

KSN 2016 Abstract Submission

Clinical Nephrology

KSN2016ABS-1337

Sodium intake, blood pressure, and obesity in elderly population

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Background: Sodium intake is associated with hypertension (HTN), cardiovascular disease, and obesity. Current guidelines recommend limiting sodium 2.3 g a day in the general population. However, elderly population is susceptible to malnutrition due to inadequate calorie intake. In addition, population with low sodium intake showed higher mortality in a recent study. We analyzed the association between sodium intake and blood pressure, and obesity measures in the elderly population.

Methods: An observational study of 18,146 adults in the Korea National Health and Nutrition Examination Survey IV-V databases (2008-2011) was performed. Estimates of 24-hour sodium excretion were made from a single fasting urine sample.

Results: Sodium intake was the lowest in population aged 75 years and over (estimated mean, 3.85 (95% CI 3.72-3.98)). In population aged ≥ 75 years, the adjusted risk of HTN for the highest quartile of sodium intake was the highest (RR 2.270, 95% CI 1.515-3.400, $P < 0.001$) compared to the lowest quartile of sodium intake. And lower risks of HTN for the highest quartile of sodium intake was noted in population aged 20-39, 40-64, and 65-74 years compared to the lowest quartile of sodium intake : 1.179 (95% CI 0.951-1.460), 1.519 (95% CI 1.319-1.751), and 2.002 (1.576-2.542). However, the adjusted risk of obesity (BMI ≥ 25 kg/m²) for the highest quartile of sodium intake was the highest in population aged 20-39 years (RR, 2.086; 95% CI, 1.663-2.616), and lower risk showed in population aged 40-64 and 60-74 years: 1.764 (95% CI, 1.518-2.050), 1.517 (95% CI 1.174-1.960). In population aged ≥ 75 years, the risk of obesity for the highest quartile of sodium intake was not significant (RR, 1.450; 95% CI, 0.904-2.326). The population aged 20-39 years of the highest quartile of sodium intake showed the highest risks of hypertriglyceridemia and impaired fasting glucose compared to the lowest quartile of sodium intake, although population aged ≥ 75 years did not show a significant association. The positive association showed between sodium intake and body fat percent in population aged 20-39 and 40-64 years (p for trend < 0.001), in contrast, the associations were not significant in population aged 65-74 and ≥ 75 years.

Conclusion: The association between sodium intake and blood pressure is more significant in the elderly population. However, sodium intake was not significantly associated with obesity measures in very old age.

Keywords: elderly patient, hypertension, Obesity, sodium