Nephrology
Howard University Hospital

Overview and Rationale

Nephrology involves disease of the kidneys, its contiguous collecting system, and its vasculature. The kidneys play a key role in fluid, electrolyte, and acid-base regulation and are affected by a wide range of systemic disorders, drugs, and toxins. The general internist should be competent to evaluate and appropriately refer patients with glomerular disorders, asymptomatic urine abnormalities, tubulointerstitial diseases, renal vascular disease, renal failure, nephrolithiasis, tubular defects, and infections and neoplasms of the kidneys, bladder, and urethra, and should also be able to provide principle treatment for some of these conditions. He or she should be able to manage fluid, electrolyte, and acid-base disorders; understand the ways in which systemic diseases may affect the kidneys; and recognize the potential nephrotoxicity of various therapeutic and diagnostic agents.
The general internist must also be familiar with guidelines for pre-dialysis management of patients with renal failure and be able to recognize indications for dialysis and for referral to a nephrologist. The range of competencies in managing renal disease will depend on the availability of a nephrologist to the primary care internist. Although all general internists should know the indications for dialysis, in some cases (for example, if a nephrologist is unavailable), the general internists may be responsible for initiating and maintaining patients on peritoneal dialysis. In most situations, hemodialysis will be the responsibility of a nephrologist, as will renal biopsies and nephrostomy tube placement.

Goals

1. Acquire the knowledge, skills and attitude to effectively assess and manage the patient with renal diseases on an inpatient and outpatient basis.

Objectives: At the end of the rotation the resident should be able to;

1) assess and evaluate common acid base disturbances in the outpatient and inpatient basis
2) demonstrate competence in the consultative care of the patient with renal diseases
3) list the indications for acute and chronic dialysis
4) demonstrate competence in the management of the post transplantation patient.
5) Demonstrate knowledge of the management of isolated hematuria and proteinuria

Rotation Description and Lines of Responsibility

The nephrology rotation is a four week consultative and outpatient experience. The attending physician is responsible for all clinical, academic and administrative activity during the rotation. A R1, R2 or R3 may be assigned to the rotation along with senior medical; students. The clinical mix of patients is drawn from the chronic outpatient

dialysis center, the acute inpatient dialysis center, consultations from the Howard University Hospital clinical service and the outpatient renal clinic.

The resident is responsible for the initial assessment and follow-up of patients on the consult service. The resident is responsible for the completion of the database and the collection and collation of all laboratory and radiological data. The level of supervision and completion of assessment will vary depending on the postgraduate year of training. It is expected that R3 will require less supervision in their assessment than that of a R1 resident. All new and established patients on the consult service are presented on daily teaching rounds. The attending physician will discus the presentations of patients at their bedside and will engage in patient-based discussions and demonstrations. Residents may have assigned topics for presentation at teaching rounds.

Residents will also see patients in the renal clinic. Residents will assess new and established patients who visit the clinic. Residents will be precepted by an attending physician who will review all patients and sign the database to attest accuracy and completion of data.

Teaching methods

Teaching Rounds
Daily teaching rounds are conducted by the attending physician. These are patient base discussions and demonstration that are driven by the cases presented.

Core Lectures: Residents attend lectures in nephrology which are part of the core lecture series.

Didactics:
Topics are assigned by faculty which covers the following core areas in nephrology.

- Acid-base disorders
- Acute renal failure
    - Acute (ischemic) tubular necrosis
    - Atheroembolic
    - Drug-induced (radiocontrast, analgesics, etc.)
    - Interstitial
- Chronic renal failure
    - Conservative management (before dialysis)
    - Hemodialysis
    - Peritoneal dialysis
    - Transplantation
- Fluid and electrolyte disorders
- Glomerular diseases
    - Acute glomerulonephritis
    - Chronic glomerulonephritis

- Nephrotic syndrome
- Hypertension (see also Cardiology)
- Hypertensive crisis
- Secondary hypertension
- Inherited diseases
    - Polycystic kidneys
- Kidney disease in systemic illness
    - Diabetes mellitus
    - Hypertension
    - Other systemic diseases
- Neoplasia (see also Oncology)
    - Bladder carcinoma
    - Renal cell carcinoma
- Nephrolithiasis
    - Diagnosis of renal stone disease
    - Management of acute renal colic
- Obstructive uropathy
- Renal disease in pregnancy (see Medical Consultation)
- Urinary tract infection
    - Cystitis
    - Pyelonephritis
- Urologic disorders
    - Bladder outlet obstruction
    - Cancer of the prostate (detection)
    - Erectile dysfunction
    - Incontinence
    - Prostate disease

Procedure Skills

· Calculation of creatinine clearance
· Calculation of fractional excretion of sodium
· Peritoneal cavity aspiration per indwelling dialysis catheter
· Femoral temporary hemodialysis catheter placement (optional)
· Peritoneal dialysis catheterization (optional)
· Suprapubic bladder catheterization (optional)

Primary Interpretation of Tests

Urinary microscopy

Ordering and Understanding Tests

· 24-Hour urine excretion of calcium, oxalate, citrate, uric acid, and protein
· Computed tomography, magnetic resonance imaging and angiography, and ultrasound of
the kidneys
· Creatinine clearance
· Cystometrography
· Cystoscopy

- Fractional excretion of sodium
- Intravenous pyelography
- Radionuclide renal scan
- Renal angiography and venography
- Renal biopsy
- Retrograde pyelography
- Serologic tests for evaluating glomerulonephritis
- Urinary calculus analysis
- Urine electrolytes (sodium, potassium, chloride)
- Urine/plasma osmolality

Evaluation Methods

Residents: Residents will be evaluated by the attending physician at the end of the rotation using a global rating form.

Faculty: Faculty will be evaluated in an anonymous fashion using a global rating form at the end of the rotation.

Rotation: The rotation will be evaluated by the residents at the end of the rotation using a global rating form

Reading List: