CVT A130: INTRODUCTION TO INVASIVE CARDIOLOGY

Item	Value
Curriculum Committee Approval Date	11/13/2024
Top Code	121300 - Cardiovascular Technician
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S)

Course Description

Introduction to the concepts of cardiac catheterization primarily for diagnosis of coronary artery disease. Includes hemodynamics, cardiovascular radiologic safety, aseptic and sterile field maintenance, pressure monitoring equipment, catheters, and contrast used for catheterization. Catheterization techniques, drug pharmacology used in the procedures. Indications for and possible complications of cardiac catheterization. PREREQUISITE: CVT A160. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Identify, analyze and correlate pressure waveforms and hemodynamic changes which occur during cardiac catheterization. Implement sterile procedure and radiographic safety techniques in a cardiac catheterization laboratory.

Course Objectives

- 1. Recognize and correlate pressure waveform tracings to hemodynamic changes during catheterization.
- 2. Apply the principles of hemodynamic measurement techniques to evaluate cardiac function.
- 3. Apply the principles of aseptic practices to catheterization procedures.
- 4. Describe the common catheters and equipment used during coronary angiography,ventriculography,coronary intervention and other invasive procedures.
- 5. Identify normal hemodynamic waveforms and differentiate abnormal findings.
- 6. Relate diagnostic catheterization findings to coronary artery abnormalities.
- 7. Differentiate the pharmacological agents used in catheterization including drug indications, actions, dosage, and possible side effects of the agents.
- 8. Measure and evaluate catheterization data for ventricular volumes, ejection fraction, LV mass, systolic and diastolic cardiac function, and coronary arteries.
- 9. Distinguish and differentiate the set up protocols of catheterization procedures.
- 10. Describe the complications of cardiac catheterization.

Lecture Content

Introduction to the history of catheterization and progression of techniques, catheters, and contrast agents Video of catheterization from its beginning to present day advanced techniques Various catheters, monitoring strips and cine examples along with a list of contrast agent improvements Job duties of each cath team member, the role of the Cardiovascular Technologist in the cath lab Normal cardiac anatomy and coronary circulation relating to the fundamentals of catheterization Normal coronary artery anatomy/circulation and the pathological process of disease Types of catheters used for each coronary artery and the exam set-up procedures Coronary artery anatomies which are rare but normal findings Sterile techniques, radiologic safety, hemodynamic and pressure waveform monitoring Sterile techniques in catheter table set-up for examinations Radiation safety regulations, proper protection practices and exposure limitations Pressure wave form identification and hemodynamic monitoring Techniques of the CVT assisting in the catheterization exam Cardiac pharmacology and the drugs used in cardiac catheterization Drugs used as treatment versus those used to counter adverse patient reaction to contrast agents Electophysiology techniques and the drugs used Indications for and possible complications during and following cardiac catheterization Lethal arrhythmias, drug reactions, coronary collapse and cardiac arrest Post procedure thrombosis, catheter insertion site care, re-stenosis and distal thrombosis Emergency coronary artery bypass graft (CABG) Interventional and new techniques in catheterization Balloon angioplasty Stents insertion Rotoblade techniques Intra-coronary artery ultrasound, IVUS Cardiac assist devices, Balloon pumps, Impella, LVAD FFR

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)

Instructional Techniques

Lecture, PowerPoint presentations, printed handouts, proected examples, and video presentaitons. Interactive computer learning modules and web site information Group presentations with questions/discussion sessions

Reading Assignments

required reading of journals or periodicals 2 hours a week

Writing Assignments

Written report for verbal presentation with subject matter that includes questions and answers- 2 hours a week

Out-of-class Assignments

Group presentation project 2 hours a week

Demonstration of Critical Thinking

Multiple choice, fill in quizzes or exams, and presentation assignment submitted toward total course points.

Required Writing, Problem Solving, Skills Demonstration

Measurement of hemodynamic and pressure waveforms

Eligible Disciplines

Cardiovascular technology: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Kern, Morton J. . The Cardiac Catheterization Handbook , 7TH ed. St. Louis:: C.V. Mosby, , 2019 Rationale: -

Other Resources

1. Supplement: Internet site listings. 2. Selected handout materials to be provided and distributed by the instructor.