



University of Illinois Metropolitan Group Hospitals Residency in General Surgery

Rotation Title: Transplant Surgery – The University of Illinois Medical Center

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Residents – MGH PGY-4

Rotation Description:

MGH residents have the opportunity to learn the management of transplant patients. As the fourth year resident on the service you are responsible for the service. You report to the fellow and will participate in all aspects of care. There is no in house call, but you are expected to be available at all times.

There are no dedicated medical students on the team; however 3rd-year medical students on their General Surgery rotation have the opportunity to spend several days on the transplant team. They carry no responsibility for seeing/evaluating any of the patients on the service, but may participate in evaluating clinic patients and may take part in bedside procedures.

The transplant service covers the Surgical Intensive Care Unit, pediatric transplant patients in the Pediatric Intensive Care Unit, and transplant patients on general floors throughout the hospital. The transplant clinic takes place everyday in the afternoons from 1pm. Transplant residents may operate any day or night of the week.

ASSESSMENT:

Monitoring of the accomplishment of the stated objectives will be performed using the following methods:

1. 360 degree evaluation: End of rotation evaluation of resident performance to assess the Resident's demonstration of Core Competencies with respect to the stated objectives by faculty, other team resident members, students, nursing staff, and patients using multiple tools.
2. Case Logs: Auditing of operative cases pertinent to the specialty in the Surgical Operative Log.
3. Written Examination: Performance on the annual ABSITE examination on the transplant section.

COMPETENCY BASED LEARNING OBJECTIVES

PATIENT CARE

1. Evaluate potential candidates for living-related and cadaveric vascularized organ transplantation, including:
 - a. Clinical suitability
 - b. Strength of social support
 - c. Expected graft and patient survival
2. Participate in the pre- and post-operative surgical management of patients after vascularized organ transplant
3. Assist/perform kidney, pancreas and heart transplantation
4. Participate in the perioperative management of immunosuppressive drug therapy, including monitoring drug levels and treating potential toxicities.
5. Participate in the evaluation of patients suspected of organ rejection to include:
 - a. Laboratory and radiologic testing
 - b. Administration of immunosuppressive (IS) agents
 - c. Following patients for potential acute and chronic side effects
6. Participate in the preparation and handling of multiple organ harvest in the brain dead patient
7. Define suitability characteristics of organs for transplantation.

8. Formulate a response to these ethical questions:
 - a. Should an individual with renal disease, who is 70-75 years old, have access to the scarce resource of cadaver kidney?
 - b. Should the surgeon reasonably consider renal transplantation in older recipients when the nephrologist contends that dialysis is the preferred method of treatment?

9. Manage postoperative surgical complications, including wound infection, anastomotic stenoses and leaks and lymphocele formation.

Curriculum/Goals

ROUNDS

- The fourth year is responsible for the unit and generally writes the majority of notes
- Rounding times:
 - 7:30am if there are no cases
 - 6:30am if there is a case
- Start in the ICU
- Keep the patient list updated

FLOOR WORK

All floor work is divided among the members of the team:

- Labs - order all labs for the following morning.
 - all ICU patients and those with nutritional concerns must have prealbumin/transferrin levels checked every Monday
 - daily ABG must be obtained for all patients on mechanical ventilation
 - mixed venous gas must be obtained on all patients with a pulmonary artery catheter
- Films - daily CXRs must be ordered and reviewed for all patients with chest tubes or endotracheal tubes
- Line changes - all central lines older than 5-7 days, or sooner if indicated, must be changed

MEDICAL KNOWLEDGE

Demonstrate and understanding of the history of clinical transplantation and interpret the guidelines for preparing patients for organ transplantation.

Demonstrate a working understanding of the fundamental immunologic principles governing organ transplantation and immunosuppression.

Demonstrate understanding of the potential metabolic, physiologic and malignant side effects of immunosuppressant.

Section One: Background/Preparation

1. Demonstrate a working knowledge of the history and evolution of clinical transplantation, including:
 - a. Early vascular surgery
 - b. Concept of tolerance
 - c. first successful organ transplants
 - d. Introduction of immunosuppressive agents
2. Describe the anatomic and biologic terms associated with organ transplantation, donor and recipient relationships and grafting between species
3. Explain the human leukocyte antigen (HLA) complex, including its genetic location and composition, pattern of inheritance, and the difference between Class I and II antigen's of the major histocompatibility complex (MHC). Consider these aspects:
 - a. Serological determination HLA.
 - b. Molecular methods of HLA
 - c. Crossmatching
4. Discuss the role of tissue in the identification and preparation of patients for organ transplantation to include:
 - a. Natural, pre-formed antibodies
 - b. Acquired antibodies
 - c. The role of panel reactive antibody (PRA)(sensitization)
 - d. The effect of tissue typing compatibility on graft survival
5. Discuss advances age as a positive consideration in solid organ transplantation by considering the importance of:
 - a. Physiologic status vs. absolute age in years
 - b. Rate of organ rejection and its severity among the elderly
 - c. Elderly compliance with medical regimens
 - d. extended life expectancy

6. Compare the 5-year survival for patients aged 60 and older receiving a renal transplant with those undergoing dialysis.
7. Define the criteria for organ and tissue donation; apply these criteria to critically ill patients
8. Explain the clinical definition of brain death, including a discussion of the available laboratory and radiology studies to support the clinical criteria.
9. Analyze and formulate a plan for management of the organ donor. Outline the development of organ preserving solutions and techniques, and describe the currently practiced methods for handling and storing vascularized organs.

Section Two: Clinical Transplantation

2. Discuss the current method for the allocation of organs for transplantation, including consideration for the need, availability, and philosophical biases surrounding organ donation. (Be prepared to utilize the algorithm for assigning organs based on the results of HLA typing, PRA, blood type, age and time-waiting.)
3. Explain the united organ sharing (UNOS) method for assigning organs to potential recipients. Discuss how local procurement agencies function to optimize the donor organ pool and facilitate coordination of organ harvesting and their subsequent distribution.
4. Analyze and outline the indication for kidney, pancreas, heart and lung transplant; relate the relative frequency of these operations as well as rate of patients and graft survival.
5. Specify the various drug schemes for induction, maintenance and rejection therapy, including new “rescue” therapies.
6. Describe the mechanism of action, dosing schedule and side effects of the following immunosuppressive drugs:
 - a. Azathioprine
 - b. Prednisone
 - c. Anti-lymphocyte globulin
 - d. Dycosporine
 - e. Anti-T3 monoclonal antibody
 - f. Tacrolimus (FK 506)
 - g. Anti IL-2R Moab

- h. Mycophenolate mofetil
 - i. Rapamycin
7. Analyze the short- and long-term risks of chronic immunosuppression:
 - a. Opportunistic infections
 - b. Cardiovascular problems
 - c. Autoimmune disease
 - d. Lymphoproliferative disease
 - e. Rejection
 8. Evaluate the diagnostic maneuvers to detect hyper acute, acute and chronic organ rejection.

PRACTICE BASED AND LIFE LONG LEARNING

- Interdisciplinary ICU rounds provide wide exposure and education regarding the various aspects of transplant surgery/medicine.
- UIC surgery residents have a weekly conference which welcomes the MGH residents.
- The attending staff provides routine didactic sessions as time allows.
- Develop a personal program of self-study and professional growth with guidance from the teaching staff and senior residents. An understanding of the etiology, pathogenesis, pathophysiology, diagnosis and management of oncologic and general surgery disorders will allow for sound surgical judgment, which relies on knowledge, rational thinking and the surgical literature.
- Utilize current literature resources to obtain up-to-date in information on the transplant patients and practice evidence-based medicine.
- Participate in teaching and organization of the educational weekly conferences.
- Participate in activities of the Department of Surgery (including all teaching conferences) and assume responsibility for teaching and supervision of subordinate surgical house staff, and medical students.
- Participate in the Department Morbidity & Mortality conference and utilize information to further improve patient care.
- Participate in daily teaching rounds and be able to present patients in an organized and complete fashion
- Topic of the day in the computerized life long learning portfolio

PROFESSIONALISM

Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Residents are expected to demonstrate:

1. Compassion, integrity, and respect for others
2. Responsiveness to patient needs that supersedes self-interest
3. Respect for patient privacy and autonomy
4. Accountability to patients, society and the profession
5. Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.

INTERPERSONAL AND COMMUNICATION SKILLS

- Demonstrate interpersonal and communication skills that result in the effective exchange of information pertinent to patient care with patients, their families, and health professionals
- Work effectively as a member or leader of a health care team or other professional
- Work in a consultative role to other physicians and health professionals
- Maintain comprehensive, timely, and legible medical records, if applicable

SYSTEMS BASED PRACTICE

- Consults - all consulted services must be notified early as there is an extensive interaction with the hemodialysis/ nephrology, hematology, hepatology, infectious diseases, nutrition and pharmacy services.
- There is an ample opportunity to interact with the department of pathology and immunology.
- During the outpatient clinic hours the residents have exposure to preoperative workup and discussions with other specialists and patients and their families.

READING MATERIALS:

Educational materials which will function as guides for resident education during this course include but are not limited to:

1. The SCORE General Surgery Resident Curriculum Portal accessed at <https://portal.surgicalcore.org/home>
2. Schwartz's Principles of Surgery
3. Zollinger's Atlas of Surgical Operations
4. The Surgical Core Curriculum accessed via Access Surgery through the University of Illinois-Chicago website

OUTCOMES:

Outcomes for the various goals and procedures in this curriculum will be assessed along the following standards:

1. Superior: the resident exhibits conceptual understanding beyond that which is described in this bulletin, and practice performance which is at a standard for a resident at a more advanced PGY year.
2. Above-Average: the resident has shown understanding and performance that is above what is expected for the rotation.
3. Competent: the resident exhibits conceptual understanding and practice based performance standards that are minimal, for the appropriate PGY year, for advancing towards transplant surgical practice.
4. In Need of Remediation: the resident has failed to grasp the basic concepts and practices necessary to advance past this rotation for the PGY year, and shows need of repeating or training augmentation.