

# Good essay on chronic kidney disease

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According to Papadakis and McPhee (2015), chronic kidney disease affects more than 20 million individuals in the United States or every one individual out of nine. Most of the individuals remain unaware of their condition till it becomes full blown and has reached end-stage.

According to Mohan (2010), chronic kidney disease or formerly known as chronic renal failure is a progressive and irreversible damage to renal parenchyma leading to depressed renal function. The major issues in CKD are acidosis, azotemia and uraemic syndrome.

## **ETIOLOGY & PATHOGENESIS:**

All nephropathic entities can eventually lead to CKD but they are classified into two broad categories; causing glomerular injury and those instigating tubulointerstitial injury.

### **Glomerular causes:**

Destruction of glomerulus results in alteration in filtration process and manifests as nephrotic syndrome characterized by urinary protein (proteinuria), decreased serum albumin (hypoalbuminemia) and oedema.

Primary glomerular pathologies leading to CKD are chronic glomerulonephritis, membranous glomerulonephritis, membranoproliferative glomerulonephritis, lipid nephrosis and anti-glomerular basement membrane nephritis. Systemic glomerular pathologies includes systemic lupus erythematosus (SLE), serum sickness nephritis and diabetic nephropathy.

**Tubulointerstitial causes:**

Damage to tubulointerstitial part of the nephron leads to faulty reabsorption and exudation of important constituents that leads to large volume dilute enuresis. These causes are broadly classified into 4 categories; vascular, toxic, infectious and obstructive.

**STAGES OF CKD:**

The four stages of CKD are:

Diminished renal reserve: Kidneys are normally functional with normal BUN and creatinine levels. Glomerular filtration rate (GFR) is 50% of the total normal. Patient is asymptomatic most of the times.

Renal insufficiency: More than 70% of the renal parenchyma is destroyed making the GFR 25% of the normal. BUN and creatinine are elevated with presence of polyuria and nocturia.

Renal failure: Approximately 90% of the renal parenchyma has been destroyed making the GFR 10% of the normal. Sodium and water regulation is completely lost which results in edema, acidosis, uraemia and hypocalcemia.

**End-stage renal disease: Less than 5% GFR gives rise to uraemicsundrome and appearance of renal and extra-renal manifestations.****CLINICAL FEATURES:**

As mentioned in the subsequent text, CKD is usually asymptomatic in the early stages. Symptoms start appearing with gradual decrease in the GFR which leads to accumulation of toxic waste substances. General symptoms of uremia include easy fatigability, weakness, lethargy, nausea, anorexia,

vomiting and metallic taste. Patients also report irritability, memory loss, inability to sleep, restless legs, paresthesias and muscle twitching.

Deposition of toxic substances in the subcutaneous tissue leads to pruritis.

There is diminished libido and menstrual irregularities. In rare instances, there is pleuritic chest pain associated with pericarditis. The most commonly present physical finding is hypertension. In later stages of CKD, sodium starts retaining in the body giving rise to signs of volume overload and uremic fetor.

## **DIAGNOSIS:**

Abnormal GFR persistent for at least 3 months.

Persistent urinary protein

Graph plotting of estimated GFR (eGFR) or inverse of serum creatinine (1/SCr) versus time to estimate the time of end-stage renal disease (ESRD).

## **Anemia**

Hypophosphatemia

Hypocalcemia

Hyperuricemia

Hyperkalemia

Metabolic acidosis

Atrophied, echogenic bilateral kidneys on ultrasonography.

## **TREATMENT:**

With dietary restriction, protein, salt, water, potassium and phosphorus should strictly be restricted and its intake should be kept minimal. Dialysis like hemodialysis or peritoneal dialysis should be done to improve quality of

life. Surgical kidney transplantation is definitive and has shown better outcomes.

### **PATIENT EDUCATION:**

According to Buttaro et al. (2013), patient education in renal failure is very complex but it has a very pivotal position. Diabetes management and kidney healthy diet plans and preparatory classes should be held regularly

### **References**

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