

# Chronic kidney disease essay sample

[Health & Medicine](#), [Disease](#)



## **Introduction**

Chronic kidney disease (CKD) is a condition in which the kidneys lose their function over time. It is a state of irreversible kidney damage. The adverse outcomes of chronic kidney disease result in kidney failure, cardiovascular disease and premature death. Effective treatment at the early stages of the disease reduces the chances of other complications. The two major causes of chronic kidney disease are high blood pressure and diabetes. The common symptoms of the disease are fatigue, swollen feet and ankles, dry, itchy skin, frequent urination, poor appetite and concentration .

## **Clinical Presentation**

The classification of chronic kidney disease involves five stages. Stage 1 causes kidney damage with normal or increased glomerular filtration rate, also known as GFR. In stage 1, GFR is greater than 90 mL/min/1.73 m<sup>2</sup>. Stage 2 results in the mild reduction of GFR at 60-89 mL/min/1.73 m<sup>2</sup>. In the first and second stages of chronic kidney failure, GFR does not clinch the diagnosis as it is normal or borderline normal. Stage 3 involves moderate reduction in GFR at the rate of 30-59 mL/min/1.73 m<sup>2</sup>. Stage 4 causes severe reduction GFR at 15-29 mL/min/1.73 m<sup>2</sup>. The last stage, stage 5 results in kidney failure due to the GFR less than 15 mL. During the first three stages of chronic kidney disease, the patients are asymptomatic. In most of the cases, there is no occurrence of clinically evident disturbances or metabolic derangements. However, the last two stages these disturbances are clinically manifest. Clinical manifestations of chronic kidney disease include pericarditis, encephalopathy, which can cause coma and death,

restless leg syndrome, gastrointestinal complications, such as vomiting and diarrhea, fatigue, erectile dysfunction, platelet dysfunction, skin disorders, such as pruritus and ecchymosis, and peripheral neuropathy .

## **Diagnosis**

Chronic kidney disease is very common in patients suffering from certain health complications, such as diabetes, high blood pressure, arteriosclerosis, renal artery stenosis, Wegener granulomatosis, family history of kidney diseases and lupus. Diagnose a patient with chronic kidney disease involves a set of tests, such as a complete blood count (CBC), urinalysis to calculate renal function and basic metabolic panel. Normochromic normocytic anemia is a common symptom in patients suffering from chronic kidney disease. The diagnosis also involves the evaluation of blood urea nitrogen (BUN), serum albumin levels and serum creatinine levels . Performing a lipid profile helps to analyze the risks of cardiovascular disease. Renal ultrasonography indicates renal bone disease.

Measurement of serum cystatin-C levels helps to estimate the function of the kidneys. Other common tests involved in the diagnosis of chronic kidney disease are ANA and DNA antibody levels, Cytoplasmic and perinuclear pattern identification, Anti-GBM antibodies, serum complement levels and many others . The measurement of proteinuria and albuminuria help to observe the P/C ratio. CT, MRI, and radionuclide scans define renal masses and cysts present in the kidneys. The final stage of the diagnosis of chronic kidney disease involves percutaneous renal biopsy. Biopsy helps to identify the renal impairment in case of unclear diagnosis. However, it causes complications such as renal bleeding.

## **Treatment**

The treatment of chronic kidney disease involves delaying or halting the progression of the disease, treatment of pathologic manifestations and long-term renal replacement therapy. Delaying or halting the progression of the disease requires the treatment of underlying health complications, hyperlipidemia and control of high blood pressure, avoidance of nephrotoxins, use of RAS blockers in diabetic patients suffering from chronic kidney disease and the use of ACE inhibitors in patients suffering from proteinuria . For patients suffering from advanced chronic kidney disease, long-term dialysis lowers the risk of mortality. Treatment of pathologic manifestations, such as anemia, hyperphosphatemia, hypocalcemia, hyperparathyroidism, volume overload and metabolic acidosis helps to control the chronic kidney disease. Treatment of uremic manifestations through hemodialysis and peritoneal dialysis also reduces the complications of chronic kidney disease.

Renal replacement therapy is advisable in patients suffering from severe metabolic acidosis, encephalopathy, hyperkalemia and pericarditis. Patients suffering with chronic kidney disease need to consult a nephrologist and a renal dietitian on a frequent basis. Though chronic kidney disease has no cure, certain drugs help to control or prevent the complications occurring due to chronic kidney disease. Erythropoietin supplements produce more red blood cells and relieve fatigue caused by anemia . Calcium and vitamin D supplements prevent the weakening of bones and risks of fracture. Statins lower the levels of bad cholesterol and reduce the risks of heart

complications. Diuretics help to retain the fluids in the body and control high blood pressure as well as prevent swelling of legs.

## **Impact of Patient Factors**

There are several patient factors, which impact the diagnosis and treatment of patients with chronic kidney disease. Specific intervention reduces risk in patients whose risk factors are Diabetes, hypertension, obesity and metabolic syndrome. The other category of factors that impact the diagnosis and treatment of chronic kidney disease are smoking, nephrotoxic exposure, cocaine, kidney stones, prostatic hypertrophy, and radiocontrast media .

Certain other factors are high protein intake, morbid obesity, metabolic syndrome, exposure to chemical and environmental hazards. Native Americans, Asians and Hispanics are at an increased risk of type 2 diabetes, which has the most chances of causing chronic kidney disease. Age, gender, prior kidney damage due to trauma or kidney infection, low birth weight and high protein intake are also noticeable factors .

The following is the case study from the most popular journal AFP. June, aged 83 has a history of lethargy, itch and anorexia. She has existing issues of type 2 diabetes mellitus complicated by diabetic retinopathy and neuropathy, hypertension, osteoarthritis. June is under the medication of metformin 2 g/day, candesartan 16 mg/day, , rosuvastatin 5 mg/day, amlodipine 10 mg/day, glucosamine and paracetamol . Her lying and standing blood pressure are 155/88 at and 135/82 respectively, associated with occasional symptoms of dizziness. Investigations reveal June's serum creatinine at an elevated level of 210  $\mu\text{mol/L}$  and eGFR at a reduced level of 18 mL/min/1.73 m<sup>2</sup>. She has macroalbuminuria with urinary ACR at 52

mg/mmol. Other haematologic and biochemical investigations reveal the level of haemoglobin at 92 g/L, HbA1c at 7.1 percent, urea at 18 mmol/L, potassium at 5.9 mmol/L, calcium at 2.15 mmol/L and phosphate at 1.90 mmol/L and. Before six months, June's eGFR was 22 mL/min/1.73 m<sup>2</sup>. In this case study, after examining the patient's history haematologic investigations, we can conclude that the patient is likely to have chronic kidney disease with macroalbuminuria because of to a longstanding history of hypertension and diabetes mellitus. June is at the risk of falls due to significant comorbidities. It is also evident that the lower baseline systolic blood pressure in persons over 75 years of age associates with an increase in the mortality and cardiovascular hospitalizations. The symptoms experienced by June suggest the possibility of advanced chronic kidney disease, hyperphosphataemia and anemia. Phosphate-binding therapy and evening primrose oil help in ameliorating pruritis. The patient should no more use Metformin as her eGFR is lesser than 30 mL/min/1.73 m<sup>2</sup> and June is at an increased risk of lactic acidosis. A renal specialist with a multidisciplinary team may discuss the further opportunities of June in terms of advanced care directives and symptom management. June will benefit to a great extent from erythropoietin replacement therapy.

## **Works Cited**

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