Serum Sodium in Hypertension

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Abstract

High salt intake assessed by 24-hours urinary excretion of sodium is associated with increased blood pressure. Certain hypertensive subjects may have reduced renal excretion of sodium. Both factors might lead to a positive association between serum sodium and blood pressure. The present analysis was undertaken to test this hypothesis. Seven hundred and ninety-six individuals (331 females and 465 males) who presented for executive health check over 18 months from January 2004 were included in the study. Relationship between blood pressure and serum sodium was investigated using multivariable linear regression analysis including age, gender, body-mass index, and plasma glucose in the model. Systolic and diastolic pressures were significantly related to serum sodium in both men and women. Systolic pressure increased significantly (mean ± SD 130.1 ± 18.3 and 135.8 ± 19.8 mm Hg, P <0.005) with increasing levels of serum sodium (1st and 4th quartiles); similar increase was noted in diastolic pressure (80.0±10.3 and 84.1±10.8, P<0.005). Increase in serum sodium from 130 to140 mmol/L increased the systolic blood pressure by 5.7 mm of Hg (95% confidence interval 2.6-8.8 mm Hg). Corresponding increase in diastolic pressure was smaller (3.4, 95% confidence interval 1.6-5.2 mm Hg). Serum sodium and blood pressure are positively correlated in affluent subjects with high prevalence of life-style disorders including hypertension.

***Key words**:* blood pressure - body mass index - plasma glucose