

## HEART FAILURE AND TRANSPLANTATION

### Mission Statement

With the increasing prevalence of coronary artery disease and hypertension among the aging population, the evaluation and treatment of patients with heart failure has become an important focus within the Cardiology Division. The training will provide the fellow with a thorough understanding of the pathophysiology of heart failure, with particular emphasis on appropriate diagnostic and therapeutic options for the patient with moderate-to-severe cardiomyopathy.

Fellows will also be trained in all aspects of cardiac transplantation including patient selection and pre-operative evaluation, inpatient management of patients with severe, refractory heart failure, and those requiring ventricular assist systems. Post-operatively, the role of the fellow will include endomyocardial biopsy as well as appropriate immunosuppression and long-term management of the transplant patient.

### Statement of Educational Goals

The curriculum is designed to promote six broad goals based on the six ACGME core competencies:

1. Medical Knowledge: exposure to a broad range of cardiovascular problems through direct patient management of acute and chronic cardiovascular problems, primarily in the inpatient heart failure and transplant service. Informal and formal didactic teaching sessions are used as well.
2. Patient Care: accurate history and physical examination in the clinics including selection of diagnostic testing based on the patient's clinical presentation. Ample exposure to critically ill heart failure patients and post-transplant patients will supplement the exposure to heart failure patients on the cardiac step-down service. The fellow will perform endomyocardial biopsies and will become proficient at hemodynamics.
3. Professionalism: effective, mutually satisfying communication with patients, families and other physicians and allied health care personnel. Additionally, effective and prompt communication with the referring physician regarding the overall treatment strategy for the individual patient.
4. Interpersonal and Communications Skills: Patients on the heart failure and transplantation service represent among the sickest patients in the hospital. For this reason, development of effective interpersonal and communication skills is essential in educating the patients and families of their diseases and treatment plan.
5. Practice Based Learning: Using information technology, the web, literature sources and other available resources to practice evidence based medicine based on sound medical principles, guidelines, and best practices. These sources will be used to individualize treatment plans for each patient's condition.
6. Systems Based Learning: the fellow will have to coordinate the timing of diagnostic testing for the individual patient and will be encouraged to interact with other commonly called subspecialists (nephrologists, interventional cardiologists, cardiac and vascular surgeons, endocrinologists, radiologists) to learn about optimal treatment strategies and how to interpret the results of the diagnostic tests accurately.

## General Statement of Educational Objectives for Fellows

The goal in the Heart Failure and Transplantation rotation is to provide fellows a focused experience in this area of cardiology and emphasize the available interventions, both surgical and non-surgical, for the end-stage heart failure patient. Fellows will become expert in the management of mild-to-moderate heart failure in the outpatient clinics. Exposure to the most severely decompensated patient comes in the in-hospital setting through inpatient rotations on the dedicated heart failure inpatient service, which includes patients in the CCU and step-down Division. Fellows work closely with the program faculty, which includes Drs. Leway Chen, Jeffrey Alexis, and Eugene Storozynsky.

The specific learning objectives, designed for the fellow, provide an in depth working knowledge of two main areas – heart failure and heart transplantation. Within these areas the fellow is expected to expand his knowledge base on a number of specific topics and develop competence in formulating a treatment regimen for individual patients. At the completion of the Heart Failure and Transplantation rotation, the fellow will be able to:

### ***Heart Failure***

1. Describe the pathophysiology of cardiac failure.
2. Understand the initial clinical approach, both diagnostically and therapeutically, to the new patient with heart failure.
3. Discuss the evidence base from randomized clinical trials, which demonstrate the efficacy of various drugs in the treatment of specific patients with heart failure.
4. Understand the indications for pacemakers, defibrillators, and pharmacologic therapy in the treatment of heart failure patients with arrhythmias or conduction abnormalities.
5. Understand surgical options for improvement of symptoms and life expectancy in the heart failure patient.
6. Understand the role of ventricular assist systems as bridge to recovery and destination therapy.

### ***Cardiac Transplantation***

1. Understand the indications for cardiac transplantation.
2. Identify diagnostic tests that are important in evaluating patients for heart transplantation.
3. To be come familiar with pre-operative management of the patient with severe heart failure who is awaiting transplantation.
4. To understand the role of ventricular assist systems in bridging patients to transplantation.
5. To become familiar with performing diagnostic right heart catheterizations and endomyocardial biopsies.
6. To understand the appropriate management of the post-transplant patient, including managing immunosuppression and post-transplant complications.

The educational goals are achieved by the fellow working directly with patients who are seen in the inpatient setting. The fellow works in conjunction with faculty in the Program in Heart Failure and Transplantation. The faculty member directly responsible for fellow education is Leway Chen, MD, MPH.

#### General Statement of Expectations of Fellows

The fellow assigned to the Heart Failure and Transplantation rotation will round on the inpatient heart failure and transplantation service.

The fellow on the Heart Failure and Transplantation rotation will be present during the working hours of 8:00 a.m. to 5:00 p.m. Monday – Friday and participate in the fellow on-call pool. He/she will participate in all activities of the Program including the following:

New Patient Evaluations: The fellow will be responsible for working with the Heart Failure and Transplantation Nurse Practitioners in obtaining the initial history and physical on new patients evaluated in the hospital. The fellow will assess the patient's options for optimization of heart failure therapy, and suitability for transplantation. The fellow will begin the discussion of risk factor reduction and cardiac rehabilitation with appropriate patients during the initial visit.

Continuity Experience: The fellow will follow the progress of new patients throughout their evaluation process. The fellow will participate in the review of the information assembled on the transplant candidate, and suggest additional testing when appropriate. The fellow will also attend the weekly heart transplantation selection committee meeting, and assist in the presentation of patients being considered for transplantation. The fellow will also attend the weekly pathology conference to review the recent endomyocardial biopsies.

Inpatient Experience The fellow will follow the patients admitted to the inpatient heart failure and service. These patients are usually admitted for decompensated heart failure and are evaluated, when appropriate, for heart transplantation. The inpatient service includes patients on the waiting list for heart transplantation, patients on intravenous inotropes and patients with ventricular assist systems. Additionally, the fellow will assist in the post-operative management of heart transplant patients, with particular focus on immunosuppression and prevention of post-transplantation complications.

#### Research Opportunities

Fellows are encouraged to take advantage of the clinical research opportunities afforded by the patient population in the Program in Heart Failure and Transplantation, and to participate in ongoing research projects in the Program.

#### Conferences:

Participating fellows will present a 1 hour long conference on a selected topic in Heart Failure and Transplantation (one presentation as a first year fellow and one presentation as a second year fellow). The conference will be presented at the weekly Heart Failure and Transplantation Noon Conference, which all members of the Cardiology Division, and cardiology nursing staff are invited to attend. The topic will be approved prior to presentation by the attending on the inpatient service.

Credentials of the Medical Staff

Leway Chen, M.D., M.P.H.

University of Missouri – Kansas City, B.A.

University of Missouri – Kansas City, M.D.

University of Washington School of Public Health, M.P.H.

Internal Medicine Residency, Beth Israel Hospital

Cardiology Research Fellowship – Framingham, MA

Cardiovascular Disease Fellowship, University of Washington

H. Todd Massey, M.D.

University of Georgia, B.S.

Medical College of Georgia, M.D.

General Surgical Residency, University of Louisville, Louisville, Kentucky

Thoracic and Cardiovascular Surgical Residency, University of Texas Southwestern

Heart and Lung Transplantation, Adult Cardiac Surgery Fellowship, Duke University Medical Center, Durham, North Carolina

Jeffrey D. Alexis, MD

Harvard College, BS

Harvard Medical School, MD

Internal Medicine Residency, Massachusetts General Hospital, Boston, Massachusetts

Cardiology Fellow, Mount Sinai Medical Center, New York, New York

Eugene Storozynsky, M.D., PhD

University of Rochester, M.D.

Internal Medicine Residency, University of Rochester

Cardiology Fellowship, University of Rochester