

**DESCRIPTION OF COURSE UNIT FOR DOCTORAL STUDIES
AT VILNIUS UNIVERSITY**

Scientific Area/eas, Field/ds of Science	Medical and Health Sciences (M 000): Medicine (M 001)			
Faculty, Institute, Department/Clinic	Faculty of Medicine Institute for Clinical Medicine Clinics of the Cardiovascular Diseases			
Course unit title (ECTS credits, hours)	Surgical Treatment of Heart Failure and Ischemic Heart Disease 9 credits (240 hours)			
Study method	Lectures	Seminars	Consultations	Self-study
Number of ECTS credits	-	-	2	7
Method of the assessment (in 10 point system)	Verbal exam, 3 topics			
PURPOSE OF THE COURSE UNIT				
To provide comprehensive knowledge of the anatomical, functional and clinical features of Heart failure and Ischemic heart disease, diagnostic methods, applications of surgical and medical interventions and treatment of complications.				
THE MAIN TOPICS OF COURSE UNIT				
<p>Definition, classification, ethology, clinical presentation of the heart failure, preventive measures of the heart failure.</p> <p>Diagnosis of heart failure: ECG, exercise tests, X-ray, ultrasound, invasive diagnosis of heart failure (coronary angiography, ventriculography, manometry of the right heart chambers, methods of measuring pulmonary artery resistance), computed tomography, magnetic resonance imaging. Non-medicated treatment of heart failure. Medication for heart failure. Historical development of heart transplantation in the world and in Lithuania. Indications and contraindications for heart transplant surgery. Recipient selection and evaluation for eligibility for heart transplantation. The importance of immunological testing in the selection of patients for heart transplantation. Virologic examination prior heart transplantation. Organization of donor organ preparation. Global challenges of the organ donation worldwide. Cardiac donor selection criteria, donor heart conservation methods. Criteria and methods for determining brain death. Surgical techniques of the heart transplant surgery. Recipient treatment post heart transplant surgery. Management of the pulmonary arterial hypertension after heart transplant surgery. Heart and lung transplantation. Surgical technique. Treatment and follow-up of the recipient after heart and lung transplantation. Prevention, diagnosis and treatment of infectious complications after heart transplantation. Mechanical circulatory support devices used in heart failure treatment. Use of aortic balloon pumps in the treatment of heart failure. Coronary artery bypass graft surgery in patients left ventricular failure. Myocardial protection in patients with low left ventricular ejection fraction. Surgical treatment of mitral valve stenosis, aortic stenosis, aortic regurgitation. Applications of the ECMO in heart failure. Surgical treatment of arrhythmic cardiomyopathy: pacemaker implantation, catheter-based radiofrequency ablation, cardioverter defibrillator implantation, indications, contraindications to these procedures, procedure. Labyrinth procedure: method, indications. Resynchronization therapy with biventricular cardiac pacemaker: method, indications, contraindications. Future perspective of surgical treatment of heart failure: stem cell implantation, cloning of donor organs. Indications for surgical treatment of ischemic heart disease in various stages of ischemic heart disease: stable</p>				

angina, unstable angina, acute myocardial infarction. Coronary artery surgery and medical treatment. Coronary angioplasty and coronary. Comparison of surgical and medical treatment of the coronary heart disease at different stages of ischemic heart disease. Technical aspects of myocardial revascularization. Venous connections. Formation of distal and proximal anastomoses "Y" and "T" anastomoses. Endarterectomy. Early and late results of venous graft. Arterial grafts. Internal thoracic artery. Other arterial grafts: spinal artery (historical development and early and late results. Methods of myocardial protection in coronary surgery: crystalloid, warm and cold blood cardioplegia. Endoscopic coronary surgery. Redo coronary artery surgery (indications, results, complications). Transmyocardial laser revascularization. Surgical treatment of left ventricular aneurysms. Dor procedure, subendocardial resection. Post infarction rupture of the interventricular septum, rupture of the mitral valve papillary muscle, rupture of the free wall of the ventricle. Ischemic mitral regurgitation. Coronary surgery in cardiogenic shock. Pathophysiology. Clinical course. Indications for operation. Methods of surgical treatment of ischemic mitral valve. Mitral valve repair and replacement. Results.

RECOMMENDED LITERATURE SOURCES

1. ISHLT Monograph Series: Mechanical Circulatory Support, edited by O. H. Frazier, and James K. Kirklin, 2006.
2. Siavosh Khosari. Cardiac Surgery: Safeguards and Pitfalls in Operative Technique. 2008, Lippincott-Raven publishers, 4nd ed.
3. ISHLT Monograph Series: Pediatric Heart Transplantation, edited by Charles E. Canter and James K. Kirklin, 2008.
4. ISHLT Monograph Series: Advanced Heart Failure, edited by James K. Kirklin, Nicholas R. Banner, and Mariell Jessup 2009.
5. Frank W. Sellke, Marc Ruel. Atlas of Cardiac Surgical Techniques. 2009, W.B.Saunders company, 1st ed., 436 p.
6. ISHLT Monograph Series: History of International Heart and Lung Transplantation, edited by James K. Kirklin, Mandeep Mehra, and Lori J. West, 2010
7. C Cardiac Surgery in the Adults, Fourth Edition (Kindle Edition) by Lawrence H. Cohn (2012), 1472 p. Cardiac Surgery in the Adults, Fourth Edition (Kindle Edition) by Lawrence H. Cohn (2012), 1472 p.
8. Peura J.L., Colvin-Adams M., Francis G.S., Grady K.L., Hoffman T.M. et al. Recommendations for the Use of Mechanical Circulatory Support: Device Strategies and Patient Selection A Scientific Statement From the American Heart Association. Circulation 2012, 126:2648-2667.
9. Nicholas Kouchoukos, Eugene Blackstone, Frank Hanley, James Kirklin/Barrat-Boyes Cardiac Surgery. 2013, 4th Editon, 2256 p.
10. <https://mmcts.oxfordjournals.org>

CONSULTING LECTURERS

1. Coordinating lecturer: Kęstutis Ručinskas (Prof. Dr. HP).
2. Gintaras Kalinauskas (Assoc. Prof. Dr.).
3. Vilius Janušauskas (Assist. Prof. Dr.).

APPROVED:

By Council of Doctoral School of Medicine and Health Sciences at Vilnius University:
29th of September 2022

Chairperson of the Board: Prof. Janina Tutkuvienė