Sodium Sensitivity of Blood Pressure: New Prognostic Factor for Renal and Cardiovascular Events

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Summary

It was examined whether the sodium sensitivity of blood pressure might be a new independent prognostic factor in essential hypertension.

One hundred and fifty-six patients with essential hypertension were placed on high (12 to 15 NaCl/day) and low (1 to 3 NaCl/day) sodium diets for 1 week each to determine sodium sensitivity, and then followed up for 7.3 ± 4.3 years. Patients whose mean arterial pressure (MAP) was lowered more than 10 % by sodium restriction were considered sodium sensitive (n=62; 52±10 years old), while the remaining non-sodium sensitive (n=94; 51±10 years).

Between both groups, there were no differences in age, diabetes and sex distributions, body mass index, serum cholesterol and creatinine concentrations or MAP. Left ventricular hypertrophy was recognized more frequently in sodium sensitive group, while current smoker in non-sodium sensitive group. During the follow-up period, cardiovascular events occurred in 14 cases (including 3 fatal events) in non-sodium sensitive group, while in 17 cases (5 fatal) in sodium sensitive group. Rate of cardiovascular morbid events per 100 patient-years was 2.0 in non-sodium sensitive group, while was 4.3 in sodium sensitive group. Cardiovascular morbid event-free survival curve was significantly worse in sodium sensitive group. Based on Cox's proportional hazards model, sodium sensitivity ($p<0.01$), MAP at discharge ($p<0.01$) and smoking ($p<0.01$) were identified as risk factors for cardiovascular morbidity, while contributions from other classical ones were not significant.

These results show that cardiovascular morbidity was higher in sodium sensitive type of essential hypertension than in the non-sodium sensitive type. Sodium sensitivity appeared to be a new and strong cardiovascular risk factor in essential hypertension independent of classical ones.