

OBJECTIVES FOR COMMON CLINICAL PROBLEMS

Chronic Kidney Disease

A. KNOWLEDGE: Students should be able to define, describe and discuss:

1. The most common etiologies of chronic kidney disease
 - DM
 - Hypertension & Ischemic renal disease
 - Chronic Glomerulonephritis
 - Polycystic kidney disease
 - Chronic Interstitial disease
 - Obstructive uropathy
2. The staging scheme for CKD
3. The distinction between CKD and acute renal failure (acute kidney injury)
4. The significance for proteinuria in CKD
5. The use of ACE-Is and ARBs in the management of CKD
6. The complications of CKD including:
 - Disorders of mineral metabolism (hypocalcemia, hyperphosphatemia, secondary hyperparathyroidism)
 - Anemia
 - Metabolic acidosis
 - Malnutrition
 - ECF volume overload & hypertension
7. The value of hypertension control in limiting the progression of CKD
8. The basic principles of renal replacement therapy (e.g., hemodialysis and peritoneal dialysis and renal transplant) as well as the complications
9. The pathophysiology and clinical findings of uremia

B. SKILLS: Students should be able to demonstrate specific skills, including:

1. History-taking skills: Students should be able to obtain, document, and present an history that distinguishes among the major reasons for CKD, including the predisposing conditions, nephrotoxic drugs or agents, and systemic disease.
2. Physical exam skills: Students should be able to perform a physical examination to establish the diagnosis and severity of disease, including:
 - The determination of a patient's volume status through estimation of the central venous pressure using the height of jugular venous distention and measurement of pulse and blood pressure in the lying/standing position
 - Palpation and percussion of the bladder to recognize bladder distention
 - Palpation of the prostate
 - Determination of the presence of pulmonary edema, peripheral edema, ascites, and signs of heart failure
 - Findings consistent with uremia
 - Examination for evidence of systemic disease, including but not limited to: skin, joints, and nails
3. Differential diagnosis: Students should be able to generate a differential diagnosis for a patient with CKD recognizing specific history, physical exam, and laboratory findings that suggest a specific etiology
4. Laboratory interpretation: Order and interpret diagnostic and laboratory tests based on the differential diagnosis. These may include:
 - Serum electrolytes, Anion gap, Urea, Cr, calcium, phosphorus, albumin
 - ABG
 - CBC
 - Urinalysis (Dipstick and microscopic exam)
 - Calculating creatinine clearance using the Cockcroft-Gault equation
 - Serum parathyroid hormone level
 - ECG findings in hyperkalemia
 - Students should be able to define the indications for and interpret (with consultation) results of renal ultrasonography
5. Management skills: Students should be able to develop an appropriate evaluation and treatment plan for patients, including:
 - Developing a management plan to effectively treat HTN and DM
 - Recommending treatment with phosphate binders, calcium replacement, and vitamin D replacement
 - Recommending treatment for anemia secondary to CKD
 - Recommending acute treatment for hyperkalemia
 - Determining when to obtain consultation from a nephrologist

