

# Advances in Nephrology: Understanding Chronic Kidney Disease and Emerging Treatments

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**Abstract:** *Chronic Kidney Disease (CKD) is a progressive condition characterized by a gradual decline in kidney function over time, typically defined by a reduced glomerular filtration rate (GFR) or evidence of kidney damage lasting for at least three months. CKD can result from a variety of causes, including diabetes, hypertension, glomerulonephritis, and polycystic kidney disease, among others. Early stages of CKD are often asymptomatic, making early detection and management critical for slowing progression. As kidney function declines, complications such as electrolyte imbalances, anemia, bone mineral disorders, and cardiovascular disease commonly arise. The management of CKD focuses on controlling underlying conditions, slowing progression through lifestyle modifications, pharmacologic therapies (e.g., ACE inhibitors, angiotensin receptor blockers), and addressing complications. In end-stage renal disease (ESRD), dialysis or kidney transplantation becomes necessary. The increasing global prevalence of CKD presents a major public health challenge, with a significant impact on healthcare systems and quality of life. Early intervention and a multidisciplinary approach to care are essential to improving outcomes for individuals with CKD.*

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