. Identify drug representatives of the parasympatholytic (anticholinergic/antimuscarinic) agents.
5. Identify sympatholytic (antiadrenergic) agents.
6. Identify drug representatives for sympathomimetic (adrenergic) agents.
7. Identify pharmacologic effects of beta sympathetic stimulation.
8. Identify and understand the mechanism of action on bronchial smooth muscle and skeletal muscle of the parasympatholytic drugs.
9. Identify the role of parasympathetic stimulation in the normal lung.
10. Name desirable characteristics in a sympathomimetic bronchodilator.
11. Identify the advantages and disadvantages of aerosol administration of the sympathomimetic bronchodilators.

Course Outcome(s):
E. Evaluate the use of drugs given by respiratory care practitioners based on mode of action, therapeutic effect, adverse reactions and side effects.

Objective(s):
1. Identify dosage forms available, pharmacologic action on the lung, onset, duration, side effects, precautions, pharmaceutical precautions (i.e. storage requirements), and generic and trade names for parasympatholytic bronchodilators.
2. Identify dosage forms available, pharmacologic action on the lung, onset, duration, side effects, precautions, pharmaceutical precautions (i.e. storage requirements), and generic and trade names for sympathomimetic drugs.
3. Identify dosage forms available, pharmacologic action, side effects, precautions, pharmaceutical precautions (i.e. storage requirements), and generic and trade names for mucus controlling drugs.
4. Identify dosage forms available, pharmacologic action, side effects, precautions, pharmaceutical precautions (i.e. storage requirements), and generic and trade names for surface active agents.
5. Identify dosage forms available, pharmacologic action, side effects, precautions, pharmaceutical precautions (i.e. storage requirements), and generic and trade names for drug categories and types used in the treatment of pulmonary infections (antibiotics, antifungal agents, antituberculosis agents).
6. Identify dosage forms available, pharmacologic action on the lung, side effects, precautions, pharmaceutical precautions (i.e. storage requirements), and generic and trade names for drug categories and types used as anti-inflammatory agents delivered by aerosol administration and their application in clinical settings.

Course Outcome(s):
G. Compare drug categories and types used as skeletal muscle relaxants, their applications and clinical uses.
Objective(s):
1. Identify the mechanism of action and pharmacodynamics for the nondepolarizing neuromuscular blocking agents.
2. Identify the mechanism of action and pharmacodynamics for the depolarizing neuromuscular blocking agents.
3. Identify uses of neuromuscular blocking agents that relate to respiratory therapy/anesthesia

Course Outcome(s):
H. Compare drug categories and types which both stimulate and depress ventilation, their application and clinical uses.

Objective(s):
1. Describe the differences between sedatives and hypnotics
2. Identify the mechanism of action for the barbiturates
3. Identify the primary uses of the barbiturates
4. Identify the mechanism of action for the minor tranquilizers (benzodiazepines)
5. Identify representatives of the minor tranquilizers (benzodiazepines)
6. Identify the two major classes of antipsychotic drugs
7. Identify the mechanism of action for the neuroleptic agents
8. Identify the cardiac and CNS adverse reactions associated with the neuroleptic agents
9. Identify the mechanism of action for the antidepressants
10. Identify the cardiac, CNS and neurologic adverse reactions associated with the antidepressants
11. Identify the mechanism of action for the narcotic analgesics
12. Identify adverse reactions or side effects associated with the narcotic analgesics
13. Identify the commonly used respiratory stimulants
14. Identify uses for the respiratory stimulants and whether that use is indicated or not

Course Outcome(s):
I. Compare drug categories and types which directly and indirectly affect cardiovascular function (electrophysiology, hemodynamics) their application and clinical uses.

Objective(s):
1. Identify the mechanism of action for the cardiac glycosides and the inotropic and chronotropic effects
2. Identify the classes of antiarrhythmic drugs and several agents associated with each type
3. Identify the major classes of antihypertensive drugs and several representatives of each class
4. Identify the major mechanisms of action for the antihypertensive agents
5. Identify the two major drug classifications included in the coronary vasodilators
6. Identify the major indications for the coronary vasodilators
7. Identify the more common cardiac stimulants and/or vasoconstricting agents
8. Identify the more common drugs used in an emergency resuscitation attempt

Methods of Evaluation:
1. Quizzes
2. Examinations
3. Comprehensive test

Course Content Outline:
1. Basic terminology
   a. Drugs
   b. Pharmacology
      i. pharmacokinetics
      ii. pharmacodynamics
      iii. toxicology
      iv. therapeutics
      v. pharmacogenetics
2. Legislation
   a. Official publications
   b. Legislation in U.S.A.
3. The naming of drugs
   a. Chemical name
   b. Code name
   c. Generic name
d. Official name

e. Trade (proprietary) name

4. Sources of drug information
   a. United States pharmacopeia, national formulary
   b. AMA drug evaluations
   c. PDR (Physician’s Desk Reference)
   d. Hospital formulary (ASHP)
   e. The pharmacist

5. Sources of drugs
   a. Chemical synthesis
   b. Animal
   c. Plant
   d. Mineral (inorganic)

6. Development of a new drug
   a. Animal studies
      i. acute, subacute or chronic toxicities
      ii. therapeutic index
      iii. pharmacokinetic studies
   b. Human studies
      i. phase 1 - preliminary pharmacologic evaluation
      ii. phase 2 - basic controlled evaluation for efficacy and safety
      iii. phase 3 - extended clinical studies

7. Principles of drug action
   a. Pharmaceutical phase
      i. drug form (dosage form)
      ii. route of administration
         1. determining factors
            a. systemic or local effect
            b. desired rate of onset and duration of action
            c. stability of a drug in various body fluids
            d. convenience vs. safety
            e. the amount of drug to be given
         2. oral route of administration
            a. advantages
            b. disadvantages
            c. dosage forms (or types)
   b. Pharmacokinetic phase
      i. absorption
         1. passive - requires no energy expenditure
         2. active requires energy
         3. bioavailability
      ii. distribution
      iii. metabolism
iv. excretion
   1. renal
   2. liver-biliary excretion
   3. GI
   4. lungs
   5. other

c. Pharmacodynamic phase
   i. essential concepts
   ii. lock-and-key analogy
      1. drug affinity
      2. drug efficacy
      3. agonist
      4. antagonist
   iii. drug interactions
      1. additive
      2. synergistic
      3. potentiation
      4. antagonism
      5. partial antagonist
      6. cumulation
      7. tolerance
      8. tachyphylaxis
   iv. therapeutic index

8. The prescription
   a. Parts of a prescription
   b. Administering a drug
   c. Abbreviations

9. Calculating drug dosages and math problems
   a. The metric system
      i. unit of length
      ii. unit of volume
      iii. unit of weight
   b. The apothecary system
      i. unit of length
      ii. unit of volume
      iii. unit of weight
   c. The avoirdupois system
   d. Conversion between systems
      i. approximate equivalents
      ii. household equivalents
   e. Drug dosage calculations
      i. calculating dosages from prepared strength liquids, tablets, or capsules
      ii. calculating dosages from percentage-strength solutions
      iii. diluents and drug dosage strengths
   f. Solutions definitions and terms
      i. solution
      ii. isotonic solution
      iii. hypertonic solution
      iv. hypotonic solution

10. Organization of the nervous system
    a. Central nervous system
       i. the brain
       ii. spinal cord
    b. Peripheral nervous system
       i. somatic branches
          1. sensory (afferent)
          2. motor (efferent)
       ii. autonomic nervous system
1. parasympathetic branch
2. sympathetic branch
3. effects
c. Neurotransmitters
   i. acetylcholine
   ii. norepinephrine
d. Autonomic receptors
   i. cholinergic
      1. muscarinic
      2. nicotinic
   ii. adrenergic
      1. alpha1
      2. alpha2
      3. beta1
      4. beta2
      5. dopaminergic
e. Terminology
   i. parasympathomimetic (cholinergic)
   ii. parasympatholytic (anticholinergic)
   iii. sympathomimetic (adrenergic)
   iv. sympatholytic (antiadrenergic)
11. Cholinergic receptor stimulants
    a. Direct acting cholinergic stimulants
       i. representatives
       ii. pharmacokinetics
       iii. pharmacologic effects
    b. Indirect-acting cholinergic stimulants (anticholinesterases)
       i. representatives
       ii. pharmacokinetics
       iii. pharmacologic effects
    c. Clinical uses
d. Adverse effects
12. Cholinergic receptor antagonists (parasympatholytics)
    a. Muscarinic-blocking drugs
       i. representatives
       ii. organ system effects
       iii. clinical uses
       iv. adverse effects
          1. central nervous system disorders
          2. respiratory system disorders
          3. cardiovascular system disorders
    b. Ganglionic blocking drugs
       i. representatives
       ii. cardiovascular system effects
       iii. clinical uses
13. Adrenergic receptor-blocking drugs (sympatholytics)
    a. Representatives
    b. Alpha-antagonists
       i. pharmacologic effects
       ii. clinical uses
          1. cardiovascular system
          2. respiratory system
    c. Beta-agonists (blockers)
       i. pharmacokinetics differences
       ii. pharmacologic effects
       iii. clinical applications
          1. hypertension
          2. cardiac arrhythmias
          3. neurologic diseases
14. Sympathomimetic bronchodilators
a. Action of bronchodilators
   i. pharmacologic effects
   ii. bronchodilation drugs
b. Structure-activity relationship (catecholamine)
c. Desirable characteristics in a bronchodilator
   i. half-life
   ii. specificity
d. Routes of administration
   i. aerosol
      1. advantages
      2. disadvantages
   ii. oral
      1. drugs which are ineffective orally
      2. disadvantages of the oral route of administration
   iii. parenterally
      1. uses
      2. disadvantages
      3. drugs given parenterally
e. Tolerance
   i. tachyphylaxis
f. Metered dose inhaler delivery problems
   i. determination of dose by patient
g. Current sympathomimetic bronchodilators
   i. strength
   ii. dose aerosol
   iii. pharmacologic effects
   iv. onset of action
   v. duration
   vi. peak effect
   vii. side effects
   viii. precautions
   ix. storage considerations
15. Parasympatholytic and xanthine bronchodilators
   a. Parasympathetic and sympathetic stimulation on bronchial smooth muscle
      i. physiology
      ii. key factors
   b. Parasympathetic role in bronchoconstriction
      i. non-asthmatic lungs
      ii. asthmatic lungs
   c. Mechanism of action of parasympathetic overstimulation
      i. afferent pathway
      ii. efferent pathway
d. Aerosolized parasympatholytics
   i. naturally occurring parasympatholytic agents
   ii. pharmacological effects
      1. bronchioles
      2. secretions
      3. heart rate
      4. pupil
   iii. side effects of parasympatholytics
   iv. common parasympatholytic drugs
      1. aerosol dosages
      2. peak effects
      3. duration of effects
      4. pharmacologic action
      5. side effects
      6. xanthine agents
   v. common agents
   vi. pharmacologic effects
1. central nervous system (CNS)
2. skeletal muscle
3. bronchioles
4. pulmonary vasculature
5. smooth muscle
6. coronary arteries
7. heart rate
8. urine output
vii. therapeutic serum concentration
viii. individualized loading dosages
e. Sustained-release products
   i. advantages
   ii. disadvantages
f. Combination products
   i. advantages of combination products
   ii. disadvantages of combination products
16. Management of bronchial secretions
a. Mucociliary system
   i. function
   ii. alterations in certain diseases
b. Mucus production
   i. mucus
   ii. sol
   iii. gel
   iv. mucin
   v. sputum
c. Factors which slow mucociliary transport rate
   i. health status of the patient
   ii. mechanical alterations of tracheo-bronchial tree
   iii. drugs
   iv. pollutants
d. Factors which increase mucociliary transport
   i. drugs
   ii. physiologic factors
e. Mucolysis
   i. hydration
      1. systemic hydration
      2. topical hydration
      3. increased topical ph
      4. rupture of disulfide bonding
      5. proteolytic enzymes
      6. stimulation of additional secretions
f. Physical properties of mucus
   i. cohesion
   ii. adhesion
   iii. rheology
   iv. viscosity
   v. elasticity
g. Improving mucus transport
   i. changes in viscosity
   ii. changes in elasticity
h. Common mucolytic agents
   i. strengths
   ii. dose (for inhalation)
   iii. mechanism of action
   iv. side effects
   v. physical incompatibilities
   vi. storage precautions
   i. surface-active agents
17. Corticosteroids in respiratory care
a. Major pharmacologic effects
b. Physiology of corticosteroid secretion
c. Pharmacology of glucocorticoids
   i. anti-inflammatory effects
      1. causes of inflammatory response
      2. mechanism of inflammatory changes
      3. mechanism of action of glucocorticoids in preventing inflammatory changes
   ii. pharmacologic effects of glucocorticoids
      1. changed in tissue histamine
      2. enhanced bronchodilation
      3. immunosuppression
      4. blood sugar
      5. fluid balance
      6. blood pressure
      7. gastrointestinal tract
      8. bone structure
      9. cushingoid effect
      10. adrenal suppression
   iii. danger of excessive exogenous steroids
d. Aerosol vs. systemic therapy
   i. advantages
   ii. disadvantages
   iii. limitations
e. Common aerosol drugs
   i. dosage
   ii. duration of action
   iii. side effects
   iv. clinical uses
18. Allergic asthma
a. chemical mediators of inflammation
b. systemic affects of released chemical mediators
   i. increased vascular permeability
   ii. contraction of smooth muscle
   iii. increased mucus secretion
   iv. vasodilation with edema
c. affects of chemical mediator release in the lung
   i. bronchospasm
   ii. mucus plugging
   iii. mucosal exema
d. control of mast cell discharge
   i. cAMP
   ii. cGMP
e. Antileukotriene Agents and Monoclonal Antibodies
   i. mechanism of action
   ii. precautions
   iii. clinical applications
   iv. dosage forms
   v. dose
   vi. adverse effects
19. CNS depressants and respiratory stimulants
a. The central nervous system (CNS)
   i. basic anatomy
   ii. reticular formation
1. reticular activating system
2. limbic system

iii. extrapyramidal system
   1. response to drugs
   2. dose-related
   3. descending manner

b. Sedatives and hypnotics
   i. barbiturates
      1. structure-activity relationship
      2. duration of action
      3. metabolism
      4. tolerance mechanism of action
      5. adverse reactions
      6. clinical uses
      7. barbiturate intoxication
      8. drugs
   ii. minor tranquilizers
      1. mechanism of action
      2. adverse reactions
      3. agents

c. Nonbarbiturate hypnotics
   i. mechanism of action
   ii. adverse reactions

d. Antipsychotic drugs
   i. neuroleptics
      1. uses
      2. adverse drug reactions
      3. common agents
   ii. antidepressants
      1. uses
      2. adverse reactions
      3. agents

e. Analgesics
   i. pain
      1. types
      2. mechanism of pain
      3. mechanism of action for analgesics
   ii. narcotic analgesics
      1. uses
      2. mechanism of action
      3. adverse reactions/side effects
      4. overdose
      5. narcotic antagonists
      6. agents
   iii. non-narcotic analgesics
      1. uses
      2. mechanism of action
      3. adverse reactions
      4. agents

f. Respiratory stimulants
   i. agents
   ii. clinical uses

20. Neuromuscular blocking agents
   a. Physiology of the neuromuscular junction
   b. Mechanism(s) of action
      i. nondepolarizing neuromuscular blocker
      ii. depolarizing neuromuscular blocker
   c. Nondepolarizing neuromuscular blockers
i. agents
ii. mechanism of action
iii. pharmacodynamics
d. Depolarizing neuromuscular blockers
   i. agents
   ii. mechanism of action
      1. phase 1
      2. phase 2
   iii. pharmacodynamics
   iv. sensitivity to succinylcholine
   v. desensitization (dual block)
e. Clinical pharmacology
   i. skeletal muscle paralysis
   ii. cardiovascular system
   iii. drug interactions
f. Uses of neuromuscular blockers
   i. elective intubation
   ii. continuous paralysis (control of ventilation)
   iii. treatment of convulsions
g. Specific agents
21. Anti-infective agents
   a. Definitions
      i. bactericidal
      ii. bacteriostatic
   b. Mode of action for anti-infective agents
      i. inhibition of cell wall synthesis
      ii. inhibition of cell membrane function
      iii. inhibition of protein synthesis
      iv. inhibition of nucleic acid synthesis
      v. competitive antagonism of some metabolite
c. Clinical aspects
   i. broad-spectrum vs. narrow-spectrum
   ii. bactericidal vs. bacteriostatic
   iii. gram-positive organism vs. gram-negative organism vs. anaerobic organism
   iv. sensitivity testing
   v. development of resistance
d. Major categories used in respiratory infections
   i. penicillins
      1. indications
      2. adverse reactions
      3. resistance
      4. penicillin allergy
   ii. cephalosporins
      1. common agents
      2. indications
      3. adverse reactions
   iii. aminoglycosides
      1. agents
      2. indications
   iv. tetracyclines
      1. common agents
      2. indications
      3. adverse reactions
   v. sulfonamides
      1. common agents
      2. indications
      3. adverse reactions
   vi. miscellaneous agents
1. indications
2. adverse reactions
e. Antifungal agents
   i. common agents
   ii. indications
   iii. adverse reactions
f. Antituberculosis drugs
   i. primary agents
   ii. indications
   iii. adverse reactions
g. Antiviral agents
   i. indications
   ii. mechanism of action
h. Aerosolized antibiotics
   i. systemic vs. local effects
   ii. treatment of gram-negative pulmonary infections
   iii. treatment of fungal infections
   iv. hazards of aerosolized antibiotics
22. Cardiovascular agents
   a. Categories of major drug groups
      i. heart
         1. cardiac glycosides
         2. antiarrhythmic agents
         3. cardiac stimulants
      ii. circulatory vessels
         1. antihypertensive agents
         2. coronary vasodilators
         3. pulmonary vasodilators
         4. vasoconstricting agents
      iii. blood (anticoagulants)
   b. Factors that influence mean arterial pressure
      i. cardiac output
      ii. contractile force
      iii. blood volume
      iv. venous return
   c. Electrophysiology of the heart
      i. normal electrical pathways
      ii. rapid depolarization
         1. sodium movement
         2. calcium movement
      iii. action potential
      iv. absolute refractory period
      v. electromechanical dissociation
d. Effects-of cardiac agents
   i. terms
      1. inotropic
      2. chronotropic
      3. preload
      4. afterload
   ii. filling pressures
      1. right heart
      2. left heart
e. Cardiac glycosides
   i. agents
   ii. mechanism of action
   iii. effects on the heart
   iv. uses
   v. adverse reactions
f. Antiarrhythmic drugs
i. mechanism of action
ii. adverse reactions
iii. indications

g. Antihypertensives
   i. mechanisms of action
   ii. step-care approach to treating hypertension
   iii. common agents

h. Coronary vasodilators
   i. indications
   ii. agents
   iii. agents and doses

i. Vasoconstricting agents/cardiac stimulants
   i. indications
   ii. agents

j. Drugs used in emergency resuscitation attempts

23. Antithrombotic Agents
   a. Clotting process
   b. Agents
      i. Anticoagulants
      ii. Antiplatelets
      iii. Thrombolytics
   c. Adverse effects

24. Diuretics
   a. common agents
   b. mechanism of action
   c. pharmacokinetics
   d. uses
   e. adverse reactions

Resources


