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Promoting Sustainable Kidney Health: The Asia-Pacific and Beyond

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Sodium Intake and Chronic Kidney Disease: The Lower the Better?

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Chronic kidney disease (CKD) poses significant health challenges globally, with sodium intake emerging as a critical factor influencing disease progression and clinical outcomes. In this presentation, we delve into the intricate relationship between sodium consumption and CKD, aiming to shed light on the potential benefits of reducing sodium intake for individuals with CKD. For sodium chloride–dependent health problems, two aspects deserve consideration: (1) the effects of sodium chloride on blood pressure (BP) and (2) BP-independent target-organ damage. Skin could work as a reservoir of sodium, escaping from renal control. In particular, high salt intake might cause sodium accumulation in the skin, which is detected by mononuclear phagocyte system located in the skin interstitium, which act as osmoreceptors by expression of tonicity-responsive enhancer binding protein. This transcription factor leads to vascular endothelial growth factor production that increases sodium clearance by the lymphatic network. High sodium intake has deleterious effects on blood pressure, cardiovascular health, kidney function, and chronic kidney disease (CKD) progression. In non-dialysis CKD patients, low salt diet is beneficial for hypertension control, irrespective of BP levels, to lower proteinuria. In order to achieve the world health organization-recommended daily sodium intake of less than 2 g, it is realistic to first establish a step-by-step goal of reducing salt intake by 25-30% based on the baseline salt intake. For dietary sodium evaluation, non-consecutive 24hr urine sodium excretion is the gold standard, and several formulas from spot urine can be used, but the accuracy may be low, so this should be considered in clinical application. In the case of patients with underlying disease, too low urine sodium may be associated with malnutrition, so this may need to be reviewed. Therefore, healthcare professionals should prioritize individualized sodium reduction strategies tailored to each patient to maximize efficacy and improve overall outcomes in CKD.

Keywords: sodium, blood pressure, CKD