NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
DMS 260 - VASCULAR SONOGRAPHY II (4 CR.)

Course Description

Presents the fundamentals of vascular technology including basic ultrasound scanning techniques of the cerebrovascular system. Students focus on anatomy, physiology, pathology, and vascular recognition with real-time 2-D and Doppler imaging. Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

General Course Purpose

The purpose of this course is to provide the student with the advanced knowledge, techniques and procedures for evaluating the cerebrovascular system by case study review. Students will develop an advanced knowledge base to work from on how normal and abnormal vascular anatomy and physiology appears with ultrasound. Students will be provided with scan lab demonstration and techniques that will allow them to apply what they learn in class to live scan models.

Course Prerequisites/Co-requisites

The student must satisfactorily complete all previous sonography courses with a grade of "C" or better.

Course Objectives

Upon completing the course, the student will be able to:

- Demonstrate the ability to obtain a patient history and determine appropriate diagnostic pathways.
- Identify and describe signs, symptoms, and risk factors of cerebrovascular diseases.
- Identify diseases contributing to vascular disease.
- Describe the mechanism of vascular diseases on vessels.
- Identify microscopic vascular anatomy.
- Identify normal cerebrovascular anatomy and recognize normal variants.
- Describe non-invasive vascular test indications, test capabilities and limitations pertaining to cerebrovascular disease.
- Recognize the function, and sonographic appearance of cerebrovascular grafts.
- Describe and demonstrate proper patient positioning and scan/test techniques for non-invasive cerebrovascular tests.
- Identify and describe the parameters used in interpretation of non-invasive cerebrovascular tests.
- Identify sonographic, Doppler, and color-flow artifacts.
- Describe post-interventional use of non-invasive vascular testing .
- Describe therapeutic medical, surgical and non-surgical cerebrovascular interventions.
- Identify invasive and other correlative vascular tests relative to cerebrovascular diseases pathologies.
- Describe the capabilities, limitations, and contraindications of invasive/correlative vascular tests relative to cerebrovascular disease pathologies.
- Understand the normal physiology of blood circulation and the abnormalities that can occur in the presence of vascular diseases.
- Be able to identify the characteristics of and to discriminate between arterial and venous flow patterns.

Major Topics to be Included

    a. Normal and abnormal vascular anatomy: Cerebrovascular: Extracranial and intracranial.
    b. Demonstrate knowledge of normal and abnormal vascular physiology.
    c. Hemodynamics: Flow physics Exercise physiology
    d. Vascular physiology, pathophysiology, and hemodynamics in the different types of vascular disease/disfunctio.:
    e. Clinical vascular diagnostic procedures.
    f. Relationship of vascular diagnostic techniques to patient history and physical examination.
    g. Indications for non-invasive vascular examination.
    h. Differential diagnosis as it relates to non-invasive vascular testing and examination.
    i. Vascular surgery and interventional vascular procedures.
    j. Diagnostic vascular procedures emphasizing indications, utility, and limitations of these procedures; Angiography, Venography, Magnetic resonance, angiogram, Computed tomography, Nuclear medicine, vascular procedures.
    k. Laboratory values.
    l. Doppler (pulsed and continuous wave and color flow), and transcranial Doppler.
    m. Measurements from B-mode image, for percentage area and diameter, reduction from true to residual vessel lumen.
    n. Normal and abnormal vascular flow patterns and wave form morphology.