

# CKD

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6:28 PM

## Learning Objectives:

- CKD & etiologies
- stages of CKD
- complications of CKD

## CHRONIC RENAL FAILURE (CRF) - ↓ Nephron Mass, Glomerular Capillary HTN, Proteinuria

chronic disease, insufficiency, deficiency, end stage disease of kidneys; gradual deterioration; permanent deterioration of nephrons; kidneys are unable to excrete metabolic waste and maintain fluid and electrolytes; alters function of other organ systems; kidneys compensate via structural & functional hypertrophy

## Measure of Renal Function:

- GFR: best measure for overall function (NORMAL = 120-130)
- MDRD Equation: more accurate
- Biopsy, US, Flow Scan

## Stages of CRF

	GFR	Symptoms	Lab Abnormalities
1	>90	asymptomatic	
2	60-90	asymptomatic	
3	30-60	nocturia, HTN, anemia, fatigue	Azotemia, electrolytes
4	15-30	nocturia, HTN, anemia, fatigue, ↓ UO, cold intolerance, taste, anorexia	Azotemia, acidosis, ↓ Albumin, electrolytes
5 (ERT)	<15	fatigue, ↓ UO, pruritis, N/V, leg cramps, myoclonus, seizures, clouded	

## Risk Factors

Susceptibility	Initiation/Progression
- age	- DM
- race	- HTN
- history	- Glomerulonephritis
- income	- smoking/drugs
- Kidney Mass/Birth Weight	- UTI, obstruction
- Inflammation	- cancers, HIV
- Lipids	

## Clinical Manifestations

↑	↓
- EC fluid	- Na <sup>+</sup>
- K <sup>+</sup>	
- PO <sub>4</sub> <sup>-2</sup>	
- Mg <sup>+2</sup>	

## Complications

- Metabolic Acidosis
- Mineral/Bone Disorder
- Osteodystrophy:
  - OSTEITIS FIBROSA - high turnover
  - OSTEOMALACIA - low turnover + ↓ mineralization
  - ADYNAMIC OSTEODYSTROPHY - low turnover
- Heart:
  - HTN
  - Heart Disease
  - Pericarditis
- GI:
  - N/V/Anorexia
  - UREMIC FETOR - bad breath/taste due to breakdown of urea → NH<sub>3</sub> in saliva
  - UREMIC GASTROENTERITIS - ulcers
- Neuromuscular:
  - Peripheral Neuropathy
  - Neuromuscular Irritability
  - Uremic Encephalopathy
- Anemia
  - normo, normo
  - Iron deficiency
- Uremic Bleeding
- Immune
- Dermatology
  - Pruritis
  - Dry skin
  - pale
  - crystals
  - thin brittle nails
- Endocrine
  - Insulin-Resistance
  - Lipids

- Dysmenorrhea
- Metabolic Syndrome
- ↓ Libido, Infertility