Cardiac Rotation: St. Paul's Hospital

Rotation Supervisor: Dr. Cameron Hague email: cameron.hague@vch.ca

Overview:

St. Paul's Hospital is a 600 bed tertiary care hospital and the only hospital in downtown Vancouver. Major programs in the hospital include neurology, cardiovascular, gastrointestinal, chest services, renal and infectious disease. St. Paul's Hospital is the major center in Western Canada for the treatment of HIV patients. A busy obstetric unit is also part of the care delivered by SPH, with over 2,000 deliveries annually.

The SPH radiology department current has 2 1.5 T GE MR scanners both of which are capable of cardiac imaging. Cardiac MRI cases cover a wide range of indications including assessment of adult congenital heart disease, work-up of ischemic heart disease (including stress perfusion exams), evaluation of cardiomyopathies including HCM and ARVC, as well as assessment of cardiac masses.

SPH currently has 2 64-slice GE CT scanners, both capable of cardiac exams as well as a wide detector array GE revolution. CT studies are performed for evaluation of coronary artery disease as well as work-up of patients for percutaneous cardiac valve placement (aortic, mitral and tricuspid).

SPH currently performs 10-30 cardiac MRIs and 40-50 cardiac CTs per week.

Once reviewed by the cardiac resident on service all CT and MR exams would then be reviewed with one of four fellowship trained cardiothoracic radiologists.

Residents would be expected to review cases independently , consolidate findings, formulate a differential diagnosis and management plan prior to discussing the case with the staff radiologist.

A SPH Cardiac Imaging Website has been set up with a number of useful links, resources and a reading list. Please see Dr. Leipsic Dr. Murphy, Dr. Ellis or Dr. Hague for the website address.

Objectives:

Medical Expert

Develop a knowledge of cross-sectional and multiplanar cardiac anatomy

Develop a basic understanding of cardiac physiology, particularly as it pertains to imaging studies.

Gain an understanding of CT and MRI physics, particularly with regards to applications in cardiac imaging. Residents are encouraged to spend time with the excellent group of MR technologists at SPH to gain practical knowledge of MR.

Understand cardiac CT and MRI imaging protocols. Be able to help MR and CT technologists with protocol related questions, appropriate to level of training.

Develop a level of familiarity with the GE work station to allow interpretation of cardiac CT and assessment of functional values on MRI studies.

Develop knowledge of cardiac pathologies seen in clinical practice with MR.

Develop the ability to detect pertinent findings on cardiac CT and MR studies.

Develop the ability to integrate findings to form a clinically useful differential diagnosis (when relevant) and offer an appropriate plan for the patient in question

Understand the implications that imaging findings have on treatment and management decisions.

Communicator

Residents are responsible for dictation of accurate, concise and useful reports following discussion of the case with the staff radiologist. CT coronary exams are dictated in a standardized fashion in our department, residents new to this rotation should take time to familiarize themselves with this format.

Informing the ordering physician either verbally or otherwise of any time sensitive important findings. (Depending on the level of training this may wait until after review with the staff physician.)

Obtains informed consent for patients in an appropriate fashion

Collaborator

Discussion of cases with clinical teams, applying the radiologic findings to help guide patient management

Coordinate read-out of cases with the cardiac imaging fellow. A close collaboration with the cardiac fellow will help residents on this rotation to maximize their learning experience.

Leader

Implement processes to ensure personal practice improvement

Set priorities and manage time to integrate practice and personal life

Apply the science of quality improvement (ie discussion of potential audit) to contribute to improving systems of patient care

Contribute to a culture that promotes patient safety, including recognition of patient safety issues, and utilization of health informatics to improve patient safety

Demonstrate leadership skills to enhance health care

Health Advocate

Develop an understanding of the risks and benefits of various imaging studies. Application of this knowledge to alter imaging protocols to limit risk when deemed necessary. With cardiac CT this is especially important as knowledge of the varying protocols (i.e. retrospective vs. prospective ECG-gating) can change radiation dose substantially.

Scholar

Develop the ability to utilize the radiological literature to help guide diagnostic decisions and management recommendations in an evidence based fashion appropriate to the level of training

Continued self-directed learning: reading around cases and topics.

A great deal of cardiac imaging research is ongoing at SPH, residents are encouraged to familiarize themselves with the studies currently underway and to participate, whether it be by consenting patients or reviewing data, as much as possible.

Professional

Interaction with support staff, nurses, clinical teams and staff in a professional fashion

Development of insight into one's personal strengths and weakness in a given area of radiology and acceptance of constructive criticism/guidance to help improve areas of weakness

Reading List:

Please see the cardiac binder at SPH for pertinent reading material. (ask staff or fellows where this binder lives.)

Textbooks:

1. Halpern E. Clinical Cardiac CT: Anatomy and Function 2011.

2. Bogaert J Clinical Cardiac MRI 2nd edition 2012

Websites:

Scct.org: society of cardiovascular CT. Excellent bank of cases and guidelines pertinent to CT imaging of the heart.

Scmr.org: society of cardiac MR. Access to case of the day and guideline papers focused on MR imaging of the cardiovascular system.

A binder of catheter proven coronary cases is also present, with CCTA datasets available for review. Please utilize this during any down time.

Rounds:

Noon rounds daily (except Wednesdays) SPH radiology library

Monday 7am.: Ortho rounds (SPH library) (optional)

Tuesday 8am: Chest rounds (8a Providence building)

Wednesday 5pm: Grand rounds

Thursday 715 am: Cardiac Rounds (Hurlburt or new lecture theater)

Friday 1pm: Resp/Rad/Path Chest rounds (Gourlay conference center)