University of California, Irvine

Department of Medicine

Internal Medicine Residency Program Rotation Curriculum

DIVISION: BASIC & CLINICAL IMMUNOLOGY

Rotation: Immunology Clinic, UCIMC

I. Rotation Sites and Supervision

Rotation Name: IMMUNOLOGY CLINIC, UCIMC

Site 1: UCI Medical Center, Orange
Faculty Rotation Director: Sudhir Gupta M.D., Ph.D. Phone: (949) 824-5818

II. The educational purpose or rationale for this rotation

Rationale: The Immune system plays an important role in the pathogenesis of most of human diseases. Therefore, it is crucial to have an understanding of the physiology of the immune system and diseases associated with disorders of the immune system.
Purpose: To provide an experience in the approach to a comprehensive management (accurate diagnosis and state of the art treatment) of patients with various immunodeficiency diseases. These include but not limited to patients with primary immunodeficiency, immunodeficiency associated with malignancies, autoimmune diseases and HIV infection.

III. The principal teaching methods for this rotation

Teaching for this rotation is done through [1] didactic lectures in clinical immunology and [2] clinical management of patients in the clinic. Residents attend and participate in clinical immunology seminars (one-hour duration) given prior to each immunology clinic. These include approach to evaluation of patients with immunodeficiency and discussion of various disease states. In the Immunology clinic, residents are assigned new and follow-up cases. Each case is first evaluated by the resident and presented and discussed on one-to-one basis with a faculty member. After case presentation, faculty member evaluates the physical findings in the patient. Differential diagnosis is discussed and an appropriate treatment is planned. An emphasis is placed on the detail history and physical examination for follow-up patients as well because immune-deficient patients are increasingly susceptible to various complications. Residents are taught the rationale for the treatment and the mechanism(s) of drug action (e.g. protease inhibitors versus nucleoside reverse transcriptase in the treatment of HIV infection). Each resident is provided with a short reading list of common immunological diseases.

IV. Responsibilities of each of the participants on this rotation

- Medical Students: We do not receive any medical students for this rotation.
- Medical Residents: To evaluate new and follow-up patients in the outpatient Immunology clinic. They are expected to obtained a detailed history and perform a comprehensive physical examination (patients with immunological disorders often have multisystem involvement). They are expected to present their observations of patients in a clear, concise, and organized manner to the faculty member. They are expected to give an appropriate differential diagnosis and formulate a rational treatment. They should be able to answer any questions that a patient might have (with or without consultation with the faculty member. They are expected to attend clinical immunology seminars preceding each clinic and present one relevant clinical topic.

Medical Residents: PGY 1 Residents

Patient Care Responsibilities:

Residents are responsible for following of a select number of patients on the consult service and in clinic. Patient selection is directed by the fellow or attending. All patient care activities of the consult resident are under direct supervision of the fellow.

Procedures:

The resident can perform procedures appropriate for their level of training on the consult service. All procedures will be performed under the direct supervision of the resident or fellow.

Education:

The residents are expected to contribute on rounds. They are expected to present their patients on rounds, and contribute to the discussion of diagnosis, management, pathophysiology, and any related basic science issues. They will present patients at conference. They are expected to review pertinent medical literature. Guidance from the fellows and senior residents will be provided.

Patient Care:

The PGY1 residents will perform full consultation H&P on all new consults under their care. They will be responsible for collecting all database information, reviewing prior records, following laboratory information, and writing recommendations under direct supervision of the fellow.

Educational Objectives: PGY1 Residents

1. Will be competent to conduct a basic history for allergy, environmental exposures, asthma, hypersensitivity, and immunodeficiency.
2. Will be competent to conduct a physical exam of the lymphatic system, lungs, spleen, and skin with special emphasis on findings of immunodeficiency.

Senior Residents (PGY2 & 3)

Senior residents will be responsible for all activities noted for PGY1 residents. In addition, these residents will be responsible for coordinating teaching efforts for interns and medical students. The senior residents will place emphasis on Medical Knowledge Management in the context of consultation. The senior residents will participate in divisional conferences and present appropriate cases with literature review and critical appraisal. The senior residents will be available to teach medical students physical diagnosis.

The senior resident will certified in basic procedures including thoracentesis, paracentesis, arterial blood gas procedures, and lumbar puncture, and will be responsible for teaching this procedure to the PGY1 residents.

1. Will be competent to conduct a basic history for allergy, environmental exposures, asthma, hypersensitivity, and immunodeficiency.
2. Will be competent to conduct a physical exam of the lymphatic system, lungs, spleen, and skin with special emphasis on findings of immunodeficiency.
3. Will be competent to initiate a diagnostic evaluation for immunodeficiency diseases.

4. Will be competent to diagnose environmental allergies and will demonstrate knowledge of the characteristics of allergy testing and treatment.

Competency-based Objectives for the Immunology Consultation Service

Patient Care	PGY1	PGY2	PGY3
Complete medical data base (H&P) relevant to immunology and allergy and good patient care overall	Reporter & Interpreter	Manager & Educator	Competent at the level of a well-trained internist
Diagnostic decision making based upon the best evidence	Reporter & Interpreter	Manager & Educator	Competent at the level of a well-trained internist
Involving patients in decisions about their care	Most of the time	All of the time	
Working with other health care professionals to ensure the best care	All of the time		
Teaching patients and families	Most of the time	All of the time	
Commitment to wellness, screening & prevention.	Most of the time	All of the time	
Identification & intervention in psycho-social issues, including domestic violence & depression	Most of the time	All of the time	

Medical Knowledge	PGY1	PGY2	PGY3
Medical illnesses related to immunology	Reporter & Interpreter	Manager & Educator	Competent to practice independently
Complete differential diagnoses	Reporter & Interpreter	Manager & Educator	Competent at the level of a well-trained internist
Epidemiology & biostatistics	Reporter & Interpreter	Manager & Educator	Competent at the level of a well-trained internist
Research design		Competent in basic issues	Competent in basic issues
Ambulatory medicine	Reporter & Interpreter	Manager & Educator	Competent at the level of a well-trained internist
Recognizing own limitations	All of the time		

Practice-based Learning	PGY1	PGY2	PGY3
Take advantage of patient care to read & learn	Consistently		
Use of medical information resources & search tools	Consistently		
Inspiring others to use Evidence-based resources and make EBM-based decisions	Basic understanding	Consistently	
Applying critical appraisal techniques consistently to patient resources I use for patient care	Basic understanding	Consistently	

Interpersonal & Communication Skills	PGY1	PGY2	PGY3
Create personal relationships with each patient by appropriately engaging them at each encounter	Most of the time	All of the time	
Use of verbal & non-verbal facilitation	Most of the time	All of the time	
Consistently demonstrate appropriate	All of the time		

empathy & **good listening skills**			
Respectful communication with colleagues & other professionals	All of the time		
Involve patients & families in discussions about care. Patient education.	Most of the time	All of the time	
I go out of my way to ensure the best possible care.	All of the time		
Enlist patients & families in health care decisions, including their feedback	Most of the time		
My ability to accept & integrate feedback from faculty & peers	All of the time		
I always sit down at the bedside to speak with my patients.	All of the time		

Professionalism	PGY1	PGY3	PGY3
Altruism: patients needs above their own	Most of the time	Most of the time	Most of the time
Confidentiality (including HIPAA)	All of the time		
Ethical behavior	All of the time		
Commitment to excellence	All of the time		
Sensitivity to age, gender, gender-preference, ethnicity, culture & disability	Most of the time	All of the time	
Awareness of duty hours, fatigue in myself & others, & other outside stresses, including substance abuse & finances	All of the time		
Commitment to education & to learning	All of the time		Accelerated
Personal insight & self-reflection	Most of the time	All of the time	
Completion of assignments	All of the time		
Timely response to pages	All of the time		
Timely completion of medical records	All of the time		
Conference attendance	Meets requirements		
Hand-offs and sign-outs	Consistently well presented	Consistently of the highest quality	
Leadership skills	Developing	Consistent	Consistent

Systems-based Practice	PGY1	PGY2	PGY3
Cost-effectiveness	Generally aware	Integrates into all plans	
Use of outside resources	Generally aware	Integrates into all plans	
Use of case-management	Generally aware	Integrates into all plans	
Attention to quality, safety, and process improvement	Generally aware	Integrates into all plans	Makes these a top priority in all areas
Systems-based Practice (continued)	PGY1	PG2	PGY3
Identification of systems issues that affect patient care	Developing	Consistently	Consistently
Use of the incident reporting systems to identify systems issues	Developing	Consistently	Consistently
Understanding of the business of medicine, health care systems, & public policy	Developing	Generally aware	Sophisticated understanding

- Fellows: There are full-time fellows in Allergy-Immunology training program. There are no fellows from other specialty that rotate through immunology clinic (except Rheumatology fellows attend clinical immunology seminars). Allergy-Immunology fellows have full responsibility for on-going management (diagnosis and treatment) of patients with allergy and immunological disorders both at the VAMC and UCIMC. They are also responsible for inpatient consultations for patients with allergic and immunological disorders. Allergy-Immunology training program is a combined pediatric and internal medicine program and is evaluated separately by RRC (not as a subspecialty of internal medicine).

- Attendings: Attendings are responsible for the supervision and teaching of residents and fellows, and the ultimate patient care. This include, evaluation of history and physical examination findings and a systemic approach to the diagnosis and treatment of both in-patient and clinic patients. Attendings are also responsible for giving clinical immunology seminars.

V. Core suggested reading for this rotation

- AK abbas, AH Lichtman, S Pillai (Eds.) *Cellular and Molecular Immunology*, 8th Edition, 2014. Elsevier Saunders, Philadelphia, PA.
- ER Stiehm, HD Ochs, JA Winkelstein (Eds.) *Immunologic Diseases in Infants and Children.* 5th edition. 2004. Elsevier Saunders, Philadelphia, PA.
- NF Adkinson, BS Bochner, WW Busse, ST Holgate, RF Lemanske, FER Simons (Eds.) *Middleton's Allergy: Principles and Practice*, 8th Edition 2013. Mosby Elsevier, Philadelphia, PA.

In addition, residents and fellows are provided with handouts of the lectures given by the faculty.

Recommended Readings for this Rotation

Basic Recommended Readings for this rotation come from **Current Medical Diagnosis and Treatment**, 2009. Access these readings at

http://www.accessmedicine.com/resourceTOC.aspx?resourceID=1

In addition, you should be familiar with basic practice guidelines in this discipline. Access these at

http://www.accessmedicine.com/guidelines.aspx?type=1

Select the appropriate chapters for review. These chapters can be accessed through the Grunigen Medical Library website.

http://www.accessmedicine.com/resourceTOC.aspx?resourceID=1

VI. Key physical diagnosis skills which should be reviewed during this rotation

Because immunodeficiency diseases involve almost every system of the body, emphasis is placed on thorough physical examination, including ophthalmologic fundus examination (e.g. CMV retinitis), neurological examination (patients with HIV infection often have multiple neurologic manifestations).

VII. Key procedures which the resident should be able to perform

There are no specific procedures that are performed in clinical immunology. The residents; however, are expected to inject recall antigens intradermally to evaluate delayed type hypersensitivity reaction.

VIII. Key tests or procedures which the resident should be able to understand the indication for and to interpret

The residents are expected to understand laboratory approach for the diagnosis of T cell, B cell, and combined immunodeficiencies. This includes indications for ordering various immunological tests and their interpretations. These tests include number and functions of T cells, B cells, immunoglobulin classes and subclasses, specific antibodies to protein and carbohydrate antigens, measurements of total complement and components of complement, phagocytic cell functions. The residents are also expected to know the indications and interpretation of tests for autoimmunity and HIV viral load and CD4+ T cells. Based on the later tests, the residents should be able to interpret the response to antiretroviral therapy or the need for the change of therapy.

IX. The most important diseases or conditions which the resident should see and understand during this rotation

The most common diseases including HIV infection (all spectrum), common variable immunodeficiency, selective IgA deficiency, IgG subclass deficiency, hyper IgM syndromes, C1 esterase inhibitor deficiency/dysfunction, immunodeficiency associated with CLL and MM. The residents should understand the pathogenesis and clinical manifestations of these disorders.

X. Evaluation Methods

Faculty will evaluate each resident’s performance using the standard "Internal Medicine Resident Evaluation Form" at the end of each block rotation. Evaluation forms will be submitted to the Residency Program for review by the Program Director and by the Residency Oversight Committee. Residents will complete evaluations of their attending faculty, their supervising residents, and the rotation itself. These evaluations will be submitted to the Residency Program for Review by the Program Directors and the Curriculum Committee. Copies of evaluations will be submitted to the Division Chiefs for their review.

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