Everything Cardiac

Presented by

Carol Jacobson, MN, RN

Carol has over 40 years' experience as a critical care nurse and nurse educator. She has held positions as staff nurse, clinical specialist and manager in critical care units and cardiac cath labs. Carol received her BSN from the University of Colorado and her MN from the University of Washington. She also serves as affiliate faculty for the University Of Washington School Of Nursing. Carol is a partner in Cardiovascular Nursing Education Associates (CNEA) and is co-author of the book Cardiovascular Nursing Practice: A Comprehensive Resource Manual and Study Guide for Clinical Nurses, published by CNEA in 2007. She is a past recipient of the Excellence in Critical Care Education Award from the American Association of Critical Care Nurses and the AACN Flame of Excellence Award in 2012. Carol is known nationally for her humorous and common-sense approach to teaching difficult topics while making them understandable and is a frequently requested speaker at conferences across the country.

13 Contact Hours | Course Length: 754 minutes

Program Description

This program provides a clinically applicable review of cardiovascular physiology and pathophysiology, cardiac assessment, cardiovascular pharmacology and interventions based on current guidelines for the most common cardiac disorders seen in clinical practice. Content includes a review of cardiac physiology that can be applied in daily practice, the physiological basis for cardiovascular drug therapy and the pathophysiology, diagnosis and guideline-based treatment strategies for heart failure, acute coronary syndromes and atrial fibrillation. Clinically useful tips on noninvasive assessment techniques and 12-Lead ECG interpretation can be applied in any clinical setting where cardiac patients receive care. Evidence-based practice standards for bedside cardiac monitoring for arrhythmia identification, ST-segment monitoring and QT interval monitoring provide a foundation for the delivery of high quality patient care in any monitored setting. Take your knowledge of cardiovascular patient care to a higher level and improve outcomes for your patients.

Program Learning Outcomes

This program prepares the learner to:

1. Apply physiological concepts to your understanding of cardiovascular drug therapy.
2. Utilize physical assessment skills to evaluate a patient's cardiovascular status.
3. Utilize the 12-Lead ECG to evaluate patients with chest pain and acute coronary syndrome.
4. Utilize the bedside cardiac monitor to evaluate arrhythmias and to assess the ST segment and the QT interval.
5. Discuss management of patients with heart failure, acute coronary syndromes and atrial fibrillation.

Topics Covered

1 Essential Cardiovascular Physiology   69 minutes

Module Description
This module reviews essential cardiovascular anatomy and physiology concepts necessary for a sound fundamental knowledge of cardiac pathophysiology, assessment techniques and pharmacological therapy in patients with cardiovascular disease. Content includes normal cardiac valve function, coronary artery anatomy and blood supply to the heart, cardiac conduction system, origin of ECG waves and intervals, determinants of cardiac output and blood pressure regulation.

Module Learning Outcomes
At the completion of this topic, the participant will be able to:
1. Describe normal coronary artery distribution and blood supply to the heart.
2. Describe normal AV valve and semilunar valve function.
3. Describe the origin of ECG waves and intervals of the cardiac cycle.
4. Discuss determinants of cardiac output and clinical conditions that can alter preload, afterload and contractility.
5. Describe roles of the sympathetic nervous and renin-angiotensin-aldosterone systems in blood pressure control.

2 Essential Assessment Skills   48 minutes

Module Description
This module reviews assessment skills needed when caring for patients with cardiac disease. Content includes the body's compensatory response to a decrease in cardiac output, signs of pulmonary congestion and signs of peripheral hypoperfusion. Assessment skills include evaluation of blood pressure, jugular veins and heart sounds.

Module Objectives
This module prepares the learner to:
1. Discuss the body's response to a decrease in cardiac output and assessment findings related to this response.
2. Discuss blood pressure changes that reflect cardiac performance: changes in systolic and diastolic pressure, pulse pressure and pulsus paradoxus.
3. Describe the technique for evaluating jugular vein distension and estimating CVP.
4. Define S_3 and S_4 gallops, and state their clinical significance.
5. State causes of systolic and diastolic murmurs, and discuss the clinical significance of new onset murmurs.

3 Cardiovascular Pharmacology   111 minutes

Module Description
This module reviews the physiological basis of cardiovascular drug therapy with emphasis on determinants of cardiac output and blood pressure, role of myocardial O2 supply and demand on angina, cardiovascular effects of the sympathetic nervous system stimulation and blockage, effect of the renin-angiotensin-aldosterone system in heart failure and the role of platelets and the clotting cascade in thrombotic cardiovascular disease. Indications, mechanism of action and class side effects of the following cardiovascular drugs are discussed: beta blockers, calcium channel blockers, ACE inhibitors, angiotensin receptor blockers, antiplatelet/anticoagulant agents and vasoactive drugs (intropes, vasodilators, vasoconstrictors).

Module Learning Outcomes
This module prepares the learner to:
1. Discuss the physiological basis for cardiovascular drugs used to support hemodyamics and to treat angina, acute coronary syndrome, heart failure and hypertension.
2. List drugs used to improve cardiac output, control blood pressure, modify the renin-angiotensin-aldosterone system, stimulate or block cardiovascular effects of the sympathetic nervous system and prevent thrombus formation.
3. State clinical indications and side effects for the following types of drugs: beta blockers, Ca++ channel blockers, ACE inhibitors and angiotensin receptor blockers, vasoactive drugs and antiplatelet/anticoagulant drugs.

4 Essentials of 12-Lead ECG Interpretation   85 minutes

Module Description
This module is an introduction to 12-Lead ECG interpretation and covers the essential skills needed. Includes anatomy of a 12-Lead ECG, normal ECG waves, intervals, easy axis determination and bundle branch blocks.

Module Learning Outcomes
This module prepares the learner to:
1. Explain how leads record electrical activity and which leads face each part of the heart.
2. Recognize a normal 12-Lead ECG.
3. Determine the QRS axis.
4. Recognize right and left bundle branch blocks.

5 Acute Coronary Syndrome   82 minutes

Module Description
This module covers the pathophysiology, diagnosis and guidelines for management of acute coronary syndromes: non-ST elevation MI (NSTEMI), unstable angina (UA) and ST-elevation MI (STEMI). Content includes ECG signs of ischemia and injury, identifying the site of infarction on the 12-Lead ECG and current American Heart Association/American College of Cardiology guidelines for managing STEMI and NSTEMI.

Module Learning Outcomes
This module prepares the learner to:
1. Discuss the pathophysiology and presentation of STEMI and NSTEMI.
2. Identify the presence of STEMI and NSTEMI/UA on the 12-Lead ECG.
3. Explain how to record an 18-Lead ECG, and state indications for extra leads.
4. Discuss reperfusion strategies and pharmacological therapy for STEMI and NSTEMI.

6 Understanding Heart Failure   106 minutes

Module Description
This module is a comprehensive review of the pathophysiology, signs and symptoms and guidelines for management of patients with heart failure. Content includes differentiation of systolic and diastolic heart failure, classification systems for heart failure, decompensated heart failure, pharmacological and nonpharmacological treatment for heart failure.

Module Learning Outcomes
This module prepares the learner to:
1. Discuss the pathophysiology and compensatory mechanisms in heart failure, and relate them to physical assessment findings and patient symptoms.
2. Differentiate between systolic and diastolic failure.
3. Discuss managements of patients presenting in acute decompensated heart failure.
4. Discuss current guidelines for pharmacological and nonpharmacological management of heart failure.

7 Atrial Fibrillation: Risks and Management   72 minutes

Module Description
This module covers the pathophysiology, ECG recognition and guidelines for pharmacological and nonpharmacological management of atrial fibrillation. Content includes pathopysiology, detrimental effects of atrial fibrillation, determing stroke risk, rate versus rhythm control, pharmacological and nonpharmacological managment for atrial fibrillation.

Module Learning Outcomes
This module prepares the learner to:
1. Describe how atrial fibrillation affects a patient's hemodynamic status and stroke risk.
2. Discuss advantages and disadvantages of rhythm versus rate control.
3. Discuss pharmacological and nonpharmacological management of atrial fibrillation.

8 Cardiac Monitoring at the Bedside   **179 minutes**

Module Description
This module reviews current recommendations and guidelines for bedside arrhythmia monitoring and ST-segment monitoring. Identification of supraventricular and ventricular tachycardias and differential diagnosis of wide QRS tachycardias is discussed in detail. Content includes advantages and disadvantages of commonly used monitoring leads, AV nodal active and AV nodal passive SVTs, monomorphic and polymorphic VT and the best ECG clues for differentiating VT from SVT with aberrant conduction..

Module Learning Outcomes
This module prepares the learner to:
1. Describe the indications for CABG and valve surgery in the adult patient.Describe standard and alternative leads for arrhythmia monitoring and ST-segment monitoring.
2. Differentiate between AV nodal active and AV nodal passive SVTs.
3. Use monitoring leads and the 12-Lead ECG to identify supraventricular and ventricular tachyarhythmias.
4. Recognize warning signs of torsades de pointes.
5. Use monitoring leads and the 12-Lead ECG to differentiate wide QRS tachycardias.

Accreditation

RN/LPN/LVN/Other: 13 Contact Hours

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