CVT A255: ADVANCED ECHOCARDIOGRAPHY LAB

Item	Value
Curriculum Committee Approval Date	12/02/2020
Top Code	121300 - Cardiovascular Technician
Units	1 Total Units
Hours	54 Total Hours (Lab Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

Skill development in advanced echocardiographic techniques under direct supervision. Includes spectral Doppler, color flow Doppler, pediatric, stress/pharmacological stress, TEE, and further evaluation of adult echocardiography. Computer lab modules for advanced echocardiographic techniques and Registry Exam Review. PREREQUISITE: CVT A200 and CVT A205. COREQUISITE: CVT A250. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Demonstrate skill competencies in advanced cardiac imaging by integrating knowledge of normal and abnormal anatomy, diagnostic Doppler calculations and related hemodynamic changes.

Course Objectives

- 1. Demonstrate proper equipment and patient setup, data entry and image adjustments. + *
- 2. Identify and obtain correct transducer positioning for Doppler flow acquisition. + *
- 3. Differentiate normal vs. abnormal valvular Doppler flows.
- 4. Perform Doppler studies for adequate diagnostic assessment.
- 5. Perform Doppler calculations for diagnostic valvular assessments.
- 6. Evaluate TEE images for pathologies.
- 7. Review stress echocardiographic images and assess for wall motion abnormalities.
- 8. Maintain a video tape recording and prints of all imaging performed.
- 9. Describe weekly progress of imaging cardiac structures in course syllabus.
- 10. Submit for evaluation an echocardiographic exam on video tape and completed syllabus towards final grade.

Lecture Content

This is a lab only class.

Lab Content

The student receives under direct supervision skills development in correct transducer position for optimum Doppler and color flow recordings for diagnostic evaluation. Equipment knob adjustment is demonstrated and instructed throughout the course. Recognition of normal cardiac and valve anatomy versus abnormal anatomy as presented on the image or print out display. Perform spectral Doppler/color flow Doppler and demonstrate skills progress towards diagnostic evaluation. Perform calculations for valvular and shunting flow abnormalities. Maintaining a video tape of each imaging exam allows instructor and student to review for demonstration, learning and progress evaluation. TEE image recognition along with wall motion evaluation by stress/pharmacological stress. A completed lab syllabus is submitted by the student at the end of the course for evaluation and grade. The echocardiograph theory of ultrasound imaging components/ care/safety machine adjustments Obtaining echocardiographic views/ transducer placement parasternal long axis in adults and pediatrics parasternal short axis in adults and pediatrics apical views in adults and pediatrics subcostal/supra sternal views in adults and pediatrics Recognizing cardiac anatomy cardiac structures in each view normal and abnormal anatomy on adult and pediatric hearts video tape and print examples Spectral Doppler and color flow Doppler valve flow assessment calculations and quantification ventricular hemodynamics and function diagnostic significance of calculations Transesophageal (TEE) and Stress/Pharmacological Stress image recognition TEE stress procedures pharmacological agents and protocols

Method(s) of Instruction

- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

Equipment and imaging demonstrations Board illustrations Video tape examples Questions/discussion sessions Paired/ group measurement exercises Direct supervision Computer modules and exam practicums

Reading Assignments

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Writing Assignments

Measurement and calculations of Doppler flows Completed lab syllabus requiring weekly written skill assessments

Out-of-class Assignments

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Demonstration of Critical Thinking

Imaging skills demonstrationProblem solving in cardiac calculations exercisesVideo tape and syllabus demonstrating identified imaging standards

Required Writing, Problem Solving, Skills Demonstration

Measurement and calculations of Doppler flows Completed lab syllabus requiring weekly written skill assessments

Textbooks Resources

1. Required Slater, Linda, . CVT 255 lab Syllabus: printed materials, ed. OCC Bookstore, 2000 Rationale: -

Other Resources

1. Ultrasound Imaging Equipment (M-mode/2D/Doppler/Color Flow Doppler/Video Tape Recorder/Printer). 2. Calipers.