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Benefits VS. Risks of Potassium Intake in Chronic Kidney Disease

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As severe hyperkalemia is relatively common in patients with chronic kidney disease (CKD), especially among those with end-stage kidney disease, and may lead to fatal cardiac events, potassium intake in this population has long been strictly restricted. However, the evidence for the dietary potassium restriction to improve CKD outcomes is actually lacking. The fundamental cause of hyperkalemic tendency in CKD is attributed to the role of the kidney as a major route of potassium excretion, which accounts for about 90% of daily potassium intake. Various potassium channels in the renal tubules, Kir 4.1, ROMK, and BK, are involved in potassium excretion as well as sodium retention in a sophisticated manner. It is well-known that, in most cases, potassium loading blocks NCC phosphorylation in distal nephrons to prevent sodium retention, contributing to BP lowering. Accordingly, the cardiovascular benefits of potassium-rich diets have been proven by a series of clinical trials. Although high potassium diet in patients with reduced estimated glomerular filtration rate may increase the risk of hyperkalemia, the correlation between dietary potassium loading and serum levels are not always proportional. Rather, numerous factors are known to modulate the change of the serum potassium levels after dietary intake of potassium. Moreover, recent studies have demonstrated that high potassium diet may be beneficial for kidney and cardiovascular outcomes even in patients with CKD. In conclusion, current evidence indicate that dietary potassium intake should not be universally restricted among the patients with CKD, and that, should be rather individualized under carefully monitoring of serum potassium levels.