Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care
KSN 2026 SEOUL, KOREA
The 46th Annual Meeting of the Korean Society of Nephrology
THE KOREAN SOCIETY OF NEPHROLOGY
Jun 11 (Thu) – 14 (Sun), 2026
COEX, Seoul, Korea

Lecture Code : KCS01-S4
Session Name : KSN Cooperative Study
Session Topic : KSN Cooperative Study
Date & Time, Place : June 11 (Thu) / 10:30-12:00 / Room 5 (205), 2F

Development of a Model for Estimating 24-Hour Urinary Sodium Excretion Using Spot Urine Samples in Korean Patients with CKD: The K-SALT Study

한국인 만성콩팥병 환자의 단회 소변을 이용한 24 시간 소변 소듐 배설량 추정 모델 개발: K-SALT 연구

Ji Yong Jung

Gachon University Gil Medical Center, Republic of Korea

Excess dietary sodium intake is a well-established risk factor for hypertension, cardiovascular disease, and the progression of chronic kidney disease (CKD). In patients with CKD, sodium restriction is a key component of non-pharmacological management, as it reduces fluid overload, improves blood pressure control, and attenuates kidney function decline. Accordingly, international guidelines, including those from Kidney Disease: Improving Global Outcomes (KDIGO), recommend limiting sodium intake to less than 2 g/day (approximately 5 g/day of salt). Despite these recommendations, maintaining a low-sodium diet remains difficult in real-world practice due to cultural and dietary habits, particularly in Korea, where traditional diets are rich in salted and fermented foods such as kimchi and soy-based sauces. Assessment of sodium intake is therefore critical but methodologically challenging. Although 24-hour urinary sodium (24hUNa) excretion is regarded as the gold standard, its use is limited by the burden of urine collection and the risk of incomplete or inaccurate sampling. To address these limitations, several equations based on spot urine samples—such as the Kawasaki, Tanaka, INTERSALT, and Nerbass formulas—have been developed. However, these models have important limitations in terms of accuracy and generalizability, especially when applied to Korean patients with CKD. Differences in dietary patterns, body composition, and kidney function, as well as altered renal handling of sodium and creatinine in CKD, may substantially reduce the predictive performance of equations derived from non-Korean or non-CKD populations. Recognizing these gaps, the Korean Society of Nephrology (KSN)

Social Contribution Committee initiated a structured, multicenter project incorporating major hospitals across diverse administrative regions of Korea to ensure broad geographic representation. Within this framework, we conducted the Korean Sodium Assessment Tool (K-SALT) study to develop and validate a population-specific equation for estimating 24hUNa excretion using spot urine samples in Korean patients with CKD. The K-SALT equation was derived using this regionally representative multicenter cohort and incorporates eight routinely available clinical and laboratory variables: age, sex, height, weight, spot urine sodium, spot urine potassium, spot urine creatinine, and serum creatinine. In both internal and external validation cohorts, the K-SALT equation demonstrated superior reliability and explanatory power compared with conventional equations. Importantly, while such equations may have inherent limitations in precisely matching absolute 24hUNa values at the individual level, they are particularly useful for capturing longitudinal changes in sodium intake within individuals over time. In this context, the K-SALT equation provides a practical tool for monitoring trends in dietary sodium exposure and supporting dynamic, individualized sodium management. By reflecting the geographic, dietary, and clinical diversity of Korean patients with CKD, the K-SALT equation offers a more applicable approach to sodium assessment in routine practice. This strategy not only enhances individualized dietary counseling but also facilitates more effective and sustainable implementation of sodium restriction in CKD management.

Keywords: CKD, sodium intake, 24-hour urinary sodium, spot uine assessment, K-SALT equation