Practice ACNPC-AG Exam Questions Adult-Gerontology
MISSION
AACN Certification Corporation drives patient health and safety through comprehensive credentialing of acute and critical care nurses ensuring practice consistent with standards of excellence.

VISION
All nurses caring for acutely and critically ill patients and their families are certified.

VALUES
As the Corporation advances its mission and vision to fulfill its purpose and inherent obligation of ensuring the health and safety of patients experiencing acute and critical illness, the Corporation is guided by a set of deeply rooted values:

- **Providing leadership** to bring all stakeholders together to create and foster cultures of excellence and innovation.
- **Acting with integrity** and upholding ethical values and principles in all relationships and the provision of sound, fair and defensible credentialing programs.
- **Committing to excellence** in credentialing programs by striving to exceed industry standards and expectations.
- **Promoting leading edge, research-based credentialing programs** for all nurses who care for and influence the care of acutely and critically ill patients.
- **Demonstrating stewardship** through fair and responsible management of resources and cost-effective business processes.

ETHICS
AACN and AACN Certification Corporation consider the American Nurses Association (ANA) Code of Ethics for Nurses foundational for nursing practice, providing a framework for making ethical decisions and fulfilling responsibilities to the public, colleagues and the profession. AACN Certification Corporation’s mission of public protection supports a standard of excellence that certified nurses have a responsibility to read, understand and act in a manner congruent with the ANA Code of Ethics for Nurses.

The following AACN Certification Corporation programs have been accredited by the National Commission for Certifying Agencies (NCCA), the accreditation arm of the Institute for Credentialing Excellence (ICE):

- CCRN® (Adult)
- CCRN® (Pediatric)
- CCRN® (Neonatal)
- CCRN-E™ (Adult)
- PCCN®
- CMC®
- CSC®
- ACCNS-AG®
- ACCNS-P®
- ACCNS-N®
- ACNPC-AG®

Our advanced practice certification programs, ACCNS-AG, ACCNS-P, ACCNS-N and ACNPC-AG, meet the National Council of State Boards of Nursing (NCSBN) criteria for APRN certification programs.
Acknowledgments

Special thanks to:

Dawn Carpenter, DNP, ACNP-BC
Julie Grishaw, RN, MSN, CCRN, ACNPC
Peggy Kirkwood, RN, MSN, ACNPC, CHFN, AACC

Special note of thanks to Julie Grishaw for adding rationales and validations for this edition.
CONTENTS

Introduction ...............................................................................................................................................................................3
ACNPC-AG Test Plan .............................................................................................................................................................5-11
AACN Synergy Model for Patient Care ..............................................................................................................................13-14

Practice ACNPC-AG Exam Questions ................................................................................................................................15-21
Answer Key ..............................................................................................................................................................................23
Practice Exam Questions With Answer Rationales .............................................................................................................25-41

ACNPC-AG Exam Bibliography ................................................................................................................................................43
INTRODUCTION

This second edition of Practice ACNPC-AG Exam Questions provides a general familiarity with the style of items on the exam for candidates seeking ACNPC-AG certification in care of the adult-gerontology patient population (young adults, older adults and frail elderly) with complex acute and/or chronic health conditions. The actual ACNPC-AG exam is a three-and-one-half-hour test consisting of 175 multiple-choice questions.

The exam is based on the results of a national study of practice, otherwise known as a job analysis. The most recent study, completed in 2011, identified the actual tasks, knowledge and experiences required of an acute care nurse practitioner. The ACNPC-AG exam is designed to test the common body of advanced practice nursing knowledge needed to function effectively in the acute care setting. The population in acute care practice includes acutely ill patients experiencing episodic illness, exacerbation of chronic illness or terminal illness.

The major content categories and specific patient problems tested, as well as their distribution on the test, are found in the ACNPC-AG Exam Handbook. Exam items are written at various cognitive levels, based on a condensed version of Bloom’s Taxonomy. The majority of the items are written at the application/analysis levels.

The ACNPC-AG exam focuses on adult-gerontology (young adults to frail elderly) patients. Seventy-three percent (73%) of the exam focuses on Clinical Judgment and is age-specific for adult-gerontology patients. The remaining 27% covers Professional Caring and Ethical Practice, including Advocacy/Moral Agency, Caring Practices, Collaboration, Systems Thinking, Response to Diversity, Clinical Inquiry and Facilitation of Learning and are focused across the lifespan.

This document is a study tool that contains a compilation of 50 questions with answers/rationales and reference validation, to be used in helping prepare for the ACNPC-AG exam. It is not a psychometrically valid exam and cannot be used to accurately predict or guarantee performance on an actual certification exam; however, the questions are representative of the type and format of items that one would see on the ACNPC-AG exam.

Detailed information regarding the ACNPC-AG certification program can be obtained from:

AACN Certification Corporation
101 Columbia
Aliso Viejo, CA 92656
(800) 899-2226
www.aacn.org
I. CLINICAL JUDGMENT (73%)

A. Cardiovascular (21%)
   1. Acute coronary syndromes
   2. Acute inflammatory disease
      (e.g., myocarditis, endocarditis, pericarditis)
   3. Cardiac surgery
   4. Cardiac tamponade
   5. Cardiac trauma (blunt and penetrating)
   6. Cardiogenic shock
   7. Cardiomyopathies (e.g., hypertrophic,
      dilated, restrictive, idiopathic)
   8. Decompensated heart failure
   9. Dyslipidemia
  10. Dysrhythmias
  11. Heart failure
  12. Hypertension
  13. Hypertensive crisis
  14. Peripheral vascular insufficiency (e.g., acute
      arterial occlusion, carotid artery stenosis,
      endarterectomy, peripheral stents and
      femoral popliteal bypass)
  15. Pulmonary edema
  16. Ruptured or dissecting aneurysm
  17. Structural heart defects and diseases
      (e.g., acquired and congenital)

B. Pulmonary (12%)
   1. Acute respiratory distress syndrome (ARDS,
      to include acute lung injury or ALI)
   2. Acute pulmonary embolus
   3. Acute respiratory failure
   4. Air-leak syndromes (e.g., pneumothorax,
      pulmonary interstitial emphysema [PIE],
      pneumopericardium, pneumomediastinum)
   5. Aspirations
   6. Asthma and reactive airway disease
   7. Chronic lung disease
   8. Exacerbation of chronic lung disease
   9. Obstructive sleep apnea
  10. Pulmonary hypertension
  11. Pulmonary infections
  12. Thoracic and pulmonary trauma and injuries
  13. Thoracic surgery (e.g., lung contusion,
      fractured ribs, hemothorax, lung reduction
      surgery, pneumonectomy, lobectomy,
      tracheal surgery)
  14. Upper airway obstruction

C. Endocrine (3%)
   1. Adrenal disorders
   2. Diabetes insipidus
   3. Diabetes mellitus
   4. Diabetic ketoacidosis/hyperglycemic
      hyperosmolar nonketotic coma (HHNK)
   5. Hyperglycemia
   6. Hypoglycemia
   7. Syndrome of inappropriate secretion of
      antidiuretic hormone (SIADH)
   8. Thyroid disorders

D. Musculoskeletal (3%)
   1. Fractures
   2. Infections
   3. Osteoarthritis
   4. Functional issues (e.g., immobility, debility,
      falls, gait disorders)

E. Hematology/Immunology/Oncology (4%)
   1. AIDS/HIV
   2. Anemia
   3. Autoimmune diseases
   4. Blood group incompatibilities
   5. Coagulopathies (e.g., thrombocytopenia)
   6. Leukemia and tumors

F. Neurology (7%)
   1. Encephalopathy
   2. Head and brain trauma and injury
   3. Hydrocephalus
   4. Increased intracranial pressure

continued
ADULT-GERONTOLOGY ACUTE CARE NURSE PRACTITIONER TEST PLAN

F. Neurology (cont’d)
   5. Intracranial and intraventricular hemorrhage
   6. Neurologic infectious diseases
   7. Neuromuscular disorders
   8. Seizure disorders
   9. Space-occupying lesions
  10. Spinal cord injury
  11. Stroke
  12. Vascular malformation

G. Gastrointestinal (5%)
   1. Abdominal trauma
   2. Acute GI hemorrhage
   3. Bowel infarction/obstruction/perforation
   4. Gallbladder disease
   5. Gastroesophageal reflux
   6. Gastrointestinal infectious diseases
   7. GI motility disorders
   8. GI surgeries
   9. Hepatic failure and coma
  10. Hepatitis
  11. Malnutrition
  12. Nausea and vomiting
  13. Pancreatitis

H. Renal/Genitourinary (4%)
   1. Acute renal failure
   2. Chronic renal failure
   3. Electrolyte imbalances
   4. Fluid volume imbalances
   5. Infections (e.g., UTI, PID, STDs)
   6. Prostate problems

I. Integumentary (2%)
   1. Infectious skin disorders
   2. Pressure ulcers
   3. Wounds (surgical and nonsurgical)

J. Multisystem (9%)
   1. Compartment syndrome
   2. Distributive shock (e.g., anaphylaxis, neurogenic)
   3. Hypovolemic shock
   4. Hypoxic ischemic encephalopathy
   5. Infectious diseases (e.g., congenital, viral, bacterial, hospital-acquired)
   6. Multisystem trauma
   7. Pain diagnosis and treatment
   8. Sensory impairment (e.g., hearing loss)
   9. Systemic inflammatory response syndrome (SIRS)/sepsis/septic shock/multiple organ dysfunction syndrome (MODS)
  10. Toxic exposure
  11. Toxic ingestions and inhalations

K. Psychosocial/Behavioral/Cognitive Health (3%)
   1. Age-related developmental issues
   2. Anxiety disorders (e.g., PTSD, OCD, fears, phobias)
   3. Delirium
   4. Dementia
   5. Medical nonadherence
   6. Mood disorders (e.g., depression)
   7. Risk-taking behaviors (e.g., tobacco, unprotected sex)
   8. Substance abuse
   9. Suicidal behavior

II. PROFESSIONAL CARING AND ETHICAL PRACTICE
   A. Advocacy/Moral Agency (3%)
   B. Caring Practices (6%)
   C. Collaboration (5%)
   D. Systems Thinking (3%)
   E. Response to Diversity (2%)
   F. Clinical Inquiry (4%)
   G. Facilitation of Learning (3%)

The sum of these percentages is not 100 due to rounding.
Order of content does not necessarily reflect importance.
In addition to classifying exam items according to the specified patient care problems and identifying related underlying competencies on the following pages, items may require an understanding of skills and procedures pertinent to the Adult-Gerontology Acute Care Nurse Practitioner. If applicable to assessment of knowledge of the patient care problem, the following skills and procedures may be incorporated within items.

**Cardiovascular**
- Interpret ECG rhythms
- Interpret 12-lead ECGs
- Determine lead selection for ECGs
- Interpret hemodynamic values
- Interpret noninvasive hemodynamic values
- Manage transcutaneous (external) pacemakers
- Insert temporary transvenous pacemakers
- Manage temporary transvenous pacemakers
- Manage permanent transvenous pacemakers
- Manage epicardial pacemakers
- Manage implantable cardioverter defibrillators (ICDs)
- Remove intra-aortic balloon catheter
- Manage cardiac assist devices (e.g., RVAD, BVAD, LVAD, ECMO)
- Direct cardiopulmonary resuscitation
- Insert arterial pressure catheters
- Insert central venous pressure catheters
- Insert pulmonary artery pressure catheters
- Adjust pulmonary artery pressure catheters
- Interpret echocardiograms
- Perform elective cardioversion
- Disconnect pacer wire
- *Interpret stress tests
- *Perform pericardiocentesis

**Pulmonary**
- Order nasal/facial CPAP/BiPAP
- Initiate mechanical ventilation
- Manage mechanical ventilation
- Wean mechanical ventilation
- Perform thoracentesis
- Insert chest tube
- Disconnect chest tube
- Interpret pulmonary function tests
- Perform intubation

**Endocrine**
- Perform rapid ACTH stimulation test

**Neurology**
- Perform lumbar puncture
- *Remove epidural ICP monitoring device
- *Remove subdural ICP monitoring device
- *Remove intraventricular ICP monitoring device
- *Remove cerebral oxygenation monitoring device
- *Monitor SiO₂ results

**Gastrointestinal**
- *Perform paracentesis

**Renal/Genitourinary**
- Initiate renal replacement therapies
- *Perform pelvic exams

**Integumentary**
- Suture wounds
- Provide wound care
- Incise and drain abscesses

**Multisystem**
- Interpret diagnostic imaging
- Provide nonpharmacologic interventions for pain
- Prescribe pharmaceutical interventions
- Prescribe durable medical equipment

Skills and procedures noted with an asterisk (*) may not be widely performed but are a significant part of practice for those who perform them. As such, if these skills or procedures are incorporated in an item, knowledge about the skill or procedure would be limited to its purpose and would not require in-depth knowledge of the performance of the skill or procedure.
ADULT-GERONTOLOGY ACUTE CARE NURSE PRACTITIONER TEST PLAN
VALIDATED COMPETENCIES

In addition to classifying items according to the previous specifications, items are written to reflect one of the following competencies, to assess knowledge of content underlying an item.

Clinical Judgment

- Provide health promotion services
- Provide disease prevention services
- Provide health protection interventions
- Provide anticipatory guidance
- Provide counseling
- Promote a mutually respectful environment that enables nursing and other healthcare personnel to make optimal individual contributions and systems to function most effectively
- Incorporate community needs, strengths and resources into practice
- Apply principles of epidemiology and demography in clinical practice
- Demonstrate critical thinking and diagnostic reasoning skills in clinical decision making
- Obtain a health history from the patient supplemented by health information from collateral sources, including electronic health records and databases, as needed (e.g., with cognitively impaired, sensory impaired or non-self-disclosing patients, observing ethical and legal standards of care)
- Perform and accurately document a pertinent, comprehensive and focused physical examination, demonstrating knowledge about developmental, age-related and gender-specific variations
- Differentiate among normal, variations of normal and abnormal findings, including those associated with development and aging in acute, critical and complex illness
- Employ age-appropriate screening and diagnostic strategies
- Assess the impact of an acute, critical and/or chronic illness or injury and the patient’s health promotion needs, social support, and physical and mental health status
- Assess the impact of an acute, critical and/or chronic illness or injury in relation to activity level, mobility and immobility, cognition, decision-making capacity, pain, skin integrity, nutrition, sleep and rest patterns, sexuality, immunization status, neglect/abuse, substance use/abuse, quality of life, family/social/educational relationships, genetic risks, health risk behaviors, safety and advanced care planning preferences
- Conduct a pharmacologic assessment addressing polypharmacy, drug interactions and other adverse events, over-the-counter, complementary alternatives, and the ability to obtain, purchase, self-administer and store medications safely and correctly
- Assess the effect of complex acute, critical and chronic illness, disability and/or injury on the individual’s functional status, independence, physical and mental status, social roles and relationships, sexual function and well-being, and economic or financial status
- Assess the complex acutely, critically and/or chronically ill patient for urgent and emergent conditions, using both physiologically and technologically derived data to evaluate for physiologic instability and potential life-threatening conditions
- Analyze data to determine health status
- Perform invasive diagnostic tests
- Develop differential diagnosis
- Recognize the presence of comorbidities, their impact on presenting health problems, potential for rapid physiologic deterioration or life-threatening instability and the risk for iatrogenesis
- Diagnose complex acute, critical and chronic physical illnesses, including disease exacerbation and/or progression, multisystem health problems, associated complications and iatrogenic conditions
- Recognize common mental health and substance use or addictive disorder/disease, such as anxiety, depression and alcohol and drug use, in the presence of complex acute, critical and chronic illness, and make appropriate referrals
- Confirm the clinical diagnosis
ADULT-GERONTOLOGY ACUTE CARE NURSE PRACTITIONER TEST PLAN
VALIDATED COMPETENCIES

Clinical Judgment (cont’d)

- Prioritize differential diagnoses based on the interpretation of available data and the complexity and severity of the patient’s condition
- Collect data in an ongoing process in recognition of the dynamic nature of acute, critical and complex chronic illness
- Formulate an evidence-based plan of care integrating knowledge of the rapidly changing pathophysiology of acute or critical illness
- Individualize the plan of care to reflect the dynamic nature of the patient’s condition, developmental and life transitions, patient’s and family’s needs
- Implement interventions to support and stabilize the patient with a rapidly deteriorating physiologic condition, including the application of basic and advanced life support and other invasive interventions or procedures to regain physiologic stability
- Perform therapeutic and diagnostic interventions appropriate to acute and critical health problems, such as suturing, wound debridement, line and tube insertion, and lumbar puncture
- Manage interventions that utilize technological devices to monitor and sustain physiological function through ordering, performing, interpreting or supervising
- Manage diagnostic strategies and therapies to monitor and sustain physiological function and ensure patient safety including, but not limited to, ECG interpretation, radiograph interpretation, respiratory support, hemodynamic monitoring and nutritional support
-Prescribe medications within legal authorization while acknowledging and monitoring for adverse drug outcomes and polypharmacy, especially in high-risk and vulnerable populations such as women of childbearing age, adults with co-morbidities and older adults
- Assess interactive and synergistic effects of pharmacologic and nonpharmacologic interventions
- Determine the need for transition to a different level or type of care based on an assessment of an individual’s acuity, stability, resources and need for assistance
- Counsel the patient on the use of complementary/alternative therapies
- Prescribe therapeutic devices
- Evaluate outcomes of care
- Communicate effectively using professional terminology, format and technology
- Provide for continuity of care
- Demonstrate evidence-based approaches to care
- Communicate personal strengths and professional limits
- Coordinate inter- and intra-disciplinary teams to develop or revise plans of care focused on patient and/or family needs and concerns
- Manage health/illness status over time
- Perform invasive procedures

Advocacy/Moral Agency

- Deliver safe care
- Empower patients and families to act as their own advocate across the continuum of healthcare, including in complex, acute healthcare environments
- Facilitate patient and family decision making regarding complex acute, critical and chronic illness treatment decisions, end-of-life care, right to refuse treatment and organ donation in a manner that ensures informed decisions
- Advocate for the individual’s and family’s rights regarding healthcare decision making, such as emancipation, guardianship, durable power of attorney, healthcare proxy, advance directives and informed consent, within ethical and legal standards
- Act ethically
- Evaluate implications of health policy
- Participate in policy-making activities
- Demonstrate leadership to achieve optimal care outcomes for the acutely ill adult-gerontology population in practice, policy and other venues
- Maintain confidentiality and privacy  

continued
ADULT-GERONTOLOGY ACUTE CARE NURSE PRACTITIONER TEST PLAN
VALIDATED COMPETENCIES

Caring Practices

- Attend to the patient’s responses to changes in health status and care
- Foster a trusting relationship with the individual, family and other caregivers that facilitates discussion of sensitive issues, such as suicide prevention, self-injury, sexually related issues, substance use/abuse, risk-taking behavior, driving safety, independence, finances, violence, abuse and mistreatment, prognosis, care transitions, changes in levels of care and palliation
- Provide comfort and emotional support
- Apply principles for behavioral change
- Preserve the patient’s control over decision making
- Negotiate a mutually acceptable plan of care
- Respect the patient’s inherent worth and dignity
- Use self-reflection to further a therapeutic relationship
- Maintain professional boundaries
- Monitor, treat and implement prevention strategies in geriatric syndromes such as falls, loss of functional abilities, dehydration, delirium, depression, dementia, malnutrition, incontinence and constipation
- Promote safety and risk reduction through the use of interventions such as devices to promote mobility and prevent falls, cognitive and sensory enhancements, reduced urinary catheter use and restraint-free care
- Order and implement palliative and end-of-life care in collaboration with the patient, family and members of the multidisciplinary healthcare team
- Manage pain and sedation for patients with complex chronic, acute and critical illness
  - Monitor and evaluate the patient’s pain and sedation response
  - Change the plan of care according to patient reaction and treatment goals
  - Prescribe nonpharmacologic interventions*

*Pharmacologic interventions fall under Clinical Judgment

- Provide culturally appropriate and effective communication that supports therapeutic relationships with individuals, families and caregivers facing acute onset or exacerbations of complex chronic physical and/or psychosocial conditions
- Design and implement interventions to prevent or reduce risk factors that contribute to
  - decline in physical or mental function
  - impaired quality of life
  - social isolation
  - excess disability

Collaboration

- Participate as a member of healthcare teams
- Collaborate with other healthcare providers
- Consult with and make appropriate referrals to other healthcare providers
- Function in a variety of roles
- Advocate for the advanced practice role of the nurse
- Promote the adult-gerontology acute care nurse practitioner and other advanced practice nursing roles
- Work collaboratively with a variety of health professionals to promote stabilization and restoration of health in complex acute, critical and chronic illness
- Recognize the limits of one’s education, clinical expertise and scope of practice, collaborate with colleagues and recognize when to refer patients appropriately

Systems Thinking

- Incorporate access, cost, efficacy and quality when making care decisions
- Demonstrate current knowledge of healthcare system financing as it affects delivery of care
- Analyze organizational structure, functions and resources to affect delivery of care

continued
**ADULT-GERONTOLOGY ACUTE CARE NURSE PRACTITIONER TEST PLAN**  
**VALIDATED COMPETENCIES**

**Systems Thinking** (cont’d)

- Prescribe and perform diagnostic, pharmacologic, non-pharmacologic and therapeutic interventions consistent with the adult-gerontology acute care nurse practitioner’s education, practice and state regulatory requirements as authorized within the scope of practice
- Apply business strategies
- Analyze data generated through quality improvement and safety (QSEN) initiatives to identify opportunities to enhance care and the care delivery system
- Participate in all aspects of community health programs
- Advocate for policies that positively affect healthcare
- Negotiate legislative change to influence healthcare delivery systems
- Coordinate comprehensive care in and across care settings for patients who have acute and chronic care needs
- Analyze challenges to optimal care created by the competing priorities of patients, payers, providers and suppliers
- Negotiate system barriers to care and to providing care coordination
- Participate in the design, development and evaluation of current and evolving healthcare services to optimize care and outcomes for the adult-gerontology population

**Response to Diversity**

- Prevent personal biases from interfering with the delivery of quality care
- Provide culturally sensitive care
- Assist patients of diverse cultures to access quality care
- Assist patients and families to meet their spiritual needs
- Address cultural, spiritual and ethnic influences that potentially create conflict among individuals, families, staff and caregivers
- Incorporate patient’s spiritual beliefs into care
- Incorporate cultural preferences, values, health beliefs and behaviors into the management plan
- Develop strategies to reduce the impact of biases, including ageism and sexism, on healthcare policies and systems

**Clinical Inquiry**

- Monitor quality of care
- Assume accountability for practice
- Engage in continuous quality improvement and patient safety initiatives
- Accept personal responsibility for professional development
- Incorporate current technology
- Advance the profession through mentoring, writing, publishing and presenting
- Participate in the design, implementation and evaluation of evidence-based, age-appropriate professional standards and guidelines for care
- Contribute to knowledge development for improved care of the adult-gerontology acute care population

**Facilitation of Learning**

- Assess the patient’s educational needs
- Create an effective learning environment
- Design a personalized plan for learning
- Provide health education
- Coach the patient for behavioral changes
- Evaluate the outcomes of patient education
- Educate individuals, families, caregivers and groups regarding strategies to manage the interaction among normal development, aging, and mental and physical disorders
- Adapt teaching-learning approaches based on physiological and psychological changes, age, developmental stage, readiness to learn, health literacy, the environment and resources
AACN SYNERGY MODEL FOR PATIENT CARE

The ACNPC-AG certification program is based on the AACN Synergy Model for Patient Care. The basic tenet of the Synergy Model is that optimal patient outcomes can be produced through the synergistic interaction between the needs of the patient and the competencies of the nurse. AACN Certification Corporation is committed to ensuring that certified nursing practice is based on the needs of patients. Integration of the AACN Synergy Model for Patient Care into AACN Certification Corporation’s certification programs puts emphasis on the patient and says to the world that patients come first.

The Synergy Model creates a comprehensive look at the patient. It puts the patient in the center of nursing practice. The model identifies nursing’s unique contributions to patient care and uses language to describe the professional nurse’s role. It provides nursing with a venue that clearly states what we do for patients and allows us to start linking ourselves to, and defining ourselves within, the context of the patient and patient outcomes.

Patient Characteristics

The Synergy Model encourages nurses to view patients in a holistic manner rather than the “body systems” medical model. Each patient and family is unique, with a varying capacity for health and vulnerability to illness. Each patient, regardless of the clinical setting, brings a set of unique characteristics to the care situation. Depending on where they are on the healthcare continuum, patients may display varying levels of the following characteristics:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resiliency</td>
<td>Capacity to return to a restorative level of functioning using compensatory/coping mechanisms; the ability to bounce back quickly after an insult.</td>
</tr>
<tr>
<td>Vulnerability</td>
<td>Susceptibility to actual or potential stressors that may adversely affect patient outcomes.</td>
</tr>
<tr>
<td>Stability</td>
<td>Ability to maintain a steady-state equilibrium.</td>
</tr>
<tr>
<td>Complexity</td>
<td>Intricate entanglement of two or more systems (e.g., body, family, therapies).</td>
</tr>
<tr>
<td>Resource Availability</td>
<td>Extent of resources (e.g., technical, fiscal, personal, psychological and social) the patient/family/community bring to the situation.</td>
</tr>
<tr>
<td>Participation in Care</td>
<td>Extent to which patient/family engages in aspects of care.</td>
</tr>
<tr>
<td>Participation in Decision Making</td>
<td>Extent to which patient/family engages in decision making.</td>
</tr>
<tr>
<td>Predictability</td>
<td>A characteristic that allows one to expect a certain course of events or course of illness.</td>
</tr>
</tbody>
</table>

FOR EXAMPLE:

A healthy, uninsured, 40-year-old woman undergoing a pre-employment physical could be described as an individual who is (a) stable (b) not complex (c) very predictable (d) resilient (e) not vulnerable (f) able to participate in decision making and care, but (g) has inadequate resource availability.

On the other hand: a critically ill, insured infant with multisystem organ failure can be described as an individual who is (a) unstable (b) highly complex (c) unpredictable (d) highly resilient (e) vulnerable (f) unable to become involved in decision making and care, but (g) has adequate resource availability.

continued
Nurse Characteristics

Nursing care reflects an integration of knowledge, skills, abilities and experience necessary to meet the needs of patients and families. Thus, nurse characteristics are derived from patient needs and include:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Judgment</td>
<td>Clinical reasoning, which includes clinical decision making, critical thinking and a global grasp of the situation, coupled with APRN skills acquired through a process of integrating formal and informal experiential knowledge and evidence-based guidelines. Includes differential diagnosis.</td>
</tr>
<tr>
<td>Advocacy/Moral Agency</td>
<td>APRN activities that create a compassionate, supportive and therapeutic environment for patients and staff, with the aim of promoting comfort and healing and preventing unnecessary suffering. Includes but is not limited to vigilance, engagement and responsiveness of caregivers, including family and healthcare personnel. Content in this category includes pain management, infection control, risk assessment and the nurse practitioner/patient relationship.</td>
</tr>
<tr>
<td>Caring Practices</td>
<td>APRN activities that create a compassionate, supportive and therapeutic environment for patients and staff, with the aim of promoting comfort and healing and preventing unnecessary suffering. Includes but is not limited to vigilance, engagement and responsiveness of caregivers, including family and healthcare personnel. Content in this category includes pain management, infection control, risk assessment and the nurse practitioner/patient relationship.</td>
</tr>
<tr>
<td>Collaboration</td>
<td>Working with others (e.g., patients, families, healthcare providers) in a way that promotes/encourages each person’s contributions toward achieving optimal/realistic patient/family goals. Includes initiating referrals, providing consultation and the coordination of inter- and intradisciplinary teams to develop or revise plans of care focused on patient and/or family concerns.</td>
</tr>
<tr>
<td>Systems Thinking</td>
<td>Body of knowledge and tools that allow the APRN to manage whatever environmental and system resources exist for the patient/family and staff, within or across healthcare and non-healthcare systems. Includes analysis and promotion of cost-effective resource utilization that results in optimal patient outcomes.</td>
</tr>
<tr>
<td>Response to Diversity</td>
<td>The sensitivity to recognize, appreciate and incorporate differences into the provision of care. Differences may include, but are not limited to, cultural differences, spiritual beliefs, gender, race, ethnicity, lifestyle, socioeconomic status, age and values.</td>
</tr>
<tr>
<td>Facilitation of Learning</td>
<td>The ability to facilitate learning for patients/families, nursing staff, other members of the healthcare team and community. Includes both formal and informal facilitation of learning.</td>
</tr>
<tr>
<td>Clinical Inquiry</td>
<td>The ongoing process of questioning and evaluating practice and providing informed practice. Creating practice changes through research utilization and experiential learning.</td>
</tr>
</tbody>
</table>

Nurses become competent within each continuum at a level that best meets the fluctuating needs of their population of patients. More compromised patients have more severe or complex needs, requiring nurses to have advanced knowledge and skills in an associated continuum.

**FOR EXAMPLE:**
If the patient were stable but unpredictable, minimally resilient and vulnerable, primary competencies of the nurse would be centered on clinical judgment and caring practices (which includes vigilance). If the patient were vulnerable, unable to participate in decision making and care, and inadequate resource availability, the primary competencies of the nurse would focus on advocacy and moral agency, collaboration and systems thinking.

Although all eight competencies are essential for contemporary nursing practice, each assumes more or less importance depending on a patient’s characteristics. **Synergy results when a patient’s needs and characteristics are matched with the nurse’s competencies.**

The certification program is also based on the three spheres of influence in which NPs operate: Patient, Nurses/Nursing Practice and Organizations/Systems. A sphere of influence identifies the focus of practice activities and target outcomes associated with the area. The certification exam is based on the activities performed by NPs in connection with the eight nurse characteristics in the context of the three spheres of influence.

Based on the most recent AACN Certification Corporation job analysis completed in 2011, the test plans for AACN certification exams reflect the Synergy Model as well as findings related to nursing care of the patient population studied, e.g., ACNP practice in the care of adult-gerontology patients.

For more information about the AACN Synergy Model for Patient Care, visit www.aacn.org.
1. A patient is admitted with new onset angina, dyspnea, malaise and headache. 
Vital signs:
BP 134/82  
HR 104  
RR 24  
T 100.9°F (38.3°C)  
SpO₂ 96% on room air

A friction rub is noted on the left sternal border, but the patient reports the pain has eased. The ECG shows diffuse ST and T wave changes. The ACNP should first prescribe
A. metoprolol (Lopressor) 5 mg IV for 3 doses, given 2 minutes apart.
B. prednisone (Deltasone) 60 mg PO every day.
C. ibuprofen (Motrin) 600-800 mg PO every 8 hours.
D. morphine sulfate 2 mg IV every 2 hours PRN for chest pain.

2. A patient with a BMI of 38 presents with chest pain, rated as 9 out of 10. 
Vital signs:
BP 140/88  
HR 95  
RR 16

Troponins are positive, and 12-lead ECG indicates ST segment depression in leads V₁ to V₅ and slight ST segment depression in leads I and aVL. The ACNP should first order
A. an aspirin, nitroglycerin (Tridil) IV and a beta-blocker.
B. a sublingual nitroglycerin, a beta-blocker and cardiac catheterization.
C. a thrombolytic agent, nitroglycerin and a fluid bolus.
D. an aspirin, a beta-blocker and cardiac catheterization.

3. A patient scheduled for CABG surgery has been receiving abciximab (Reopro) and heparin infusions. The preoperative CBC demonstrates a platelet count of 45,000. The ACNP should
A. switch the heparin to argatroban (Acova).
B. discontinue the abciximab and heparin.
C. infuse platelets and repeat lab work in 4 hours.
D. administer protamine sulfate.

4. A diabetic patient presents with decreased level of consciousness. 
Lab work/vital signs:
BUN 48  
BP 98/62  
Cr 1.2  
HR 118  
Glucose 969  
RR 28  
K⁺ 3.1  
Na⁺ 145

Urinalysis Negative for ketones

Goals of therapy include
A. fluid resuscitation and slow reduction of blood glucose levels.
B. normalization of acidosis and tight glycemic control.
C. correction of insulin resistance and osmotic diuresis.
D. rapid blood sugar stabilization and renal replacement strategies.

5. A patient with an extensive history of CAD and cardiomyopathy is being counseled following a heart failure exacerbation. While explaining future interventional options, the patient states, “What’s the point? I am going to die anyway.” The ACNP recognizes that the patient would benefit from a
A. visit from a transplant coordinator and a survivor.
B. cardiac education and support group program.
C. hospice program referral.
D. case review by the ethics committee.

6. After placement of a stent in the right coronary artery (RCA), vital signs are:
BP 112/65  
HR 40  
RR 14

Telemetry displays new onset bradycardia with intermittent, uniform PVCs. The patient denies chest pain, and no other symptoms are evident. The ACNP should
A. order atropine and apply a transcutaneous pacer.
B. recognize the rhythm is transient.
C. obtain STAT potassium and magnesium levels.
D. prepare for a repeat cardiac catheterization.
7. A patient with chronic renal failure on hemodialysis presents complaining of nausea and fatigue. Telemetry shows bradycardia, PR interval of 0.22 and peaked T waves. Management strategies to correct the primary problem should include
   A. hemodilution.
   B. IV diuresis.
   C. rate acceleration.
   D. ion exchange resin.

8. An unrestrained driver of a motor vehicle crash presents with jugular venous distention, BP 70/42 with pulsus paradoxus and HR 130. The patient most likely requires emergent
   A. blood transfusion.
   B. diuresis.
   C. inotropic support.
   D. pericardial drainage.

9. Following admission for exacerbation of COPD, an elderly patient is being discharged to an assisted living facility. Prior to discharge, the ACNP should verify immunization for
   A. hepatitis A and B.
   B. influenza and pneumonia.
   C. herpes zoster and MMR.
   D. meningitis and tetanus.

10. A patient with a closed head injury is noted to have a sustained ICP of 25 mm Hg for the last 5 minutes. After ensuring the patient is properly positioned and there are no obvious causes for the elevation, the ACNP advises the bedside nurse to then
    A. administer IV fentanyl (Sublimaze).
    B. administer IV phenytoin (Dilantin).
    C. hypoventilate the patient.
    D. hyperventilate the patient.

11. Prior to discharging a patient on simvastatin (Zocor), the ACNP should caution the patient to avoid which of the following?
    A. red meat
    B. green leafy vegetables
    C. grapefruit juice
    D. alcohol

12. An elderly patient presents to the emergency department with increasing somnolence. Chest radiography is unremarkable.
    Vital signs/lab work:
    BP 140/78
    HR 80
    RR 20
    O2 Sat 94%
    T 98.2°F (36.8°C)
    WBC 9.7 with 2% bands
    Hgb 12.6
    Hct 38
    PLT 199
    K+ 6.8 mEq/L
    BuN 40
    Cr 2.0
    Glucose 100
    Leukocyte esterase (LE) +2

    The ACNP should suspect
    A. urinary tract infection.
    B. sepsis of urinary origin.
    C. septic shock.
    D. acute renal failure.

13. A patient with a history of coronary artery disease, hypertension and diabetes presents with palpitations and exhaustion. ECG shows sinus bradycardia with occasional PVCs and a left bundle branch block.
    Vital signs/lab work:
    BP 100/50
    HR 38
    RR 14
    K+ 6.8 mEq/L
    BUN 40
    Cr 2.0
    Glucose 100
    WBC 12
    Leukocyte esterase (LE) +2
    Hgb 12.6
    Hct 38
    O2 Sat 94%
    PLT 199
    T 98.2°F (36.8°C)
    Last month, the patient’s primary care provider prescribed:
    Digoxin (Lanoxin) 0.25 mg/day
    Hydrochlorothiazide (HCTZ) 12.5 mg/day
    Diltiazem (Cardizem) 180 mg/day
    KCl 40 mEq/day
    ASA 81 mg/day
    Insulin sliding scale with meals

    The ACNP should first consider that the
    A. KCl supplement is intensifying the occurrence of the dysrhythmias.
    B. Diltiazem is potentiating the effects of the glycoside.
    C. insulin regimen is inadequate and contributes to the exhaustion.
    D. HCTZ dosage is exacerbating the hyperkalemia.
14. The ACNP is assessing an awake and alert intubated, mechanically ventilated patient for readiness to participate in a weaning trial. The patient was intubated 3 days ago for hypoxic respiratory failure associated with septic shock and is current on norepinephrine (Levophed) at 2 mcg/min.

**Ventilator settings:**
- Mode: Assist control
- FiO₂: 0.50
- Rate: 12
- Tidal volume: 360
- PEEP: 5 cm H₂O

**Assessment data:**
- BP: 95/53
- HR: 100
- SpO₂: 95%

The ACNP directs the respiratory therapist to:
A. obtain sputum cultures and wean in 48 hours if cultures are negative.
B. maintain current settings and reassess for eligibility in 24 hours.
C. perform a weaning trial once the vasopressors are discontinued.
D. perform a weaning trial, and plan for extubation.

15. Following placement of a transvenous pacemaker, the below rhythm is noted.

![Image of ECG rhythm]

The ACNP should:
A. increase the output.
B. decrease the output.
C. increase the sensitivity.
D. decrease the sensitivity.

16. A patient is receiving treatment for a pulmonary embolus, and the ACNP is notified of petechial spotting on the sacrum and a change in platelet count from 118,000 to 60,000. The ACNP should first suspect:
A. multisystem organ dysfunction.
B. heparin-induced thrombocytopenia (HIT).
C. hemolytic uremic syndrome.
D. disseminated intravascular coagulation (DIC).

17. Three hours after being extubated, a patient has tachypnea and dyspnea. Faint wheezing and crackles auscultated in the dependent areas of the lung are likely the result of
A. lower lobe atelectasis.
B. bronchospasm.
C. pulmonary edema.
D. aspiration pneumonitis.

18. A thin female presents reporting occasional fatigue and restlessness. Physical exam findings are remarkable for fine hair, warm, moist skin and a goiter with associated bruit.

**Vital signs:**
- BP: 140/80
- HR: 110
- RR: 16

The most likely differential diagnosis is
A. hypothyroidism.
B. myxedema.
C. thyroid cancer.
D. Grave’s disease.

19. Two days after repair of a dissecting abdominal aortic aneurysm, the patient complains of excruciating abdominal pain and nausea. Further diagnostic testing should include an abdominal
A. CT angiogram.
B. ultrasound.
C. flat plate x-ray.
D. MRI.

20. Following an open thoracotomy procedure for removal of a cancerous mass, the following patient data is obtained:

<table>
<thead>
<tr>
<th>Admission to ICU</th>
<th>1 hour later</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP 110/85</td>
<td>90/72</td>
</tr>
<tr>
<td>HR 88</td>
<td>110</td>
</tr>
<tr>
<td>RR 16</td>
<td>22</td>
</tr>
<tr>
<td>Hgb 14</td>
<td>9</td>
</tr>
<tr>
<td>Hct 38</td>
<td>25</td>
</tr>
</tbody>
</table>

The ACNP should first evaluate for
A. pneumothorax.
B. pulmonary edema.
C. hemothorax.
D. pericardial tamponade.
21. Following extubation, a patient experiences hypoxia and stridor. The patient is reintubated, but the respiratory therapist now reports difficulty bagging the patient. The patient requires
A. emergent chest tube placement.
B. nebulized racemic epinephrine.
C. pressure support ventilation.
D. N-acetylcysteine breathing treatments.

22. A patient with NYHA class III heart failure and an ejection fraction of 25% is receiving enalapril (Vasotec), furosemide (Lasix), carvedilol (Coreg) and spironolactone (Aldactone). The echocardiogram shows ventricular dyssynchrony. Which of the following would be most beneficial for improving the patient’s long-term functional abilities?
A. an intra-aortic balloon pump
B. placement of an ICD
C. a dual-chamber pacemaker
D. cardiac resynchronization therapy

23. Which of the following will require monitoring for a patient with Graves’ disease who is receiving propylthiouracil (PTU)?
A. CBC with differential
B. lipid levels
C. hemoglobin A1C
D. serum electrolytes

24. A patient is transferred for emergent percutaneous coronary intervention and presents with the following:
BP 72/40
HR 44
RR 28
O2 Sat 94% on 4 L nasal cannula
The 12-lead ECG shows sinus bradycardia with ST elevation in leads II, III and aVF. Nitroglycerin (Tridil) at 20 mcg/min, NS at 50 mL/hr and dopamine (Intropin) at 10 mcg/kg/min are infusing. The ACNP should first
A. discontinue the dopamine.
B. discontinue the nitroglycerin.
C. increase the dopamine.
D. increase the nitroglycerin.

25. Following an episode of dyspnea and hypercapnia, a patient with end-stage COPD is admitted but refuses intubation and mechanical ventilation. The best course of action would be the application of which of the following?
A. bilevel positive airway pressure (BiPAP)
B. continuous positive airway pressure (CPAP)
C. a high-flow nasal cannula
D. a non-rebreather mask

26. Four weeks after CABG surgery, a patient presents with complaints of shortness of breath and low-grade fevers. Decreased breath sounds and dullness to percussion in the left lower lung field are noted. Chest x-ray was concerning for an infiltrate, but further imaging is needed. Which diagnostic study would be most helpful?
A. MRI of the chest
B. ultrasound of the left chest
C. CT scan of the chest with IV contrast
D. CT scan of the chest without contrast

27. A patient presents to the emergency department with a fever, diarrhea and sunburn-like skin rash with blistering 45 days after a bone marrow transplant. The patient is most likely experiencing
A. an antibiotic drug reaction.
B. Clostridium difficile colitis.
C. acute graft versus host disease (GVHD).

28. When prescribing levothyroxine (Synthroid) to the elderly, the ACNP should start with a low dose and gradually increase the dose in order to minimize the
A. occurrence of gastric disturbance.
B. metabolic demands that can precipitate angina.
C. incidence of electrolyte imbalance.
D. risk for mental status changes and depression.

29. Which of the following laboratory findings are associated with DIC?

<table>
<thead>
<tr>
<th>PLT</th>
<th>PT</th>
<th>PTT</th>
<th>FDP/FSP</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. decreased</td>
<td>prolonged</td>
<td>prolonged</td>
<td>elevated</td>
</tr>
<tr>
<td>B. decreased</td>
<td>prolonged</td>
<td>normal</td>
<td>elevated</td>
</tr>
<tr>
<td>C. increased</td>
<td>normal</td>
<td>prolonged</td>
<td>decreased</td>
</tr>
<tr>
<td>D. decreased</td>
<td>prolonged</td>
<td>prolonged</td>
<td>decreased</td>
</tr>
</tbody>
</table>
30. In the absence of steroid use, when an ACTH stimulation test is performed and the serum cortisol level remains constant or is only mildly elevated (5%-10%), the finding is indicative of
A. hyperosmolar hyperglycemic nonketotic syndrome (HHNS).
B. syndrome of inappropriate antidiuretic hormone (SIADH).
C. primary adrenal insufficiency.
D. diabetes insipidus (DI).

31. A diabetic patient is admitted with episodes of hypoglycemia. The patient’s home regimen includes glargine (Lantus) in the a.m., NPH insulin in the p.m. and a regular insulin (Humulin) sliding scale with meals. After reviewing blood glucose results over the previous 2 days, the ACNP concludes the patient is experiencing the Somogyi effect. Adjustments should be made to the
A. NPH insulin.
B. glargine.
C. regular insulin.
D. addition of an afternoon snack.

32. Six days after evacuation of a subarachnoid hemorrhage, a patient exhibits a decrease in level of consciousness. The lab results are remarkable for serum Na+ 121, Hct 48, BUN 47 and Cr 2.5. Fluid management strategies should include which of the following?
A. 0.9% sodium chloride
B. Lactated Ringers
C. 5% dextrose in 0.225% sodium chloride
D. 3% sodium chloride

33. A patient is being discharged following treatment for a new onset stroke. Discharge medication includes prescriptions for simvastatin (Zocor) and warfarin (Coumadin). The ACNP should emphasize the need for follow-up with the primary care provider, because
A. statins potentiate the effect of anticoagulants.
B. statins diminish the therapeutic effect of anticoagulants.
C. anticoagulants potentiate the effect of statins.
D. anticoagulants diminish the therapeutic effect of statins.

34. A patient with chronic renal failure on hemodialysis is readmitted to the hospital from outpatient rehabilitation. The patient presents with a clotted AV fistula and a PLT count decrease from 150,000 to 75,000 over the last 5 days. The most likely diagnosis for this patient is
A. bone marrow suppression.
B. hemolytic uremic syndrome.
C. heparin-induced thrombocytopenia (HIT).
D. protein C deficiency.

35. Which of the following patients is most at risk for experiencing sudden cardiac death?
A. a 38-year-old who experienced syncope during sexual activity
B. a 47-year-old who experienced syncope while attending the birth of his son
C. a 56-year-old who experienced syncope with hypoglycemia
D. a 70-year-old who experienced syncope after a coughing episode

36. A patient experienced a subluxation injury of the acromioclavicular joint that reduced spontaneously. Initial pain management strategies include
A. cast, ice and non-steroidal anti-inflammatories (NSAIDs).
B. sling, ice and non-steroidal anti-inflammatories (NSAIDs).
C. sling, heat and narcotics.
D. cast, heat and narcotics.

37. A patient with chronic renal failure is admitted with a complaint of syncope. ECG shows sinus bradycardia, with low-voltage P waves and tall T waves. Vital signs:
BP 180/98
HR 40
RR 18
The patient is most likely experiencing
A. hyperkalemia.
B. hypomagnesemia.
C. hypernatremia.
D. hypercalcemia.
38. A young adult presents complaining of an excruciating headache. No neuro deficits are detected, but the patient is photophobic and extremely irritable. The CBC findings are normal.

**Vital signs:**
- BP 92/60
- HR 77
- RR 14
- T 101.8°F (38.8°C)

Of the following, the ACNP should next
A. obtain an electroencephalogram to assess degree of injury.
B. order a cerebral arteriogram to rule out subarachnoid hemorrhage.
C. perform a lumbar puncture to differentiate the type of meningitis.
D. prescribe empiric antibiotics while awaiting blood culture results.

39. Six hours after CABG surgery, a patient is alert but very agitated. The patient’s average spontaneous tidal volume is 800 mL.

**Ventilator settings:**
- Mode Pressure support
- FiO2 0.40
- Pressure support 5
- PEEP 5 cm H₂O

**Assessment data:**
- BP 92/70
- HR 90
- RR 16
- CPP 76

The RN is questioning the necessity for the scheduled nimodipine (Nimotop). The ACNP should explain that the purpose of the medication is to
A. maintain the cerebral perfusion pressure (CPP) between 70 and 90 mm Hg.
B. achieve HR less than 80.
C. minimize tissue damage caused by vasospasm.
D. reduce the risk for atrial fibrillation.

40. A patient on an oncology unit requires a paracentesis. To prevent iatrogenic injuries, it is most important for the ACNP to
A. prep the right lower quadrant.
B. place the patient supine and flat.
C. order a urinary catheter.
D. use the Z-track technique.

41. Ten hours after a restrained driver experiences a motor vehicle crash involving a driver-side impact, the patient presents with complaints of worsening left shoulder pain. The history is indicative of
A. hepatic trauma.
B. splenic injury.
C. rib fractures.
D. C-7 radiculopathy.

42. Three days ago a patient underwent a cerebral aneurysm clipping.

**Assessment data:**
- BP 92/65
- HR 78
- RR 12
- T 97.7°F (36.5°C)
- PAOP 18 mm Hg
- CI 2.2 L/min/m²

The ACNP is assessing a patient who was involved in a motor vehicle crash (MVC) and notes an ecchymotic stripe across the lower abdomen. The patient complains of escalating diffuse abdominal pain. The ACNP is concerned this is most suspicious for
A. bowel injury.
B. pelvic injury.
C. lumbar fracture.
D. pancreatic injury.
45. A patient with a history of alcohol abuse is admitted with acute pancreatitis. Initial treatment should include
A. intravenous hydration.
B. broad-spectrum antibiotics.
C. an urgent surgical consultation.
D. pain control with hydrocodone (Vicodin).

46. A hemodynamically unstable, mechanically ventilated patient develops oliguria with a GFR of 5 mL/min and a rapidly rising serum potassium level. The patient would be best managed with
A. aggressive NS fluid infusions.
B. continuous renal replacement therapy (CRRT).
C. daily hemodialysis treatments.
D. a hypertonic infusion at a low rate.

47. An emaciated patient presents to the emergency department. While taking a history, the patient becomes unconscious, and the ACNP observes the following rhythm on the monitor:

Resuscitative measures are begun, and corrective treatment should prioritize the need for
A. mechanical ventilation.
B. sedation and cardioversion.
C. electrolyte replacement.
D. therapeutic hypothermia.

48. Following an acute myocardial infarction, a patient is being discharged on aspirin. Which of the following comorbidities would put this patient at greatest risk for developing a coagulopathy?
A. ischemic stroke
B. chronic renal failure
C. reactive airway disease
D. right ventricular hypertrophy

49. A postoperative surgical patient receiving furosemide (Lasix) 20 mg IV BID for 4 days now has a sodium level of 150. The ACNP should first
A. order a renal arteriogram.
B. consider fluid replacement with Lactated Ringers.
C. assess for signs of altered level of consciousness.
D. evaluate the need for continuing the diuretic.

50. A patient presents with crushing chest pain that is unrelieved with nitroglycerin. While reviewing the 12-lead ECG, the ACNP notes ST elevation in leads I, aVL and V₃-V₆ and reciprocal changes in III, aVF and aVR. The findings indicate
A. a septal posterior wall MI.
B. an inferior posterior wall MI.
C. a lateral septal wall MI.
D. an anterolateral wall MI.
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>C</td>
<td>18.</td>
<td>D</td>
</tr>
<tr>
<td>2.</td>
<td>A</td>
<td>19.</td>
<td>A</td>
</tr>
<tr>
<td>5.</td>
<td>B</td>
<td>22.</td>
<td>D</td>
</tr>
<tr>
<td>6.</td>
<td>B</td>
<td>23.</td>
<td>A</td>
</tr>
<tr>
<td>7.</td>
<td>D</td>
<td>24.</td>
<td>B</td>
</tr>
<tr>
<td>8.</td>
<td>D</td>
<td>25.</td>
<td>A</td>
</tr>
<tr>
<td>10.</td>
<td>A</td>
<td>27.</td>
<td>D</td>
</tr>
<tr>
<td>12.</td>
<td>A</td>
<td>29.</td>
<td>A</td>
</tr>
<tr>
<td>14.</td>
<td>D</td>
<td>31.</td>
<td>A</td>
</tr>
<tr>
<td>15.</td>
<td>A</td>
<td>32.</td>
<td>D</td>
</tr>
<tr>
<td>16.</td>
<td>B</td>
<td>33.</td>
<td>A</td>
</tr>
<tr>
<td>17.</td>
<td>C</td>
<td>34.</td>
<td>C</td>
</tr>
<tr>
<td>35.</td>
<td>A</td>
<td>36.</td>
<td>B</td>
</tr>
<tr>
<td>37.</td>
<td>A</td>
<td>38.</td>
<td>C</td>
</tr>
<tr>
<td>39.</td>
<td>D</td>
<td>40.</td>
<td>C</td>
</tr>
<tr>
<td>41.</td>
<td>B</td>
<td>42.</td>
<td>C</td>
</tr>
<tr>
<td>43.</td>
<td>A</td>
<td>44.</td>
<td>A</td>
</tr>
<tr>
<td>45.</td>
<td>A</td>
<td>46.</td>
<td>B</td>
</tr>
<tr>
<td>47.</td>
<td>C</td>
<td>48.</td>
<td>B</td>
</tr>
<tr>
<td>49.</td>
<td>D</td>
<td>50.</td>
<td>D</td>
</tr>
</tbody>
</table>
1. A patient is admitted with new onset angina, dyspnea, malaise and headache. Vital signs:
   BP 134/82
   HR 104
   RR 24
   T 100.9°F (38.3°C)
   SpO2 96% on room air

   A friction rub is noted on the left sternal border, but the patient reports the pain has eased. The ECG shows diffuse ST and T wave changes. The ACNP should first prescribe
   A. metoprolol (Lopressor) 5 mg IV for 3 doses, given 2 minutes apart.
      (h) Administering metoprolol is not indicated in management of pericarditis. It may decrease the HR, which could cause hemodynamic compromise.
   B. prednisone (Deltasone) 60 mg PO every day.
      (u) Steroids are only recommended for patients with refractory pericarditis or patients with very severe symptoms. Steroids may increase the risk of recurrent pericarditis.
   C. ibuprofen (Motrin) 600-800 mg PO every 8 hours.
      (c) Recommendations for treatment of pericarditis include administration of an NSAID 3 times daily for 1-2 weeks.
   D. morphine sulfate 2 mg IV every 2 hours PRN for chest pain.
      (u) The patient reports that the pain has eased; thus pain medication may not be needed. Morphine is used in cases of myocardial infarction both for pain relief and the vasodilatory effect. In pericarditis, blood flow to the pericardium is not compromised.

2. A patient with a BMI of 38 presents with chest pain, rated as 9 out of 10. Vital signs:
   BP 140/88
   HR 95
   RR 16

   Troponins are positive, and 12-lead ECG indicates ST segment depression in leads I and aVL. The ACNP should first order
   A. an aspirin, nitroglycerin (Tridil) IV and a beta-blocker.
      (c) All patients with suspected or confirmed MI should first receive an aspirin, due to its antiplatelet effects. Nitroglycerin is known for its vasodilatory effects and is the first choice for management of ischemic cardiac pain. Beta-blockers have proven beneficial for management of NSTEMI.
   B. a sublingual nitroglycerin, a beta-blocker and cardiac catheterization.
      (u) Cardiac catheterization would be deferred until the patient recovered from this acute event. Emergent cardiac catheterizations are considered for STEMI.
   C. a thrombolytic agent, nitroglycerin and a fluid bolus.
      (u) Thrombolytic agents are not recommended for NSTEMI, but are instead considered for patients with STEMI. A fluid bolus is not indicated, as the patient is not in hemodynamic compromise. A fluid bolus may result in fluid overload and pulmonary edema if the patient’s ejection fraction is acutely compromised.
   D. an aspirin, a beta-blocker and cardiac catheterization.
      (u) Cardiac catheterization would be reserved for patients with a STEMI rather than a NSTEMI.


3. A patient scheduled for CABG surgery has been receiving abciximab (Reopro) and heparin infusions. The preoperative CBC demonstrates a platelet count of 45,000. The ACNP should
   A. switch the heparin to argatroban (Acova).
      (u) Heparin should be held prior to surgery, rather than changed to a different agent. If heparin were switched to argatroban, there would be an increased risk of uncontrolled bleeding during surgery. Argatroban does not have a reversal agent.
   B. discontinue the abciximab and heparin.
      (c) These agents should be held prior to CABG to prevent uncontrolled bleeding during surgery.

C. infuse platelets and repeat lab work in 4 hours.  
(u) While the patient may require platelets, the abciximab and heparin infusions should be discontinued prior to surgery.

D. administer protamine sulfate.  
(h) Reversal of the heparin with protamine sulfate may predispose the patient to experiencing a thrombotic event.


4. A diabetic patient presents with decreased level of consciousness.  

Lab work/vital signs:

<table>
<thead>
<tr>
<th>BUN</th>
<th>48</th>
<th>BP</th>
<th>98/62</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cr</td>
<td>1.2</td>
<td>HR</td>
<td>118</td>
</tr>
<tr>
<td>Glucose</td>
<td>969</td>
<td>RR</td>
<td>28</td>
</tr>
<tr>
<td>K⁺</td>
<td>3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Na⁺</td>
<td>145</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Urine analysis: Negative for ketones

Goals of therapy include

A. fluid resuscitation and slow reduction of blood glucose levels.  
(c) Fluid resuscitation is the primary goal for management of hyperosmolar hyperglycemic state (HHS). Fluid resuscitation is paramount to replace intravascular volume caused by dehydration from the osmotic diuresis produced by hyperglycemia. The secondary goal is correction of hyperglycemia with insulin. The goal reduction of glucose is 50-70 mg/dL/hr.

B. normalization of acidosis and tight glycemic control.  
(u) The acidosis will begin to correct as the patient is fluid resuscitated and receives insulin. Administration of an agent such as sodium bicarbonate is not indicated unless the pH is less than 7.2 and may vary by institutional protocol.

C. correction of insulin resistance and osmotic diuresis.  
(u) Interventions to correct insulin resistance involve lifestyle changes and medications, which will not be beneficial during the acute period of hyperosmolar hyperglycemic state (HHS) management. The hyperglycemia causes osmotic diuresis, which leads to dehydration and necessity for volume resuscitation.

D. rapid blood sugar stabilization and renal replacement strategies.  
(h) Rapid correction of blood glucose may result in hypoglycemia. For this reason, the goal reduction is 50-70 mg/dL/hr. There are no acute indications for hemodialysis in this case.


5. A patient with an extensive history of CAD and cardiomyopathy is being counseled following a heart failure exacerbation. While explaining future interventional options, the patient states, “What’s the point? I am going to die anyway.” The ACNP recognizes that the patient would benefit from a

A. visit from a transplant coordinator and a survivor.  
(a) While this may be beneficial, effects are likely to be short lived, as the patient is experiencing depression following an acute exacerbation.

B. cardiac education and support group program.  
(c) Attending a cardiac education and support group program has been proven to improve functional capacity and ability to perform activities of daily living.

C. hospice program referral.  
(u) The patient is experiencing an acute depressive episode following an exacerbation. Hospice should not be discussed during an acute depressive episode, as the patient may not be emotionally able to make informed decisions.

D. case review by the ethics committee.  
(u) A case review by the ethics committee is not indicated for an acute depressive episode. An example that may necessitate an ethics referral would be if the patient and family strongly disagreed on treatment and goals of care.


6. After placement of a stent in the right coronary artery (RCA), vital signs are:

<table>
<thead>
<tr>
<th>BP</th>
<th>112/65</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR</td>
<td>40</td>
</tr>
<tr>
<td>RR</td>
<td>14</td>
</tr>
</tbody>
</table>

Telemetry displays new onset bradycardia with intermittent, uniform PVCs. The patient denies chest pain, and no other symptoms are evident. The ACNP should

A. order atropine and apply a transcutaneous pacer.  
(u) The treatment for asymptomatic bradycardia is close monitoring and observation. Atropine and transcutaneous pacing are not indicated.
B. recognize the rhythm is transient.
   (c) Because the bradycardia occurred immediately following stent placement, it is likely due to reperfusion or stent manipulation. It is likely transient, and since it is asymptomatic, no intervention is required.

C. obtain STAT potassium and magnesium levels.
   (a) Since the bradycardia occurred immediately after stent placement, it is not likely due to an electrolyte abnormality, but is more likely due to manipulation from the procedure or reperfusion.

D. prepare for a repeat cardiac catheterization.
   (u) A repeat cardiac catheterization is not indicated. The bradycardia is likely transient, and there are no indications the stent has occluded.


7. A patient with chronic renal failure on hemodialysis presents complaining of nausea and fatigue. Telemetry shows bradycardia, PR interval of 0.22 and peaked T waves. Management strategies to correct the primary problem should include

A. hemodilution.
   (h) Fluid administration in patients with renal failure on hemodialysis has the potential to cause rapid fluid overload with sequelae such as pulmonary edema and hypoxia. Dehydration is not likely the primary cause of hyperkalemia in this patient.

B. IV diuresis.
   (u) Because this patient has chronic renal failure on hemodialysis, it is unlikely an adequate response will be achieved from diuretic administration.

C. rate acceleration.
   (h) This patient is experiencing ECG changes secondary to hyperkalemia, and rate acceleration could lead to exacerbation of dysrhythmias or even a fatal dysrhythmia.

D. ion exchange resin.
   (c) An ion exchange resin such as sodium polystyrene sulfonate (Kayexalate), which may be administered via the oral or rectal route, exchanges sodium for potassium, decreasing the serum potassium level, and is removed by fecal elimination.


8. An unrestrained driver of a motor vehicle crash presents with jugular venous distention, BP 70/42 with pulsus paradoxus and HR 130. The patient most likely requires emergent

A. blood transfusion.
   (u) Enough information has not been provided to determine if blood replacement is indicated. The amount of blood lost during the accident is unknown, and laboratory values are not provided.

B. diureses.
   (h) While the patient has jugular venous distention, they exhibit this finding due to pericardial tamponade rather than fluid overload. Administering a diuretic may cause intravascular volume depletion and worsen hypotension.

C. inotropic support.
   (h) Inotropic support is not indicated, as the tamponade is precluding normal left ventricle filling, thus causing hypotension. Administration of inotropes may worsen tachycardia and lead to dysrhythmias.

D. pericardial drainage.
   (c) Pericardial drainage is the preferred method of treatment. Continuous drainage may be needed to prevent recurrence of tamponade while the etiology is being investigated and further treatments are being considered.


9. Following admission for exacerbation of COPD, an elderly patient is being discharged to an assisted living facility. Prior to discharge, the ACNP should verify immunization for

A. hepatitis A and B.
   (u) This patient does not have noted risk factors for contracting hepatitis A. Serum levels of hepatitis B antibodies would need to be drawn to determine necessity of the hepatitis B vaccine.

B. influenza and pneumonia.
   (c) Influenza vaccines should be administered annually to elderly patients. If this patient had not received a pneumonia vaccine, one should be administered as the patient is elderly and in an assisted living facility.

C. herpes zoster and MMR.
   (a) While the elderly should receive a single vaccination against herpes zoster, it is most imperative that the flu and pneumonia vaccinations are up-to-date. It is likely the patient received appropriate MMR dosing as a child, as administration is indicated much earlier in life. However, it is prudent to verify this in the healthcare records.
D. meningitis and tetanus.
   (u) The patient is not at high risk for meningococcal meningitis and likely should not receive
   this vaccine unless there is an outbreak.
   Tetanus vaccine should be administered once every 10 years.


10. A patient with a closed head injury is noted to have a sustained ICP of 25 mm Hg for the last 5 minutes. After ensuring the patient is properly positioned and there are no obvious causes for the elevation, the ACNP advises the bedside nurse to then

A. administer IV fentanyl (Sublimaze).
   (c) ICP is typically treated when it is over 20 mm Hg. If no obvious causes of increased
   ICP are present, analgesics such as fentanyl are used in the event that pain or agitation
   may be subclinical.

B. administer IV phenytoin (Dilantin).
   (u) The patient does not have any clinical findings suggestive of seizure activity. It would
   be prudent to administer analgesia and treat other causes that are more likely before
   initiating treatment for seizure activity.

C. hypoventilate the patient.
   (h) Hypoventilation will lead to hypercarbia, which may result in vasodilation and worsening
   of ICP.

D. hyperventilate the patient.
   (h) Hyperventilation may lead to vasoconstriction and cause cerebral ischemia. Hyperventi-
   lation may be used temporarily in the setting of impending herniation while other treatments
   are implemented.


11. Prior to discharging a patient on simvastatin (Zocor), the ACNP should caution the patient to
   avoid which of the following?

A. red meat
   (u) Red meat does not alter the pharmacokinetics of simvastatin.

B. green leafy vegetables
   (u) While green leafy vegetables are known to interact with medications such as warfarin
   (Coumadin) due to the vitamin K content, they do not impact the pharmacokinetics of
   simvastatin.

C. grapefruit juice
   (c) Grapefruit juice inhibits the cytochrome P-450 enzyme system and can lead to
   increased serum concentrations of drugs, such as simvastatin, that use this system for
   metabolism.

D. alcohol
   (u) Alcohol consumption does not impact the pharmacokinetics of simvastatin.


12. An elderly patient presents to the emergency department with increasing somnolence. Chest
   radiography is unremarkable.

Vital signs/lab work:

<table>
<thead>
<tr>
<th>BP</th>
<th>140/78</th>
</tr>
</thead>
<tbody>
<tr>
<td>WBC</td>
<td>9.7</td>
</tr>
<tr>
<td>HR</td>
<td>80</td>
</tr>
<tr>
<td>Hgb</td>
<td>12.6</td>
</tr>
<tr>
<td>RR</td>
<td>20</td>
</tr>
<tr>
<td>Hct</td>
<td>38</td>
</tr>
<tr>
<td>O2 Sat</td>
<td>94%</td>
</tr>
<tr>
<td>PLT</td>
<td>199</td>
</tr>
<tr>
<td>T</td>
<td>98.2 °F (36.8°C)</td>
</tr>
</tbody>
</table>

Urinalysis:

<table>
<thead>
<tr>
<th>WBC</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>LE</td>
<td>+2</td>
</tr>
</tbody>
</table>

The ACNP should suspect

A. urinary tract infection.
   (c) The presence of 12 WBC and +2 leukocyte esterase (LE) in the urine, along with altered
   mental status in an elderly patient, is most concerning for a urinary tract infection.

B. sepsis of urinary origin.
   (u) A diagnosis of sepsis is not appropriate, as the patient does not exhibit any systemic inflam-
   matory response syndrome (SIRS) criteria, which are: T greater than 100.4 °F (38 °C) or less than
   96.8 °F (36 °C); HR greater than 90; RR greater than 20 or PaCO2 less than 32 mm Hg; WBC
   greater than 12,000 cells/mm³; less than 4000 cells/mm³ or greater than 10% immature
   neutrophils.

C. septic shock.
   (u) A diagnosis of septic shock requires a diagnosis of sepsis with persistent hypotension
   requiring vasopressors despite adequate fluid resuscitation.

D. acute renal failure.
   (u) Findings such as oliguria or elevated creatinine have not been presented in this case.

13. A patient with a history of coronary artery disease, hypertension and diabetes presents with palpitations and exhaustion. ECG shows sinus bradycardia with occasional PVCs and a left bundle branch block.

**Vital signs/lab work:**
- BP 100/50
- HR 38
- RR 14
- K+ 6.8 mEq/L
- BUN 40
- Cr 2.0
- Glucose 100

Last month, the patient’s primary care provider prescribed:
- Digoxin (Lanoxin) 0.25 mg/day
- Hydrochlorothiazide (HCTZ) 12.5 mg/day
- Diltiazem (Cardizem) 180 mg/day
- KCl 40 mEq/day
- ASA 81 mg/day
- Insulin sliding scale with meals

The ACNP should *first* consider that the

A. KCl supplement is intensifying the occurrence of the dysrhythmias.
   (u) While the patient is hyperkalemic, the ACNP should hold the KCl supplement. The ECG does not show characteristic signs of dysrhythmias associated with hyperkalemia, which would include peaked T waves, depressed ST segment, widened QRS and wide, flattened P waves.

B. Diltiazem is potentiating the effects of the glycoside.
   (c) The patient is exhibiting signs of digitalis toxicity, which include bradycardia, PVCs and a left bundle branch block. Fatigue is also a symptom of digitalis toxicity. Diltiazem is known to increase the levels of digoxin, thereby potentiating its effect.

C. Insulin regimen is inadequate and contributes to the exhaustion.
   (u) The patient is not hyperglycemic, which is not suggestive of an inadequate insulin regimen.

D. HCTZ dosage is exacerbating the hyperkalemia.
   (u) While it is possible the HCTZ is exacerbating the hyperkalemia, it is difficult to know if the HCTZ or the KCl supplement is having a greater impact on the serum potassium levels. We do not have a baseline creatinine to determine if acute kidney injury may have led to an increase in the serum potassium caused by the HCTZ.

In addition, the ECG does not show characteristic signs of dysrhythmias associated with hyperkalemia.


14. The ACNP is assessing an awake and alert intubated, mechanically ventilated patient for readiness to participate in a weaning trial. The patient was intubated 3 days ago for hypoxic respiratory failure associated with septic shock and is current on norepinephrine (Levophed) at 2 mcg/min.

**Ventilator settings:**
- Mode Assist control
- FIO2 0.50
- Rate 12
- Tidal volume 360
- PEEP 5 cm H2O

**Assessment data:**
- BP 95/53
- HR 100
- SpO2 95%

The ACNP directs the respiratory therapist to

A. Obtain sputum cultures and wean in 48 hours if cultures are negative.
   (h) Positive sputum cultures do not preclude weaning from mechanical ventilation. If the patient demonstrates readiness to liberate from mechanical ventilation, waiting an additional 48 hours may increase risk for complications, such as ventilator-associated pneumonia (VAP).

B. Maintain current settings and reassess for eligibility in 24 hours.
   (u) The patient demonstrates readiness to perform a breathing trial based on the current settings.

C. Perform a weaning trial once the vasopressors are discontinued.
   (u) A minimal level of vasopressor support does not preclude a weaning trial. Increased intrathoracic pressure while on mechanical ventilation can reduce preload and cause hypotension.

D. Perform a weaning trial, and plan for extubation.
   (c) Examples of readiness for a weaning trial include, but are not limited to, FIO2 less than or equal to 50%, PEEP less than or equal to 5, respiratory rate less than 30 and minute ventilation less than or equal to 10 L/min.

15. Following placement of a transvenous pacemaker, the below rhythm is noted.

The ACNP should

A. increase the output.  
   (c) The pacemaker is not achieving capture, necessitating that the output be increased, as output controls stimulus strength.

B. decrease the output.  
   (h) The output should be increased, rather than decreased. Decreasing the output will lead to a lower possibility of capture.

C. increase the sensitivity.  
   (u) The pacemaker is detecting the presence of intrinsic cardiac activity, as demonstrated by the pacer spikes. Increasing the sensitivity will not achieve capture.

D. decrease the sensitivity.  
   (h) Decreasing the sensitivity may lead to the pacemaker not being able to sense intrinsic cardiac activity, in which achieving capture may be rendered impossible.


16. A patient is receiving treatment for a pulmonary embolus, and the ACNP is notified of petechial spotting on the sacrum and a change in platelet count from 118,000 to 60,000. The ACNP should first suspect

A. multisystem organ dysfunction.  
   (u) Multisystem organ dysfunction occurs in the setting of sepsis and signifies worsening of the systemic inflammatory response. The data presented does not indicate organ dysfunction or active infection.

B. heparin-induced thrombocytopenia (HIT).  
   (c) The hallmark of HIT is a decrease in platelet count by 30%-50% within 5-10 days following exposure to heparin, though this may happen more quickly in patients who have previously been exposed. This significant platelet drop would warrant consideration for HIT. The treatment for a pulmonary embolism in the acute setting is a heparin drip.

C. hemolytic uremic syndrome.  
   (u) Hemolytic uremic syndrome is most often associated with a diarrheal illness caused by a Shiga toxin–producing E. coli. While it does cause thrombocytopenia, it is also characterized by anemia, hemolysis and acute renal failure.

D. disseminated intravascular coagulation (DIC).  
   (u) While the presentation of DIC may include thrombocytopenia and petechiae, other clinical signs include spontaneous bleeding or oozing from previous sites of trauma, prolonged clotting times and a decreased fibrinogen. This condition typically occurs in the setting of septic shock, trauma, cardiovascular shock, obstetrical complications and neoplastic diseases.


17. Three hours after being extubated, a patient has tachypnea and dyspnea. Faint wheezing and crackles auscultated in the dependent areas of the lung are likely the result of

A. lower lobe atelectasis.  
   (u) Lower lobe atelectasis would cause diminished breath sounds in the lung bases on auscultation but would not result in wheezing or crackles.

B. bronchospasm.  
   (u) Bronchospasm would cause tachypnea and dyspnea but would not cause crackles.

C. pulmonary edema.  
   (c) Pulmonary edema is associated with tachypnea, dyspnea, wheezing and bilateral crackles. This can often happen following extubation, due to removal of the positive pressure provided by mechanical ventilation.

D. aspiration pneumonitis.  
   (u) Aspiration pneumonitis typically occurs on 1 side, or is more significant on 1 side, and is not often associated with wheezing.


18. A thin female presents reporting occasional fatigue and restlessness. Physical exam findings are remarkable for fine hair, warm, moist skin and a goiter with associated bruit.

Vital signs:
BP 140/80
HR 110
RR 16

The most likely differential diagnosis is

A. hypothyroidism.  
   (u) Patients with hypothyroidism are more likely to exhibit cool skin and persistent fatigue not accompanied by restlessness.
B. myxedema.
(u) In addition to the findings of hypothyroidism above, patients with myxedema have thickened skin, edema, hypothermia, hypoventilation, hypotension and bradycardia.

C. thyroid cancer.
(u) Thyroid cancer is often asymptomatic. Additionally, the patient typically presents with a thyroid nodule, rather than a goiter.

D. Grave’s disease.
(c) Grave’s disease is one of the most common causes of hyperthyroidism. Patients often have a goiter. They are characteristically anxious, tachycardic, tachypneic and intolerant to heat. They may also experience diaphoresis, weight loss and increased appetite.


19. Two days after repair of a dissecting abdominal aortic aneurysm, the patient complains of excruciating abdominal pain and nausea. Further diagnostic testing should include an abdominal

A. CT angiogram.
(c) Sudden onset of pain and nausea is suggestive of extension of the dissection or aortic rupture, which would necessitate emergent surgical intervention. A CT angiogram would determine the size of the aorta, extent of dissection, involvement of additional arterial branches, lumen diameter and thickness of the aorta. This would provide necessary information prior to surgery.

B. ultrasound.
(u) An ultrasound provides much less specific information compared to a CT angiogram. If an ultrasound revealed concerning findings, an angiogram would be necessary. In this case, it would be most expedient to obtain an angiogram, as a recurrent dissection or rupture could be life-threatening.

C. flat plate x-ray.
(u) An x-ray would not likely reveal pertinent information about the abdominal aorta, in part due to the overlying bowel.

D. MRI.
(u) A traditional MRI would not be beneficial in evaluating the vasculature. MRI with angiography would evaluate the vasculature, but it takes much longer to complete than a CT angiogram.


20. Following an open thoracotomy procedure for removal of a cancerous mass, the following patient data is obtained:

<table>
<thead>
<tr>
<th>Admission to ICU</th>
<th>1 hour later</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>110/85</td>
</tr>
<tr>
<td>HR</td>
<td>88</td>
</tr>
<tr>
<td>RR</td>
<td>16</td>
</tr>
<tr>
<td>Hgb</td>
<td>14</td>
</tr>
<tr>
<td>Hct</td>
<td>38</td>
</tr>
</tbody>
</table>

The ACNP should first evaluate for

A. pneumothorax.
(u) While patients with a pneumothorax may present with hypotension, tachycardia and dyspnea, hemothorax is most likely in this case due to the significant decrease in hemoglobin and hematocrit occurring in association with the symptoms.

B. pulmonary edema.
(u) While patients with pulmonary edema would likely exhibit tachypnea, they would also be likely to have frothy sputum, diffuse crackles on chest auscultation and hypoxia. Pulmonary edema would not cause a decrease in hemoglobin and hematocrit.

C. hemothorax.
(c) Hypotension, tachycardia and tachypnea, accompanied with a significant decrease in hemoglobin and hematocrit, signifies hypovolemic shock due to volume loss and bleeding into the pleural space.

D. pericardial tamponade.
(u) Patients with pericardial tamponade demonstrate hypotension and tachycardia. However, the acute drop in hemoglobin and hematocrit is not explained by pericardial tamponade. Additionally, pulsus paradoxus is a characteristic finding of pericardial tamponade.


21. Following extubation, a patient experiences hypoxia and stridor. The patient is reintubated, but the respiratory therapist now reports difficulty bagging the patient. The patient requires

A. emergent chest tube placement.
(h) Difficulty bagging patients following intubation may be a sign of pneumothorax. However, this patient was experiencing stridor and hypoxia following extubation. Thus, the most likely cause is airway obstruction due to bronchospasm.
B. **nebulized racemic epinephrine.** 
(c) Nebulized racemic epinephrine may reverse bronchospasm, allow for relaxation of the airways, and permit normal bagging and ventilation.

C. pressure support ventilation. 
(u) The patient is not likely to tolerate any mode of ventilation while experiencing significant bronchospasm. Bagging should be maintained while interventions occur to relax the airway musculature.

D. **N-acetylcysteine breathing treatments.** 
(u) Nebulized N-acetylcysteine acts to break up secretions. In this case, secretions are not causing the respiratory distress. The patient is experiencing airway obstruction due to stridor.


22. A patient with NYHA class III heart failure and an ejection fraction of 25% is receiving enalapril (Vasotec), furosemide (Lasix), carvedilol (Coreg) and spironolactone (Aldactone). The echocardiogram shows ventricular dyssynchrony. Which of the following would be most beneficial for improving the patient’s long-term functional abilities?

A. an intra-aortic balloon pump 
(u) The primary goal for treatment of ventricular dyssynchrony is to restore synchrony to ventricular contraction. An intra-aortic balloon pump works to increase preload and decrease afterload, thus reducing the workload on the heart. It does not impact the synchrony of ventricular contraction.

B. placement of an ICD 
(u) This patient may benefit from an ICD, which will terminate dysrhythmias. However, cardiac resynchronization therapy would be more beneficial to improve overall cardiac function.

C. a dual-chamber pacemaker 
(u) A dual-chamber pacemaker uses 2 leads, 1 each in the right atrium and right ventricle, to stimulate contraction. However, this does not add the ventricular lead to include cardiac resynchronization therapy.

D. cardiac resynchronization therapy 
(c) Cardiac resynchronization therapy utilizes 3 leads, 1 each in the right atrium, right ventricle and left ventricle. The left ventricular lead is necessary to achieve synchrony between the right and left ventricles. This will improve ventricular filling and cardiac output.


23. Which of the following will require monitoring for a patient with Graves’ disease who is receiving propylthiouracil (PTU)?

A. **CBC with differential** 
(c) Propylthiouracil (PTU) has been associated with development of pancytopenia and agranulocytosis, requiring follow-up CBC with differential. The incidence is about 0.4% of patients taking propylthiouracil. The development of agranulocytosis while taking propylthiouracil has a genetic component, and alternative therapy should be considered if close relatives of the patient have developed this complication.

B. lipid levels 
(u) Alterations in lipid levels are not a known adverse effect of propylthiouracil.

C. hemoglobin A1C 
(u) Propylthiouracil is not known to impact hemoglobin A1C.

D. serum electrolytes 
(u) Propylthiouracil is not known to cause derangement in electrolytes.


24. A patient is transferred for emergent percutaneous coronary intervention and presents with the following:

<table>
<thead>
<tr>
<th>BP</th>
<th>72/40</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR</td>
<td>44</td>
</tr>
<tr>
<td>RR</td>
<td>28</td>
</tr>
<tr>
<td>O₂ Sat</td>
<td>94% on 4 L nasal cannula</td>
</tr>
</tbody>
</table>

The 12-lead ECG shows sinus bradycardia with ST elevation in leads II, III and aVF. Nitroglycerin (Tridil) at 20 mcg/min, NS at 50 mL/hr and dopamine (Intropin) at 10 mcg/kg/min are infusing. The ACNP should first

A. **discontinue the dopamine.** 
(h) Dopamine stimulates both alpha and beta receptors, causing vasoconstriction and increased cardiac output. Stopping the dopamine would likely lead to a precipitous drop in blood pressure.

B. **discontinue the nitroglycerin.** 
(c) Nitroglycerin is primarily a venodilator used to increase myocardial blood flow. It also has vasodilating effects, contributing to hypotension. The use of nitroglycerin is limited by these hypotensive effects and must be discontinued if the hypotension is profound, causing hemodynamic instability.
26. Four weeks after CABG surgery, a patient presents with complaints of shortness of breath and low-grade fevers. Decreased breath sounds and dullness to percussion in the left lower lung field are noted. Chest x-ray was concerning for an infiltrate, but further imaging is needed. Which diagnostic study would be most helpful?

A. MRI of the chest
   (a) MRI of the chest would reveal infiltrates, but compared to other diagnostic methods, it is often more time-consuming and costly and carries risks associated with gadolinium administration.

B. ultrasound of the left chest
   (u) Ultrasound of the left chest is most useful to detect pleural effusion, which would not be consistent with the presentation. Pneumonia is much more likely given the shortness of breath and low-grade fevers.

C. CT scan of the chest with IV contrast
   (u) IV contrast is not indicated when evaluating for pneumonia on CT scan of the chest. IV contrast would be beneficial if the vascular structures needed to be examined for patency, such as when evaluating for a pulmonary embolism.

D. CT scan of the chest without contrast
   (c) CT scan of the chest without contrast is appropriate to further characterize pneumonia. This scan allows for accurate visualization of the infiltrate and determination of the involved lobes.


27. A patient presents to the emergency department with a fever, diarrhea and sunburn-like skin rash with blistering 45 days after a bone marrow transplant. The patient is most likely experiencing

A. immunosuppressive drug toxicity.
   (u) Immunosuppressive drug toxicity may include hepatic injury or renal failure, but a typical presentation does not include fever or a sunburn-like skin rash with blistering.

B. an antibiotic drug reaction.
   (u) Most antibiotic drug rashes present with a morbilliform rash. Early stages of acute graft versus host disease (GVHD) can also present with a morbilliform rash. However, diarrhea and fever in conjunction with this rash are not characteristic of an antibiotic drug reaction.

C. Clostridium difficile colitis.
   (u) Patients with Clostridium difficile colitis often present with fever and diarrhea. However, a sunburn-like rash is not an associated finding.

D. acute graft versus host disease (GVHD).
   (c) Acute GVHD typically presents within the first 100 days following bone marrow transplant. It can involve the skin, liver and gastrointestinal system. Patients are often febrile at presentation. A sunburn-like rash with blistering in GVHD is significant for severe disease.


28. When prescribing levothyroxine (Synthroid) to the elderly, the ACNP should start with a low dose and gradually increase the dose in order to minimize the

A. occurrence of gastric disturbance.
   (u) While levothyroxine can cause nausea, diarrhea and appetite changes, this is not the primary reason for starting at a low dose. Increasing metabolic demands can cause deleterious effects, such as cardiac ischemia.

B. metabolic demands that can precipitate angina.
   (c) Levothyroxine increases the metabolic rate. Thus, it can cause angina associated with cardiac ischemia occurring secondary to increased metabolic demands on the heart. For this reason, the dose must be started low and increased slowly, especially in the elderly.

C. incidence of electrolyte imbalance.
   (u) Levothyroxine is not known to cause electrolyte disturbances.

D. risk for mental status changes and depression.
   (u) Levothyroxine is much more likely to cause irritability, anxiety and insomnia compared to depressed mental status, due to the increased metabolic rate associated with the medication.


29. Which of the following laboratory findings are associated with DIC?

<table>
<thead>
<tr>
<th>PLT</th>
<th>PT</th>
<th>PTT</th>
<th>FDP/FSP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prolonged</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Elevated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A.</td>
<td>Decreased</td>
<td>Prolonged</td>
<td>Elevated</td>
</tr>
<tr>
<td>B.</td>
<td>Decreased</td>
<td>Normal</td>
<td>Decreased</td>
</tr>
<tr>
<td>C.</td>
<td>Increased</td>
<td>Normal</td>
<td>Prolonged</td>
</tr>
<tr>
<td>D.</td>
<td>Decreased</td>
<td>Prolonged</td>
<td>Decreased</td>
</tr>
</tbody>
</table>

A. Decreased prolonged prolonged elevated
   (c) DIC can develop in critically ill patients due to release of proinflammatory cytokines with resulting activation of the coagulation cascade, leading to a prolonged PT and PTT. Stimulation of the clotting cascade causes depletion of platelets and formation of small clots. Simultaneously, fibrinolysis occurs, causing elevated levels of FDP/FSP.

B. decreased prolonged normal elevated
   (u) The PTT is prolonged in DIC due to activation of the coagulation cascade.

C. increased normal prolonged decreased
   (u) Platelets are decreased due to consumption in DIC. Both the PT and PTT are prolonged. FDP is elevated due to fibrinolysis.

D. decreased prolonged prolonged decreased
   (u) FDP is elevated due to fibrinolysis in the body’s effort to decrease the clot burden.


30. In the absence of steroid use, when an ACTH stimulation test is performed and the serum cortisol level remains constant or is only mildly elevated (5%-10%), the finding is indicative of

A. hyperosmolar hyperglycemic nonketotic syndrome (HHNS).
   (u) The ACTH stimulation test is not used for diagnosis of HHNS. HHNS is a syndrome of severe hyperglycemia without ketosis and profound dehydration that occurs most often as a complication of type II diabetes.

B. syndrome of inappropriate antidiuretic hormone (SIADH).
   (u) SIADH is characterized by hyponatremia from increased serum ADH, leading to dilutional hyponatremia. Results of the ACTH stimulation test are not useful in diagnosis of SIADH.

C. primary adrenal insufficiency.
   (c) The ACTH stimulation test is the standard test performed to diagnose adrenal insufficiency. For this test, cosyntropin (Cortrosyn) – a form of synthetic ACTH – is administered via IV push, and cortisol levels are drawn at 0, 30 and 60 minutes following injection. Cortisol levels will normally rise to greater than 20 mg/dL. If the levels fail to rise by greater than or equal to 5%-10% of the baseline, the test is diagnostic of adrenal insufficiency.
D. diabetes insipidus (DI).
  (u) In contrast to SIADH, DI is a disorder of an absolute or relative lack of ADH. This causes an inappropriately large volume of dilute urine leading to hypernatremia.


31. A diabetic patient is admitted with episodes of hypoglycemia. The patient’s home regimen includes glargine (Lantus) in the a.m., NPH insulin in the p.m. and a regular insulin (Humulin) sliding scale with meals. After reviewing blood glucose results over the previous 2 days, the ACNP concludes the patient is experiencing the Somogyi effect. Adjustments should be made to the

A. NPH insulin.
  (c) The Somogyi effect is characterized by nocturnal hypoglycemia that leads to production of counter-regulatory hormones that serve to increase serum glucose and produce hyperglycemia by morning. This is treated by reducing the amount of p.m. NPH insulin to prevent nocturnal hypoglycemia.

B. glargine.
  (h) Because glargine is administered in the morning and is a long-acting insulin, it would not be useful to titrate this dose. If titrated down, it could lead to poorly controlled glucose levels during the day and promote hyperglycemia.

C. regular insulin.
  (u) Regular insulin is administered on a sliding scale with meals. It would not be helpful to adjust this insulin dosing as the inciting event is hypoglycemia occurring at night.

D. addition of an afternoon snack.
  (a) Addition of a bedtime, rather than an afternoon, snack can be helpful in counteracting the Somogyi effect. However, adjusting the insulin dose is a more definitive treatment that will produce less variable results.


32. Six days after evacuation of a subarachnoid hemorrhage, a patient exhibits a decrease in level of consciousness. The lab results are remarkable for serum Na⁺ 121, Hct 48, BUN 47 and Cr 2.5. Fluid management strategies should include which of the following?

A. 0.9% sodium chloride
  (u) 0.9% sodium chloride is used for the treatment of cerebral salt wasting in asymptomatic patients. Given the patient in this case has neurological changes, 3% sodium chloride would be indicated to more rapidly increase the serum sodium levels.

B. Lactated Ringers
  (u) Lactated Ringers is not a recommended therapy for cerebral salt wasting. Of the isotonic fluids, 0.9% sodium chloride is preferred for treatment of asymptomatic cerebral salt wasting. Lactated Ringers contains lower sodium content per liter as compared to 0.9% sodium chloride.

C. 5% dextrose in 0.225% sodium chloride
  (h) 5% Dextrose in 0.225% sodium chloride is a hypotonic solution and would worsen the hyponatremia, causing further clinical deterioration.

D. 3% sodium chloride
  (c) 3% sodium chloride is a hypertonic saline solution that will more rapidly increase serum sodium. This is the primary treatment for symptomatic cerebral salt wasting.


33. A patient is being discharged following treatment for a new onset stroke. Discharge medication includes prescriptions for simvastatin (Zocor) and warfarin (Coumadin). The ACNP should emphasize the need for follow-up with the primary care provider, because

A. statins potentiate the effect of anticoagulants.
  (c) HMG-CoA reductase inhibitors such as simvastatin are known to increase the effect of warfarin.

B. statins diminish the therapeutic effect of anticoagulants.
  (u) Statins increase, rather than decrease, the therapeutic effect of anticoagulants such as warfarin.

C. anticoagulants potentiate the effect of statins.
  (u) Statins potentiate the effect of anticoagulants, but the reverse is not true.

D. anticoagulants diminish the therapeutic effect of statins.
  (u) Statins increase the therapeutic effect of anticoagulants, but anticoagulants do not impact the effect of statins.

34. A patient with chronic renal failure on hemodialysis is readmitted to the hospital from outpatient rehabilitation. The patient presents with a clotted AV fistula and a PLT count decrease from 150,000 to 75,000 over the last 5 days. The most likely diagnosis for this patient is

A. bone marrow suppression.
(u) Bone marrow suppression causes pancytopenia, rather than isolated thrombocytopenia. Additionally, it does not cause such a precipitous drop in counts unless accompanied by a specific inciting agent, such as chemotherapy. Furthermore, it is not associated with increased clotting, as demonstrated in this patient with the finding of a clotted AV fistula.

B. hemolytic uremic syndrome.
(u) Hemolytic uremic syndrome is most often associated with a diarrheal illness caused by a Shiga toxin–producing E. coli. While it does cause thrombocytopenia, it is also characterized by anemia, hemolysis and acute renal failure.

C. heparin-induced thrombocytopenia (HIT).
(c) The hallmark of HIT is a decrease in platelet count by 30%-50% within 5-10 days following exposure to heparin, though this may happen more quickly in patients who have previously been exposed. The patient was likely exposed to heparin during hemodialysis treatments or to subcutaneous heparin from DVT prophylaxis. Patients are at great risk to develop clots associated with HIT, which is demonstrated by the AV fistula clot in this patient.

D. protein C deficiency.
(u) Protein C deficiency is a disorder associated with an increased risk for venous thromboembolisms. It is not associated with thrombocytopenia.


35. Which of the following patients is most at risk for experiencing sudden cardiac death?

A. a 38-year-old who experienced syncope during sexual activity
(c) Syncope occurring during vigorous physical activity is concerning for an underlying cardiovascular disease, such as a myopathy. Physical activity increases strain on the myocardium and can promote development of dysrhythmias, such as ventricular tachycardia or ventricular fibrillation, leading to syncope and sudden cardiac death.

B. a 47-year-old who experienced syncope while attending the birth of his son
(u) This type of syncope is referred to as vasodepressor syncope, which often occurs during a stressful event. Often caused by increased vagal tone leading to hypotension, followed by syncope, this condition is benign.

C. a 56-year-old who experienced syncope with hypoglycemia
(u) In hypoglycemia, the body may attempt to increase sympathetic outflow as a compensatory mechanism, leading to syncope. This condition is transient and will resolve with treatment of hypoglycemia.

D. a 70-year-old who experienced syncope after a coughing episode
(u) Cough-syncope can occur following severe episodes of coughing. The mechanism is thought to involve increased intrathoracic pressure during the coughing episode, which limits venous return to the heart, leading to decreased cerebral perfusion and then syncope. This condition does not increase risk for sudden cardiac death.


36. A patient experienced a subluxation injury of the acromioclavicular joint that reduced spontaneously. Initial pain management strategies include

A. cast, ice and non-steroidal anti-inflammatories (NSAIDs).
(u) Recommendations for immobilization do not include casting, as this may make it more difficult to perform physical therapy and provide too great a degree of immobilization.

B. sling, ice and non-steroidal anti-inflammatories (NSAIDs).
(c) Recommendations for acute subluxation of the acromioclavicular joint that has reduced spontaneously include immobilization with a sling, ice to reduce swelling at the site and NSAIDs to reduce inflammation and contribute to pain control.

C. sling, heat and narcotics.
(u) Heat is not recommended for an acute subluxation injury as it may increase, rather than decrease, swelling. NSAIDs are the first-line choice for pain management due to their inflammatory component. Narcotics have a greater degree of adverse effects and do not offer an anti-inflammatory component.
D. cast, heat and narcotics.
  (u) A sling, rather than a cast, is recommended for immobilization. Ice, rather than heat, is recommended for management of pain and swelling at the site of injury, and NSAIDs, rather than narcotics, are preferred for pain management.


37. A patient with chronic renal failure is admitted with a complaint of syncope. ECG shows sinus bradycardia, with low-voltage P waves and tall T waves.

Vital signs:
BP 180/98
HR 40
RR 18

The patient is most likely experiencing
A. hyperkalemia.
  (c) ECG changes associated with hyperkalemia include tall, peaked T waves, depressed ST segment, widened QRS and wide, low-voltage P waves.
B. hypomagnesemia.
  (u) ECG changes associated with hypomagnesemia include ST depression, inverted T waves, prolonged QT interval, wide QRS, short PR interval and flat or inverted P waves. Hypomagnesemia is also associated with Torsades de pointes and treatment-resistant ventricular fibrillation.
C. hypernatremia.
  (u) Hypernatremia is not typically associated with ECG abnormalities.
D. hypercalcemia.
  (u) ECG changes associated with hypercalcemia include a shortened QTc interval and AV blocks.


38. A young adult presents complaining of an excruciating headache. No neuro deficits are detected, but the patient is photophobic and extremely irritable. The CBC findings are normal.

Vital signs:
BP 92/60
HR 77
RR 14
T 101.8°F (38.8°C)

Of the following, the ACNP should next
A. obtain an electroencephalogram to assess degree of injury.
  (u) An electroencephalogram would not be useful in evaluating for meningitis. It would be more useful in evaluating for the presence of seizures, which is not a concern in this case.
B. order a cerebral arteriogram to rule out subarachnoid hemorrhage.
  (u) The findings of excruciating headache combined with photophobia and fever are more consistent with meningitis. The absence of neurological deficits also decreases the likelihood of subarachnoid hemorrhage. A CT scan of the brain, not a cerebral arteriogram, would be the first imaging study suggested if evaluating for a subarachnoid hemorrhage.
C. perform a lumbar puncture to differentiate the type of meningitis.
  (c) A lumbar puncture performed to obtain cerebrospinal fluid samples is essential to determine the type of meningitis and select appropriate treatment.
D. prescribe empiric antibiotics while awaiting blood culture results.
  (a) While prescribing empiric antibiotics is an important step in management of meningitis, it is ideal to obtain cerebrospinal fluid samples prior to initiation of antibiotics. Also, it is essential to obtain blood cultures in patients with suspected meningitis, but cerebrospinal fluid sampling is most important.


39. Six hours after CABG surgery, a patient is alert but very agitated. The patient’s average spontaneous tidal volume is 800 mL.

Ventilator settings:
Mode Pressure support
FiO2 0.40
Pressure support 5
PEEP 5 cm H2O

Assessment data:
BP 92/65 pH 7.38
HR 78 PaCO2 42
RR 12 PaO2 88
T 97.7°F (36.5°C) PAOP 18 mm Hg
CI 2.2 L/min/m2

Given this information, the ACNP should next
A. reevaluate in 1 hour.
  (u) Given that no interventions have been
prescribed, it is not likely the patient will have decreased anxiety when reevaluated in an hour.

B. increase the tidal volume.
   (u) The patient is on a pressure support mode of ventilation, and the tidal volume amounts are spontaneous.

C. decrease the pressure support.
   (a) The pressure support could be decreased if there were strong concerns for development of flash pulmonary edema. However, pressure support is not suggested in the clinical findings and would not be necessary prior to extubation.

D. extubate the patient.
   (c) The patient was intubated for surgery and did not likely have a prior need for intubation and mechanical ventilation. The patient has now recovered from anesthesia and demonstrates hemodynamic stability and appropriate ABG findings on minimal mechanical ventilation settings. Extubation is the most appropriate next step.


40. A patient on an oncology unit requires a paracentesis. To prevent iatrogenic injuries, it is most important for the ACNP to
   A. prep the right lower quadrant.
      (u) The left lower quadrant is often the preferred site for a paracentesis, due to avoidance of the liver in patients with hepatomegaly.

   B. place the patient supine and flat.
      (u) Patients should be sitting at a 45-degree angle in preparation for a paracentesis. If patients are placed flat, the fluid is able to layer out within the peritoneal cavity and create a smaller pocket, which decreases the safety of the procedure.

   C. order a urinary catheter.
      (c) Placement of a urinary catheter ensures that the bladder is empty prior to the paracentesis, thus reducing the risk of perforation.

   D. use the Z-track technique.
      (h) The Z-track technique may be used for anesthetizing the peritoneum prior to a paracentesis, but it is not recommended when using the paracentesis needle, as many have a plastic sheath. If the Z-track technique is used, there is potential for the plastic sheath to shear off and remain in the abdomen, requiring surgical intervention.


41. Ten hours after a restrained driver experiences a motor vehicle crash involving a driver-side impact, the patient presents with complaints of worsening left shoulder pain. The history is indicative of
   A. hepatic trauma.
      (u) While patients may experience shoulder pain following hepatic trauma, the pain typically occurs in the right shoulder, as the liver is located in the right upper quadrant.

   B. splenic injury.
      (c) Kehr’s sign is pain in the tip of the shoulder caused by irritation of the diaphragm due to the presence of blood in the peritoneal cavity and characteristically occurs in the left shoulder in patients with a severe splenic injury.

   C. rib fractures.
      (u) Rib fractures typically cause localized pain, rather than pain radiating to the shoulder.

   D. C-7 radiculopathy.
      (u) A patient with a C-7 radiculopathy would experience bilateral pain, numbness and weakness in arms and fingers.


42. Three days ago a patient underwent a cerebral aneurysm clipping.

   Assessment data:
   | BP     | 92/70 |
   | HR     | 90    |
   | RR     | 16    |
   | CPP    | 76    |

   The RN is questioning the necessity for the scheduled nimodipine (Nimotop). The ACNP should explain that the purpose of the medication is to
   A. maintain the cerebral perfusion pressure (CPP) between 70 and 90 mm Hg.
      (u) Calcium channel blockers can lower blood pressure, consequently lowering, rather than increasing, CPP. However, nimodipine is considered cerebroselective and is less likely to lower blood pressure. Vasoconstrictive, rather than vasodilatory, agents are typically used for pharmacologic attempts to increase CPP in patients who are not hypertensive.

   B. achieve HR less than 80.
      (u) Lowering the patient’s HR to less than 80 is not the goal of nimodipine. Lowering the HR to less than 80 could lead to hypotension.
C. minimize tissue damage caused by vasospasm.
(c) Studies have shown that nimodipine can decrease tissue ischemia caused by vasospasm and lead to improved outcomes.

D. reduce the risk for atrial fibrillation.
(u) Nimodipine is not used for management of atrial fibrillation due to its cerebroselective properties.


43. When counseling a patient with GERD, recommendations should include

A. decreasing alcohol intake and reducing BMI.
(c) Alcohol intake has been identified as a trigger for GERD symptoms. Both decreasing alcohol intake and reducing BMI, if overweight, are recommendations for management of GERD.

B. smoking cessation and taking omeprazole (Prilosec) after eating spicy food.
(u) While smoking cessation is recommended for patients with GERD, taking a proton pump inhibitor such as omeprazole after meals will not provide immediate relief. Oral H2-receptor antagonists can be used for intermittent symptom relief.

C. substituting herbal tea for coffee, and taking aluminum hydroxide (Maalox) before meals.
(u) Caffeine reduction or elimination is recommended for management of GERD. Patients must use caution if substituting tea or coffee, as some contain caffeine. Agents such as aluminum hydroxide are typically taken after meals, when symptoms arise.

D. decreasing sodium intake and sleeping in a chair.
(u) While some patients may find relief of nocturnal symptoms of GERD from sleeping in a propped position, decreasing sodium intake is not known to reduce GERD symptoms.


44. The ACNP is assessing a patient who was involved in a motor vehicle crash (MVC) and notes an ecchymotic stripe across the lower abdomen. The patient complains of escalating diffuse abdominal pain. The ACNP is concerned this is most suspicious for

A. bowel injury.
(c) Bowel injury can be accompanied by an ecchymotic stripe across the lower abdomen.

In the setting of a MVC, this injury is likely associated with seat belt use.

B. pelvic fracture.
(u) Pelvic fractures are associated with severe abdominal pain, but also bleeding from the rectum, vagina and/or urethra. Patients also typically experience difficulty walking or standing, along with numbness in the lower extremities.

C. lumbar fracture.
(u) A lumbar fracture would be characterized by severe lower back pain.

D. pancreatic injury.
(u) Pancreatic injury typically manifests as dull, epigastric or flank pain, or flank ecchymosis, because the pancreas is a retroperitoneal structure.


45. A patient with a history of alcohol abuse is admitted with acute pancreatitis. Initial treatment should include

A. intravenous hydration.
(c) Aggressive fluid resuscitation is paramount in the management of acute pancreatitis. Patients become intravascularly volume depleted secondary to the systemic inflammatory response caused by pancreatitis. Patients also typically experience significant third-spacing of fluids.

B. broad-spectrum antibiotics.
(u) Use of antibiotics for management of acute pancreatitis is not indicated unless other signs of infection are present.

C. an urgent surgical consultation.
(u) Surgical intervention is not typically indicated in the early management of acute pancreatitis. Surgery may be indicated if necrotizing pancreatitis develops but is usually delayed until the necrosis organizes. This process may take several weeks following the acute episode.

D. pain control with hydrocodone (Vicodin).
(u) Patients with acute pancreatitis should remain NPO to avoid stimulating the upper GI tract. Therefore, IV pain medication is preferred.

46. A hemodynamically unstable, mechanically ventilated patient develops oliguria with a GFR of 5 mL/min and a rapidly rising serum potassium level. The patient would be best managed with

A. aggressive NS fluid infusions.
   (h) The findings of oliguria, decreased GFR and rising serum potassium levels in the setting of hemodynamic instability are consistent with acute renal failure. Aggressive fluid resuscitation would likely contribute to fluid overload and may adversely impact respiratory status.

B. continuous renal replacement therapy (CRRT).
   (c) CRRT allows for hemodialysis to be performed at a constant, slow rate and is ideal for hemodynamically unstable patients.

C. daily hemodialysis treatments.
   (u) Daily hemodialysis treatments are typically performed over a period of a few hours. This causes rapid fluid shifts, which would be poorly tolerated by hemodynamically unstable patients. This may lead to tachycardia, hypotension and further hemodynamic deterioration.

D. a hypertonic infusion at a low rate.
   (u) A hypertonic solution is not beneficial for management of acute renal failure. A hypertonic solution may lead to severe hypernatremia.


47. An emaciated patient presents to the emergency department. While taking a history, the patient becomes unconscious, and the ACNP observes the following rhythm on the monitor:

Resuscitative measures are begun, and corrective treatment should prioritize the need for

A. mechanical ventilation.
   (u) The primary goal is to treat the cause of the dysrhythmia. While the patient will likely require mechanical ventilation following cardiac arrest, chest compressions should never be interrupted to intubate patients for mechanical ventilation. Patients can be adequately ventilated using bag-mask ventilation.

B. sedation and cardioversion.
   (u) Cardioversion is performed only in rhythms associated with a pulse. Defibrillation could be considered, but the patient is not likely to convert into a perfusing rhythm without magnesium supplementation.

C. electrolyte replacement.
   (c) Torsades de pointes is most often caused by hypomagnesemia. IV magnesium should be administered promptly, along with continued resuscitative efforts.

D. therapeutic hypothermia.
   (u) If the patient achieves return of spontaneous circulation (ROSC) following resuscitation, consideration should be given to therapeutic hypothermia if mental status does not return to baseline. However, the necessity for therapeutic hypothermia cannot be determined during active resuscitation.


48. Following an acute myocardial infarction, a patient is being discharged on aspirin. Which of the following comorbidities would put this patient at greatest risk for developing a coagulopathy?

A. ischemic stroke
   (u) Ischemic strokes do not predispose patients to development of a coagulopathy.

B. chronic renal failure
   (c) Aspirin is metabolized by the liver and excreted by the kidneys. Chronic renal failure may lead to accumulation of metabolites, with an increased risk for development of a coagulopathy.

C. reactive airway disease
   (u) Reactive airway disease does not predispose patients to coagulopathies.

D. right ventricular hypertrophy
   (u) Right ventricular hypertrophy would not place patients at an increased risk of coagulopathy.


49. A postoperative surgical patient receiving furosemide (Lasix) 20 mg IV BID for 4 days now has a sodium level of 150. The ACNP should first

A. order a renal arteriogram.
   (u) Diseases of renal vasculature do not typically cause isolated hypernatremia. A renal arteriogram would be an unnecessary test in this situation.

B. consider fluid replacement with Lactated Ringers.
   (u) While the patient may require rehydration, enteral free water or 5% dextrose in normal saline via IV are typically preferred due to their lower sodium concentration.
C. assess for signs of altered level of consciousness.
   (a) While altered mental status may be associated with hypernatremia, it is likely that the rise in serum sodium occurred over several days, in the setting of diuresis. Additionally, mental status changes are less likely at a level of 150, compared with higher levels.

D. evaluate the need for continuing the diuretic.
   (c) Furosemide, and other loop diuretics, can increase serum sodium levels as a side effect of diuresis. In these situations, free water repletion is necessary to correct the underlying dehydration.


50. A patient presents with crushing chest pain that is unrelieved with nitroglycerin. While reviewing the 12-lead ECG, the ACNP notes ST elevation in leads I, aVL and V₃-V₆ and reciprocal changes in III, aVF and aVR. The findings indicate
   A. a septal posterior wall MI.
      (u) Early ECG findings associated with a septal MI include QS waves and ST elevation with tall T waves in leads V₁-V₂.
   B. an inferior posterior wall MI.
      (u) Early ECG findings associated with an inferior posterior MI include ST depression in leads V₁-V₄.
   C. a lateral septal wall MI.
      (u) Early ECG findings associated with a lateral wall MI include ST elevation with tall T waves and tall R waves in leads I, aVL, V₅ and V₆.
   D. an anterolateral wall MI.
      (c) An ECG showing ST elevation in leads I, aVL and V₃-V₆, with reciprocal changes in III, aVL and aVR are findings consistent with an anterolateral wall MI.

ACNPC-AG STUDY BIBLIOGRAPHY


ADDITIONAL REFERENCE FOR ANSWER RATIONALES


Many references are available through AACN; visit www.aacn.org/store.

More current versions may be available.

PUBLISHER CONTACTS:

AACN – (800) 899-2226
American Heart Association – (800) 242-8721
ASHSP, Special Publishing – (301) 657-3000
Elsevier (including Mosby, W. B. Saunders and Hanley & Belfus) – (800) 545-2522
F. A. Davis – (800) 323-3555
Jones & Bartlett – (800) 832-0034
Lippincott Williams & Wilkins – (800) 638-3030
McGraw-Hill – (877) 833-5524
Springer Publishing – (877) 687-7476
Wiley-Blackwell Publishing – (800) 216-2522