

2008 PHARMACOTHERAPY PREPARATORY COURSE

Program Faculty Affiliations and Learning Objectives

SESSION 1: Pediatrics and Geriatrics

PEDIATRICS

Kirsten H. Ohler, Pharm.D., BCPS

Clinical Assistant Professor,
University of Illinois Medical Center at Chicago
Chicago, IL

Learning Objectives:

1. Describe the most common pathogens associated with neonatal and pediatric sepsis/meningitis.
2. Describe current therapeutic options for the management of neonatal and pediatric sepsis/meningitis.
3. Identify the agents available for the prevention and treatment of respiratory syncytial virus.
4. Describe the most common causative organisms of otitis media and potential treatment options.
5. Identify the recommended pediatric immunization schedule and barriers to routine immunization.
6. Discuss the differences in anticonvulsant pharmacokinetics and adverse effects between children and adults.
7. Describe current drug therapy for the management of patients with attention deficit hyperactivity disorder.

GERIATRICS

Ceressa T. Ward, Pharm.D., BCPS

Clinical Coordinator,
Emory Crawford Long Hospital,
Atlanta, GA

Learning Objectives:

1. Discuss age-related changes in pharmacokinetics and pharmacodynamics in the elderly.
2. Identify and manage medication-related problems in the elderly.
3. Recommend pharmacotherapy for Alzheimer's disease, osteoarthritis, rheumatoid arthritis, urinary incontinence, and benign prostatic hypertrophy.

SESSION 2: Biostatistics: A Refresher and Clinical Trials: Fundamentals of Design and Interpretation

BIOSTATISTICS: A REFRESHER

G. Robert DeYoung, Pharm.D., BCPS

Clinical Pharmacist, Ambulatory Care

Advantage Health Physicians and St. Mary's Health Care

Grand Rapids, Michigan

Learning Objectives:

1. Describe differences between descriptive and inferential statistics.
2. Identify different types of data (continuous, nominal, ordinal) for the purpose of determining an appropriate statistical test (parametric, nonparametric).
3. Describe advantages and disadvantages to using measures of central tendency.
4. Describe the concepts of normal distribution, population, and sample.
5. State the meaning of a p-value and confidence intervals, including pitfalls, in their interpretation.
6. Describe the role of the 95% confidence interval in determining statistical significance and clinical significance.
7. Interpret statistical significance for results from a chi-squared test and a t-test.
8. State the types of decision errors that may occur when using statistical tests and the conditions in which they may occur.
9. Identify the utility of survival analysis and different ways to perform and report it.

CLINICAL TRIALS: FUNDAMENTALS OF DESIGN AND INTERPRETATION

G. Robert DeYoung, Pharm.D., BCPS

Clinical Pharmacist, Ambulatory Care

Advantage Health Physicians and St. Mary's Health Care

Grand Rapids, Michigan

Learning Objectives:

1. Describe the important elements of a well-designed clinical trial.
2. Compare the advantages and disadvantages of various clinical trial designs (e.g., retrospective, case-control, cohort).
3. Identify potential sources of bias in clinical trials; select strategies to eliminate or control for bias.
4. Apply various biostatistical descriptors and techniques to clinical trial design and use them to interpret results.

SESSION 3: Neurology, General Psychiatry

NEUROLOGY

Melody Ryan, Pharm.D., BCPS

Associate Professor
University of Kentucky
Lexington, Kentucky

Learning Objectives:

1. Differentiate between various antiepileptic medications based on utilization and adverse effects.
2. Develop a treatment strategy for status epilepticus.
3. Identify appropriate treatment strategies for primary and secondary stroke prevention.
4. Determine appropriateness of treatment with tissue plasminogen activator for acute stroke treatment.
5. Describe appropriate pharmacological treatment for subarachnoid hemorrhage.
6. Examine common adverse effects associated with treatment of Parkinson's disease.
7. Differentiate between regimens for acute and prophylactic treatment of migraine, tension, and cluster headaches.

GENERAL PSYCHIATRY

William A. Kehoe, Pharm.D., FCCP, BCPS

Professor of Clinical Pharmacy and Psychology
Chairman, Department of Pharmacy Practice
University of the Pacific
Stockton, California

Learning Objectives:

1. Describe pharmacotherapeutic options for managing the following psychiatric problems: depression, bipolar disorder, schizophrenia, anxiety disorders, insomnia, and alcohol withdrawal.
2. Describe the drugs used to treat the above disorders in terms of unique pharmacological properties, therapeutic uses, adverse effects, and cognitive and behavioral effects.
3. Formulate a pharmacotherapeutic treatment plan when presented with a patient having depression, bipolar disorder, schizophrenia, an anxiety disorder, or insomnia.
4. Discuss the treatment of substance abuse using alcohol abuse as a model.

SESSION 4: Pharmacokinetics: A Refresher and Oncology Supportive Care

PHARMACOKINETICS: A REFRESHER

Curtis L. Smith, Pharm.D., BCPS

Professor

Ferris State University

Grand Ledge, Michigan

Learning Objectives:

1. Identify and provide examples utilizing basic pharmacokinetic concepts commonly used in clinical practice, including elimination rate constant, volume of distribution (Vd), clearance, bioavailability, etc.
2. Describe specific pharmacokinetic characteristics of commonly used therapeutic agents.
3. Define important issues as they relate to drug concentration sampling and interpretation.

ONCOLOGY SUPPORTIVE CARE

Linda R. Bressler, Pharm.D., BCOP

Clinical Associate Professor

Director of Regulatory Affairs (Cancer and Leukemia Group B)

University of Illinois

Chicago, Illinois

Learning Objectives:

1. Identify, assess, and recommend appropriate pharmacotherapy for managing common complications of cancer chemotherapy including: nausea and vomiting, myelosuppression and the appropriate use of growth factors, infection, anemia and fatigue, cardiotoxicity, nephrotoxicity, and hemorrhagic cystitis.
2. Assess and recommend appropriate pharmacotherapy for managing cancer-related pain.
3. Assess and recommend appropriate pharmacotherapy for managing oncologic emergencies including: hypercalcemia, hyperuricemia, and spinal cord compression.

SESSION 5: Acute Care Cardiology, Critical Care, Fluids, Electrolytes, and Nutrition

ACUTE CARE CARDIOLOGY

Jo E. Rodgers, Pharm.D., BCPS (AQ Cardiology)

Clinical Assistant Professor, Division of Pharmacotherapy and Experimental Therapeutics, School of Pharmacy,
University of North Carolina, Chapel Hill, North Carolina

Learning Objectives:

1. Formulate treatment strategies for patients with acute decompensated heart failure (ADHF) and formulate an appropriate pharmacotherapeutic regimen for a given case scenario (e.g., warm and wet, cold and dry, other).
2. Create an evidence-based medication regimen for a patient with acute coronary syndrome given a variety of clinical scenarios (e.g., invasive/conservative strategy, upstream antiplatelet therapy).
3. Describe an appropriate treatment strategy for ventricular arrhythmias using evidence-based medicine.
4. Prepare a treatment strategy for a newly diagnosed patient with idiopathic pulmonary arterial hypertension (PAH).
5. Develop an appropriate pharmacological and monitoring plan for antihypertensive drug therapy for managing hypertensive emergencies.

CRITICAL CARE

Tudy Hodgman, Pharm.D., BCPS, FCCM

Clinical Coordinator

Critical Care Specialist

Associate Professor of Pharmacy Practice

Midwestern University

Northwest Community Hospital

Arlington Heights, Illinois

Learning Objectives:

1. Identify and distinguish between the four primary acid-base disturbances and the expected compensatory responses when provided clinical presentation and laboratory data, including arterial blood gases.
2. Select appropriate management (drug and nondrug) for the four primary acid-base disturbances.
3. Describe the indications for sedation, neuromuscular blocking drugs, and antidelirium drugs in mechanically ventilated patients.
4. Select appropriate agents for the sedation, neuromuscular blockade, and control of delirium in mechanically ventilated patients.
5. Distinguish between the different types of shock.
6. Select appropriate pharmacotherapeutic management for severe sepsis and shock.
7. List the risk factors and select appropriate pharmacotherapy for the prevention of stress-related mucosal damage.

FLUIDS, ELECTROLYTES, AND NUTRITION

Gordan S. Sacks, Pharm.D. BCNSP, FCCP

Clinical Professor and Chair,
Pharmacy Practice Division,
School of Pharmacy,
University of Wisconsin – Madison,
Madison, Wisconsin

Learning Objectives:

1. Understand the importance of the route of nutrient administration on host defense mechanisms in the metabolic response.
2. Understand the potential mechanisms for differences in outcome related to enteral versus parenteral nutrient delivery.
3. Discuss the physiologic processes involved in acid-base disorders.
4. Identify primary and secondary acid-base disorders based on arterial blood gases (ABGs).
5. Determine and use the anion gap for diagnostic purposes.
6. Outline a stepwise approach for interpretation and treatment of acid-base disorders.
7. Understand the importance of the route of nutrient administration on host defense mechanisms in the metabolic response.
8. Understand the potential mechanisms for differences in outcome related to enteral versus parenteral nutrient delivery.
9. Identify the multiple enteral access routes and administration devices that are available.
10. List the complications associated with enteral access devices and administration of EN.
11. Describe the uses of PN in specific diseases and conditions.
12. Compare and contrast central PN and peripheral PN in terms of techniques, advantages, and disadvantages.
13. Describe the adverse effects of excessive carbohydrate administration.
14. Recall the available intravenous protein substrates and state the marketed use for each one.
15. Describe the current recommendations for intravenous fat administration and discuss recent advances in intravenous fat products.
16. Discuss the advantages and disadvantages associated with total nutrient admixtures (TNAs).
17. Identify stability issues associated with calcium and phosphorus compatibility.
18. Be familiar with the complications associated with PN therapy.
19. Describe the homeostatic mechanisms responsible for sodium and water balance.
20. Discuss the most common etiologies and list the signs and symptoms of hypo/hyponatremia, hypo/hypomagnesemia, and hypo/hyperphosphatemia.
21. Develop a treatment plan for the management of common electrolyte disorders in patients receiving nutritional support.

SESSION 6: Infectious Diseases, HIV/Infectious Diseases

INFECTIOUS DISEASES

Curtis L. Smith, Pharm.D., BCPS

Professor

Ferris State University

Grand Ledge, Michigan

Learning Objectives:

1. Describe appropriate treatment for patients with pneumonia, urinary tract infections, central nervous system infections, skin and soft tissue infections, osteomyelitis, intra-abdominal infections, and endocarditis.
2. Identify appropriate preventative therapy for pneumonia, central nervous system infections, endocarditis, and surgical wound infections.
3. Discuss appropriate therapy for patients with pneumonia, central nervous system infections, and endocarditis involving drug-resistant organisms.

HIV/INFECTIOUS DISEASES

Curtis L. Smith, Pharm.D., BCPS

Professor

Ferris State University

Grand Ledge, Michigan

Learning Objectives:

1. Describe appropriate treatment for patients with human immunodeficiency virus, including initiation and monitoring therapy.
2. Discuss appropriate treatment of the various acquired immunodeficiency syndrome opportunistic infections, including primary and secondary prophylaxis.
3. Describe appropriate treatment and preventative therapy for tuberculosis, including infections with drug resistant organisms.

SESSION 7: Ambulatory Care, Outpatient Cardiology, Men's and Women's Health, Endocrine Disorders

AMBULATORY CARE

Teresa B. Klepser, Pharm.D., BCPS

Associate Professor
Ferris State University
Kalamazoo, Michigan

Learning Objectives:

1. Describe appropriate treatment for patients with asthma, chronic obstructive pulmonary disease (COPD), sleep apnea, anticoagulation, and hypercholesterolemia.
2. Identify appropriate preventative therapy for asthma, COPD, sleep apnea, anticoagulation, and hypercholesterolemia.
3. Identify the correct asthma severity class according to the National Institutes of Health National Heart, Lung, and Blood Institute.
4. Recognize drugs that interact with warfarin.
5. Identify coronary heart disease risk factors according to NCEP guidelines.
6. Distinguish the appropriate immunizations for an adult given the age and medical conditions.

OUTPATIENT CARDIOLOGY

Anne P. Spencer, Pharm.D., BCPS

Associate Professor of Pharmacy and Clinical Services
Medical University of South Carolina
Charleston, South Carolina

Learning Objectives:

1. Describe appropriate pharmacologic management of heart failure, recognizing mortality-reducing agents and their target dosages.
2. Develop an appropriate pharmacologic and monitoring plan for patients with atrial fibrillation.
3. Given a patient with hypertension, describe the optimal pharmacologic management based on practice guidelines and clinical trial evidence.
4. Create an evidence-based medication regimen for a patient with coronary artery disease, in both the presence and absence of stable angina.

MEN'S AND WOMEN'S HEALTH

Teresa B. Klepser, Pharm.D., BCPS

Associate Professor
Ferris State University
Kalamazoo, Michigan

Learning Objectives:

1. Describe appropriate treatment for patients with osteoporosis, gynecologic infections, prostatic infections, and sexual dysfunction.
2. Identify drugs that are considered safe and unsafe in pregnancy and lactation.
3. List drugs that interact with oral contraceptives.
4. Discuss some estrogen and progestin related side effects.
5. Identify the common sexually transmitted diseases and describe appropriate pharmacotherapy.

ENDOCRINE AND METABOLIC DISORDERS

Debra J. Barnette, Pharm.D., BCPS

Ambulatory Care Coordinator

University of North Carolina

Chapel Hill, North Carolina

Learning Objectives:

1. Assess and recommend treatment for insulin-dependent diabetes mellitus (type 1 diabetes), noninsulin-dependent diabetes mellitus (type 2 diabetes), hypothyroidism, hyperthyroidism, and adrenal disorders.
2. Discuss management of complications related to the above disease states.
3. Describe and explain current guidelines related to the above disease states and complications.
4. Identify current primary literature related to the above disease states and complications.

SESSION 8: Gastrointestinal Disorders, Nephrology

GASTROINTESTINAL DISORDERS

Brian Hemstreet, Pharm.D., BCPS

Associate Professor

University of Colorado at Denver and Health Sciences Center

Denver, Colorado

Learning Objectives:

1. Review and apply national guideline treatment strategies for the following gastrointestinal (GI) disorders: gastroesophageal reflux disease (GERD), peptic ulcer disease (PUD), ulcerative colitis, Crohn's disease, viral hepatitis, alcoholic liver disease, and upper GI bleeding.
2. Recommend appropriate pharmacologic and nonpharmacologic interventions for the treatment of GERD.
3. Differentiate between clinical signs, symptoms, risk factors, and treatment of both *Helicobacter pylori* and nonsteroidal anti-inflammatory drug (NSAID)-associated PUD.
4. Discuss the role of pharmacologic intervention in the treatment of nonvariceal upper GI bleeding.
5. Review the clinical differences in signs, symptoms, and treatment of Crohn's disease and ulcerative colitis.
6. Identify the common manifestations of alcoholic liver disease and their treatment.
7. Review the treatment of both acute and chronic viral hepatitis.
8. Recognize pertinent information for educating patients and prescribers regarding the appropriate use of pharmacologic agents for various GI disorders.
9. Understand commonly encountered statistical tests and concepts using GI disorders as examples.

NEPHROLOGY

Edward F. Foote, Pharm.D., BCPS, FCCP

Associate Professor

Wilkes University

Wilkes-Barre, Pennsylvania

Learning Objectives:

1. Categorize acute renal failure as prerenal, intrinsic, or postrenal, based on patient history, physical examination and laboratory values.
2. List risk factors for acute renal failure and formulate strategies to decrease risk of acute renal failure in specific patient populations.
3. Identify drugs and herbal products associated with renal damage.
4. Develop a care plan to manage acute renal failure.
5. Discuss factors that determine the efficiency of dialysis of drugs. For specific agents, calculate amount of drug removed by dialysis.
6. Identify the stage of chronic kidney disease (CKD) based on patient history, physical examination and laboratory values.
7. List risk factors for progression of CKD and formulate strategies to slow the progression of CKD.
8. Develop a care plan to manage common complications observed in CKD patients (e.g., anemia, secondary hyperthyroidism, peritonitis).

2007 PHARMACOTHERAPY PREPARATORY COURSE
Program Faculty Disclosures

Consultancies: Sara Brouse (University Pharmacotherapy Associates); Edward Foote (Roche Pharmaceuticals); Brian Hemstreet (Axcán Pharma).

Speaker's Bureau: Edward Foote (American Regent); Brian Hemstreet (Axcán Pharma, AstraZeneca); Mark Newnham (Scios, Inc.).

Other: Melody Ryan (UCB Pharma).

Nothing to Disclose: Debra Barnette, Linda Bressler; G. Robert DeYoung; William Kehoe; Teresa Klepser; Kirsten Ohler; Curtis Smith; Anne Spencer; Ceressa Ward.