

# Intricacies of Renal Diseases and Their Impact on Human Health

Daniel Owen\*

Department of Nephrology, Temple University, Philadelphia, USA

**Corresponding author:** Daniel Owen, Department of Nephrology, Temple University, Philadelphia, USA, E-mail: owendaniel@te.ph.edu

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## Description

Renal diseases, also known as kidney diseases, surround a wide range of conditions that affect the kidneys' ability to function properly. These diseases can disrupt the body's balance of fluids, electrolytes and waste products, which are critical to maintaining overall health. With the kidneys playing a vital role in filtering the blood and removing toxins through urine, any impairment can lead to serious health complications. Renal diseases can vary in severity, ranging from mild functional impairment to complete kidney failure, requiring dialysis or transplantation. Understanding the causes, types and management of renal diseases is essential for reducing their burden and improving patient outcomes. Renal diseases are broadly classified into Acute Kidney Injury (AKI) and Chronic Kidney Disease (CKD). Each category has distinct characteristics, causes and treatment approaches. Several factors can contribute to the development of renal diseases, with diabetes and hypertension being the most prevalent. Other causes include glomerulonephritis (inflammation of the kidney's filtering units), polycystic kidney disease (a genetic disorder causing cysts to form in the kidneys) and prolonged use of nephrotoxic drugs (such as certain painkillers or antibiotics). Infections, autoimmune diseases like lupus and urinary tract obstructions are also significant contributors. Lifestyle factors such as poor diet, lack of physical activity and smoking increase the risk of developing CKD. Additionally, a family history of kidney disease can predispose individuals to renal problems. Early detection through regular health check-ups is vital for preventing or slowing the progression of renal diseases, especially in high-risk populations.

## Renal diseases

Renal diseases often go undetected in their early stages because symptoms may be attributed to other conditions. As kidney function deteriorates, more noticeable signs emerge, including: As waste products build up in the blood, the body's energy levels drop, leading to constant fatigue. The kidneys' inability to remove excess fluid results in swelling, particularly in the legs, ankles and around the eyes. Changes in urine frequency,

color and volume, along with foamy urine, can signal kidney dysfunction. Fluid accumulation in the lungs or anemia (a common complication of kidney disease) can cause breathing difficulties. Kidney disease and high blood pressure often go hand in hand, creating a vicious cycle of worsening kidney damage. Early diagnosis of renal diseases is critical for effective management and preventing progression. Common diagnostic tools include blood tests and imaging studies like ultrasound or CT scans to assess kidney structure. Estimated Glomerular Filtration Rate (eGFR) is a key marker used to evaluate kidney function and determine the stage of CKD. For patients at risk of CKD, regular monitoring of kidney function is important to catch any early signs of deterioration. In patients with known kidney disease, close follow-up helps in adjusting treatments to slow progression and mitigate complications.

## Kidney transplantation

Treatment of renal diseases varies depending on the underlying cause and the severity of kidney damage. For AKI, the focus is on resolving the acute condition, often requiring hospitalization and interventions like fluid management, medications, or dialysis in severe cases. CKD management involves controlling blood pressure and blood sugar levels, reducing proteinuria (protein in the urine) and preventing further kidney damage through lifestyle changes, medications and dietary modifications. As CKD progresses to ESRD, patients may require renal replacement therapy. Dialysis, which can be done through hemodialysis or peritoneal dialysis, helps filter the blood when the kidneys can no longer perform this function. Kidney transplantation is another option for eligible patients, offering improved quality of life compared to long-term dialysis. Preventing renal diseases is possible by addressing modifiable risk factors. Maintaining a healthy diet rich in fruits, vegetables and low-sodium foods, staying physically active, controlling blood pressure and managing diabetes are key preventive measures. Avoiding excessive use of nephrotoxic medications and staying hydrated also support kidney health. For individuals with a family history of kidney disease, regular screening and early intervention are essential.