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Tracing the Causes of Salt-Insensitive Hypertension through the Dietary Habits and Genetic Polymorphisms—Epidemiologic Studies in "Saku-Cohort"

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Summary

In lots of studies and statistics, it is pointed that blood pressure rises substantially in response to excessive sodium intake. However, this response differs individually; for majority of the hypertensive people, who do not take much salt from food, decreasing dietary salt or even the diuretic treatment does not ameliorate their blood pressure. This salt-insensitivity seems to depend on heredity (mainly genetic polymorphisms), age, sex, obesity, renal defects, diabetic complications, stress and/or (dietary) habit, but the details remain unknown.

Here, we analysed hypertension gene polymorphisms (SNPs) in obese Japanese individuals and studied the correlation with hypertension and other metabolic syndromes. We recruited 235 subjects (BMI > 28.3) from individuals undergoing periodic medical check-up at Saku Central Hospital (called "Saku Control Obesity Program, SCOP"). We genotyped Angiotensinogen SNPs and 8 SNPs suggested by Ehret.GB et al. to be related to hypertension (ATP2B1_rs17249754, FL_rs633185, JAG1_rs1327235, CYP17A1_rs11191548, CYP1A1 _rs1378942, NPR3_rs1173771, FGF5_rs1458038, PLEKHA_rs381815) using PCR-RFLP method. Associations between these SNPs and clinical parameters were investigated, but significant remarks were scarcely found.

We searched after other factors related to hypertension in clinical parameters, dietary intakes and dietary habits. The association evidently differed between men and women. In women, age and obesity were significantly associated to both of systolic blood pressure (SBP) and diastolic B. P. (DBP). In men, alcoholic beverage intake was weakly associated to both of SBP and DBP. In addition, number of steps was weakly associated to SBP. And our research gave any positive results about the association of salt intake with hypertension. We need additional study to reconfirm these results.