Discipline MCP5877
Echocardiography: From the Basic Principles to Clinical and Animal Research

Concentration area: 5131

Creation: 14/04/2022

Activation: 14/04/2022

Credits: 2

Workload:

Theory (weekly)	Practice (weekly)	Study (weekly)	Duration	Total
11	9	10	1 weeks	30 hours

Professor:

Wilson Mathias Junior

Objectives:

OBJECTIVES: - To understand the basic physical principles governing the generation of two-dimensional images and methods based on the Doppler principle; Pulsed, continuous, tissue and color flow Doppler mapping among other techniques; - Understand the basic principles of the acquisition of two-dimensional images and the methods based on the Doppler principle by transthoracic echocardiography; - To understand the most common tools for formulating clinical research investigation in adult heart diseases, coronary diseases, cardiomyopathies, valvular diseases and pericardial diseases. - Hands on, evaluating patients in order to obtain the main echocardiographic windows and a minimum of 10 patients.

Rationale:

RATIONALE - The understanding of the basic principles of ultrasonography as well as its application in daily clinical practice is of fundamental importance for the young cardiologist and researchers. The knowledge of this modern tool provides today, the main instruments for clinical research and for clinical medical care. - The correct application of these instruments is of fundamental importance for those researchers in the cardiovascular field who wish to use echocardiography in the extraction of parameters that actually express the variables to be evaluated in their research project. - Hands on will will provide the basic principles of the acquisition of these images, will give the researchers a real and personal impression on the potentials and limitations of this technique.

Content:

CONTENT: - The discipline will be offered annually. - There will be evaluation on theoretical and practical learning at the end of the course. The topics discussed are described below: 1) Echocardiographic Bases 2) New techniques in the assessment of ventricular function 3) Advanced Hemodynamic Assessment 4) Echocardiography in Cardiomyopathies 5) Evaluation of Prosthetic Valve 6) Heart Diseases Due to Systemic Diseases 7) Pericardium Diseases 8) Tumors and Masses 9) Notions of transesophageal and stress echocardiography 10) Structuring the data obtained in the image exam for the research based on the main hypothesis of the project 11) Core lab

Type of Assessment:

EVALUATION CRITERIA: -Frequency, performance and participation during lectures and discussions (the responsible teachers are present in all classes). - hands on will be evaluated on site by the monitors. Will be approved those with a mean grade equal or higher than 7.0 (0 a 10) in the thoric part and 8.0 in hands on.

Notes/Remarks:

OBSERVATION: Minimum number of students: 10 Maximum number of students: 40

Bibliography:

BIBLIOGRAFIA: Manual de Ecocardiografia. Editor, Wilson Mathias Jr. – Editora Manole, 4 edição. São Paulo, 2016. Tratado de Ecocardiografia. Mathias W, Tsutsui J. Ed. Manole, 2012. Picano E ; Mathias W ; Mathias W ; Pingitore A ; Bigi R ; Previtali M . Safety and tolerability of dobutamine-atropine stress echocardiography: a prospective, multicentre study. Lancet, v. 344, p. 1190-1192, 1994. Mathias W ; Mathias W ; Tsutsui JM ; Andrade JL ; Kowatsch I ; Lemos PA ; Leal SMB ; Khandheria BK ; Ramires JAF . Value of rapid beta-blocker injection at peak dobutamine-atropine stress echocardiography for detection of coronary artery disease. Journal of the American College of Cardiology, Estados Unidos, v. 41, n.9, p. 1583-1589, 2003. Caldas MA ; Tsutsui JM ; Andrade JL ; Nicolau JC ; Ramires JAF ; Mathias W ; Mathias W . Value of myocardial contrast echocardiography for predicting left ventricular remodeling and segmental functional recovery after left anterior wall acute myocardial infarction. Journal of the American Society of Echocardiography, Estados Unidos, v. 17, n.9, p. 923-932, 2004. Trindade MLZH ; Caldas MA ; Tsutsui JM ; Rosário MA ; Rochitte CE ; Nicolau JC ; Ramires JAF ; Mathias W ; Mathias W . Determination of size and transmural extent of acute myocardial infarction by real-time myocardial pefusion echocardiography: a comparison with magnetic resonance imaging. Journal of the American Society of Echocardiography, v. 20, p. 126-135, 2007. Pimentel W ; Martinez Filho EE ; Ambrose JA ; Mathias W ; Mathias W ; Arruda ALM ; Horta PE ; Ribeiro EE ; Esteves A ; Lemos PA ; Ramires JAF . Human myocardium preconditioning during successive balloon inflations: irrelevant influence of both collateral recruitment and clinical pre-intervention interference. Eurointervention (Toulouse), v. 2, p. 345-350, 2006. Santos, João Manoel Theotonio ; Kowatsch, Ingrid ; Tsutsui, Jeane Mike ; Negrão, Carlos Eduardo ; Canavesi, Nancy ; Carvalho Frimm, Clóvis ; Mady, Charles ; Ramires, José Antonio Franchini ; Mathias W ; Mathias W ; Mathias W . Effects of Exercise Training on Myocardial Blood Flow Reserve in Patients With Heart Failure and Left Ventricular Systolic Dysfunction. The American Journal of Cardiology, v. 105, p. 243-248, 2010. Costa JM ; Tsutsui JM ; Nozawa E ; Morhy, S. S. ; Andrade JL ; Ramires JAF ; Mathias W ; Mathias W. Contrast echocardiography can save non-diagnostic exams in mechanically ventilated patients. Echocardiography (Mount Kisco), Estados Unidos, v. 22, n.5, p. 389-394, 2005.

Languages taught:

Portuguese

Class type:

Presencial