Card B – Stempien-Otero

Introduction:

The Cardiology B Service provides care to patients with severe heart failure, patients referred with unusual heart diseases (amyloid, sarcoid, inflammatory cardiomyopathies, etc), and patients who have undergone heart transplantation. Some patients will be transfers from the CCU following acute decompensation, some are undergoing transplant/LVAD work-up, and others are hospitalized for heart failure "tune-ups" or post-transplant complications.

Learning goals for the rotation:

1. Learn to formulate a treatment plan for acute and chronic heart failure including:
    a. Becoming an expert at assessing volume status in patients with heart failure, both by clinical exam, and by non-invasive evaluation with jugular vein ultrasonography.
    b. Understanding and be able to calculate a Fick cardiac output from mixed venous blood draws.
    c. Becoming an expert in determining optimal medical therapy for treatment of heart failure by understanding the pharmacology and optimal use of medications used in managing patients with heart failure: diuretics, RAAS inhibition, beta-blockade, digoxin, and low dose inotropes.
2. Understand the evaluation of new onset heart failure including the role of:
    a. Non-invasive testing such as ECHO and MRI
    b. Laboratory testing to rule out reversible causes of cardiomyopathy
    c. Ischemic evaluations
3. Understand the indications for primary prevention ICD therapy and CRT
4. Understand the indications, relative and absolute contraindications for advanced heart failure therapies (transplant, MCS) and both the type and quality of evidence associated with screening tests used to establish efficacy.
5. Gain experience in caring for patients following cardiac transplantation including such factors as:
    a. Induction and maintenance immunosuppressive regimens
    b. Surveillance for rejection
    c. Surveillance and treatment of common and uncommon infections

d. Common drug-drug interactions with immunosuppression and use of immunosuppression in patients who are NPO.

e. Role of stress testing

f. Understand the unique physiology of the cardiac allograft in acute management and and chronic surveillance.

6. Observe a heart transplant and/or implantation of a mechanical circulatory support device.

7. Participate in one donor evaluation with an attending using DonorNet.

8. Implement best practices and review evidence to transition patients to the outpatient setting and prevent re-admission.

9. Understand the role of different practitioners in the care of patients with advanced heart disease including: advanced practice providers (ARNP's, PA's), pharmacists, social work, and RN's

10. Understand the role of palliative care in advanced heart disease care planning.

Service Structure:

Staffing:

1. Two to Three ARNPs. They provide primary care for 4-6 patients each.
2. A medical resident will be on the service some months. This is an elective rotation that attracts residents that are usually motivated by an interest in cardiology. On average, they take some vacation and have clinic for one full day/week while on the service. They provide primary care for 3-5 patients.
3. A cardiology fellow (general or AHFTC) who provides consultation/support for ARNP's and residents. (see expectations below).
4. There is a dedicated pharmacist and a dedicated social worker but no team assistant or coordinating RN.
5. Several nocturnists who cover the service from 8:00 PM – 8:00 AM.

Schedule:

8:00 – 8:15: Sign-out from the nocturnist to the team. The second year cardiology fellow is expected to be present at morning sign-out.

8:45 – 9:00 Brief to review any urgent patient needs.

9:00-12:00 Multi-disciplinary team rounds with cardiology attending, ARNPs, cardiology fellow, resident, pharmacist and social worker

Bedside rounds on Cards C consults with attending, review studies, assist ARNP's in obtaining consults

13:00-13:30 Brief with CCU and MCS fellows to review patients nearing transfer between services

13:30-16:00 Be immediately available for questions from ARNP's or residents.

16:00 – 16:30: Afternoon review, pre-discharge planning on 5NE workroom

17:00 – 20:00: Evening coverage. **TBD**

<u>Conferences:</u>

1. The second year fellows are expected to attend all **Wednesday Morning Conferences** and **Friday Cardiology Grand Rounds.** *Attendance is required*
2. **Transplant Conference** is weekly on Thursday morning from 8:00 – 9:45 in the CT Surgery conference room (AA115K) or Turner Conference Room (E202). Be prepared to present the in-patients who are being considered for advanced heart failure therapies. Clarify with the AHFTC fellow who will be presenting patients who are being discussed. There is an EPIC template (SmartPhrase = .zztransplant) that needs to be completed for each patient being presented. Following the presentation, the templated note should be updated with the results of the discussion (list, turn down for X reason or continuing work-up, needs XYZ completed) and cc'd to the patient's attending. *Attendance required*
3. **MCS Conference** is weekly on Thursday from 16:00 – 17:00. Patients being considered for MCS and patients who have received MCS are reviewed. This is an important conference to make sure that any patient who is being worked up for MCS is on the "VADar" of the MCS service. *Attendance recommended*
4. **Transplant Pathology Conference** is held monthly on the first Wednesday of the month from 8:30 – 9:30 in the pathology conference room on the second floor (NE 140 G). Endomyocardial

biopsy specimens, LVAD core pathology, and explanted heart pathology are reviewed. This is an excellent conference. *Attendance required*

5. **Transplant/HF Educational Conference** is held monthly on the last Wednesday of the month from 4:00 - 5:00 in the CT Surgical conference room. *Attendance required*

Weekends:

The weekends are covered by an attending, a general (second or third year) cardiology fellow, and a moonlighting hospitalist who works from 8 AM-8 PM. The hospitalist should be given >50% of the patients to care for, as the general cardiology fellow will also be covering EP patients and consults. The hospitalist will admit all patients from 8 AM-8PM. The second year fellow should be available for sign-out from the nocturnist at 8:00 AM. Weekend attending rounds generally begin at 9:00 AM.

Second Year Fellow Responsibilities:

1. The general cardiology fellow should know about all of the patients on the service and facilitate patient care. This is particularly true for issues that are *cardiology specific* (examples: patient with severe CHF develops AF with RVR and is hemodynamically unstable; post-transplant patient with borderline blood pressure, elevated neck veins, worsening renal function who has a moderate pericardial effusion on echo).
2. **When you are in your continuity clinic, clinic is your responsibility** and the Cards B attending will be available to support the ARNP's and resident.
   - If you are being paged in clinic sequentially by the team for questions, please rectify by informing your chief fellow or cardiology B attending.
3. Admissions:
   a. You need to be aware of and review with the admitting ARNP all admissions that come in during the day, except for when you are in continuity clinic.
4. A major part of this rotation is learning about cardiac transplant patients. We assume that you have had no previous exposure to this very specialized patient group. Rejection and infection are the two most common reasons for admission. You need to **consider cardiac rejection** (either cellular or antibody mediated) in patients with dyspnea, shortness of breath, heart failure, arrhythmia, hypotension, unexplained tachycardia, RUQ abdominal pain, or troponin elevation. *When in doubt get an echo.* There is a stereotypical temporal pattern of infections after transplant: the most frequent **infection** in the post transplant patient is CMV; half of infections after six months are community acquired. Early imaging is important in the evaluation and management of immunosuppressed patients.
5. Consults on patients with heart failure or cardiac transplantation on other services are performed by the fellow (general or AHFTC) on the MCS service and staffed by the MCS attending **with the exception of patients on the Card C service. You are responsible for**

following these patients daily. The need for notes on these patients will be determined by the Card B attending.

6. Participation in the biopsy lab was previously a requirement and is now an option. Let us know if you are interested. Biopsies are performed on Monday, Tuesday, Wednesday and Thursday. It is a great option to improve right heart catheterization skills if desired.
7. You will need to assess patients being admitted from the Emergency Room if there is a question of need for admission vs outpatient follow up, or if the patient is borderline for floor status vs ICU.
8. **Clinic -** Most hospital follow-up patients are seen by the clinic ARNP's. Although most patients with urgent, must-be-seen, issues can be accommodated by the ARNP clinics, on some occasions there is insufficient staffing or the patient is of higher acuity and will need to be seen by the fellow. Patients will be staffed by the inpatient attending.

Other Information

1. There is an introduction to transplantation and an extensive collection of relevant articles on the Division of Cardiology Fellowship web page and https://eres.lib.washington.edu/eres/coursepage.aspx?cid=2843&page=docs#
2. There is a Google calendar, which outlines evening schedules as well as clinics, vacations, conferences, etc. Email: cardsbservice and password (case sensitive) HeartFailure.
3. If you are in a morning conference get sign out before the conference, or page the nocturnist.
4. If you discharge a patient while on call for the weekend, complete the discharge summary and send an email with a brief summary of the hospital course and planned follow-up to: post-dc@uw.edu (for transplant patients) or pre-dc@uw.edu (for all others). This process will ensure that appropriate follow-up is obtained for the patients.
5. Card B protocols (including diuretic protocol!) are available in OCCAM https://occam.hsl.washington.edu/category/uwmc/cardiology-b-uwmc/