2009 PHARMACOTHERAPY PREPARATORY COURSE
Program Faculty Affiliations and Learning Objectives

SESSION 1: Pediatrics, Geriatrics, Oncology Supportive Care

PEDIATRICS

Kirsten H. Ohler, Pharm.D., BCPS
Clinical Assistant Professor
University of Illinois,
Chicago, Illinois

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

Norma J. Owens, Pharm.D, BCPS, FCCP
Professor of Pharmacy
University of Rhode Island
Rhode Island Geriatric Education Center
Kingston, Rhode Island

Learning Objectives:

1. Identify age-related changes in pharmacokinetics in older people.
2. Evaluate the pharmacotherapy regimens of older people to support the maintenance of optimal physical and mental function.
3. Identify inappropriate prescribing in the medication regimens of older people.
4. Recommend appropriate pharmacotherapy for Alzheimer's disease.
5. Evaluate the risks and benefits of the use of atypical antipsychotic drugs in older patients with dementia.
6. Recommend appropriate interventions for patients suffering from behavioral symptoms related to dementia.

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 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

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: Infectious Diseases, HIV/Infectious Diseases, Pharmacokinetics: A Refresher

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.

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.

SESSION 4: Neurology and 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 5: Acute Care Cardiology and Critical Care

ACUTE CARE CARDIOLOGY

Jo E. Rodgers, Pharm.D., BCPS
Associate Professor
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 situation (e.g., warm and wet, cold and dry)
2. Create an evidence-based medication regimen for a patient with acute coronary syndrome (ACS) in a variety of clinical situations (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 (IPAH)
5. Develop an appropriate pharmacologic 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.

SESSION 6: Nephrology, Endocrine and Metabolic Disorders, and Fluids, Electrolytes, and Nutrition

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).

ENDOCRINE AND METABOLIC DISORDERS

Debra J. Barnette, Pharm.D., BCPS
Ambulatory Care Coordinator
Wake Forest University Baptist Medical Center
Winston-Salem, 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.

FLUIDS, ELECTROLYTES, AND NUTRITION

Judith Kristeller, Pharm.D., BCPS
Associate Professor
Wilkes University
Wilkes Barre, Pennsylvania

1. Calculate the osmolarity of intravenous (IV) fluids and compare to normal plasma osmolarity.
2. Recommend an appropriate IV fluid regimen and monitoring parameters based on a patient's clinical characteristics.
3. Discuss the appropriate use and risks of hypertonic and hypotonic saline, and recommend a treatment regimen and monitoring parameters to insure safe and effective use of these IV fluids.
4. Assess electrolyte abnormalities and recommend an appropriate pharmacologic treatment plan based on individual patient signs and symptoms.
5. Discuss appropriate indications for the use of enteral and parenteral nutrition.

6. Recommend a patient-specific enteral formula, infusion rate, and monitoring parameters.
7. Recommend a patient-specific parenteral nutrition formula and monitoring plan based on type of IV access, nutritional needs, comorbidities, and clinical condition.
8. Discuss strategies for preventing complications associated with enteral and parenteral nutrition.

SESSION 7: Ambulatory Care and Men's and Women's Health

AMBULATORY CARE

Teresa M. Bailey, 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.

MEN'S AND WOMEN'S HEALTH

Teresa M. Bailey, 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.

SESSION 8: Gastrointestinal Disorders, Outpatient Cardiology

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 disorders: gastroesophageal reflux disease, peptic ulcer disease, ulcerative colitis, Crohn's disease, viral hepatitis, alcoholic liver disease, and upper gastrointestinal bleeding.
2. Describe appropriate preventative and post-exposure therapies for hepatitis A, B, and C.
3. Identify appropriate monitoring parameters for efficacy and toxicity associated with the use of various gastrointestinal pharmacologic agents.
4. Recognize pertinent information for educating patients and prescribers regarding the appropriate use of pharmacologic agents for various gastrointestinal disorders.

OUTPATIENT CARDIOLOGY

Robert Lee Page II, Pharm.D., FCCP, FAHA, BCPS, CGP
Associate Professor of Clinical Pharmacy & Physical Medicine
Clinical Specialist
Division of Cardiology
University of Colorado at Denver Health Sciences Center
School of Pharmacy
Aurora, Colorado

Learning Objectives:

1. Recommend patient-specific pharmacological management of chronic heart failure (HF), with an emphasis on mortality-reducing drugs and their target dosages.
2. Develop an appropriate pharmacological and monitoring plan for patients with atrial fibrillation.
3. Given a patient with hypertension, outline the optimal pharmacological management based on practice guidelines and clinical trial evidence.
4. Create an evidence-based drug regimen for a patient with coronary artery disease (CAD), in both the presence and absence of stable angina.