CVT A260: CEREBROVASCULAR AND PERIPHERAL ULTRASOUND

Item	Value
Curriculum Committee Approval Date	03/08/2023
Top Code	121300 - Cardiovascular Technician
Units	2.5 Total Units
Hours	63 Total Hours (Lecture Hours 36; Lab Hours 27)
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

Diagnosis and scanning techniques in the evaluation of cerebrovascular and peripheral vascular disease by ultrasound and Doppler testing. Includes normal anatomy and physiology of the cerebrovasculature, ultrasound instrumentation, and examination techniques relating to pathologies. Imaging demonstrations and direct student scanning. PREREQUISITE: CVT A200. COREQUISITE: CVT A250 and CVT A255. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Integrate and analyze knowledge of cerebrovascular sonography; differentiate between normal and abnormal findings by hemodynamic changes identified by Doppler.

Course Objectives

- 1. Recognize normal cerebral vascular anatomy.
- 2. Recognize normal cerebral vascular hemodynamic Doppler wave patterns.
- 3. Differentiate abnormal cerebral vascular anatomy from normal.
- 4. Differentiate abnormal cerebral vascular hemodynamic Doppler wave patterns from normal waves.
- 5. Evaluate cerebral vascular anatomy and Doppler wave patterns for severity of disease states.
- 6. Assess cerebral vascular images for diagnostic quality.
- 7. Distinguish the different pathologies on video or prints of cerebral vascular images.
- 8. Prepare a comprehensive report of diagnostic findings.
- 9. Describe the pharmacological treatments in cerebral vascular disease.
- 10. Describe the surgical treatments in cerebral vascular disease.

Lecture Content

The course is a comprehensive introduction of normal cerebrovascular anatomy and hemodynamics and the diagnostic assessment of abnormal anatomy and hemodynamic disease states by ultrasound and Doppler. Normal anatomy cranial extra-cranial variations of normal vs. tortuous vessel structures. Normal Physiology arterial/venous systems hemodynamics of the common, internal, external carotids and vertebral arteries. indications of cerebrovascular disease states through physical examination/history Pathologies plaque occlusions stenosis aneurysm thrombus Hemodynamic assessment of pathologies ultrasound physics review 2-dimensional vascular imaging Doppler color flow Treatment of Cerebrovascular disease pharmacological therapies surgical procedures

Lab Content

Students will scan the anatomy that correlates with lecture content; cerebrovascular, upper and lower extremity venous and arterial. After learning the cerebrovascular protocals and paracticing the exams in lab, a scan test will be given to the stuents. Normal anatomy cranial extra-cranial variations of normal vs. tortuous vessel structures. Normal Physiology arterial/venous systems hemodynamics of the common, internal, external carotids and vertebral arteries. indications of cerebrovascular disease states through physical examination/history Pathologies plaque occlusions stenosis aneurysm thrombus Hemodynamic assessment of pathologies ultrasound physics review 2-dimensional vascular imaging Doppler color flow Treatment of Cerebrovascular disease pharmacological therapies surgical procedures

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- Lab (04)
- DE Live Online Lab (04S)

Instructional Techniques

Lecture Equipment and imaging demonstrations Board illustrations Digital examples Questions/discussion sessions Paired/ group measurement exercises Direct student scanning lab

Reading Assignments

Weekly reading assignments from text. 3.5 hours

Out-of-class Assignments

Hand-out assignments activities to complete. 1 hour

Demonstration of Critical Thinking

Objective examinations Written diagnostic reports Critical thinking deomstration throygh class discussions

Required Writing, Problem Solving, Skills Demonstration

Measurement and calculations of cerebral and peripheral vascular Doppler wave forms demonstrated on lab equipment Submit a portfolio of cerebral and peripheral images for diagnostic image quality.

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 Robert J. Daigle, BA, RVT. Techniques in Noninvasive Vascular Diagnosis, 5th ed. Littleton: Summer Publishing, LLC, 2022

Other Resources

1. Ultrasound Imaging Equipment 2. 2-4 giga-byte portable digital storage drive