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The Effects of Dietary Sodium Reduction and Diuretics on Salt-Sensitive  
Hypertensive Patients  
- A Possibility of Individualized Therapy based on G-Protein Coupled Receptor  
Kinase 4 Gene Polymorphisms -

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#### Summary

We have reported that GRK4 gene variants, R65L, A142V, and A486V, are associated with salt-sensitive hypertension in a Japanese population. In this report we studied patients with untreated essential hypertension without diabetes mellitus or chronic kidney disease.

The current study was designed to test the association between salt-sensitive hypertension [SS n = 46, 147 mmHg (138, 158), Age 58 years (40, 64), usual salt intake 12.6 g/day (8.2, 16.8)] and non-salt-sensitive hypertension [NSS n = 111, 146 mmHg (140, 160), Age 54 years (43, 64), usual salt intake 12.2 g/day (8.7, 16.8)] [median (min, max)] and response to dietary sodium restriction and diuretic treatment with indapamide (1 mg/day). Subjects with SS expressed 3 or more GRK4 gene variants. After 3 months of modest dietary sodium reduction, the median (min, max) systolic and diastolic blood pressure of subjects with SS was 140 mmHg (128, 158) [salt intake: 10.5 g/day (7.2, 14.8)], while the median (min, max) blood pressure of subjects with NSS was 144 mmHg (136, 160) [salt intake: 9.8 g/day (7.0, 14.6)] ( $P < 0.001$ , SS vs NSS, ANOVA, Holm-Sidak test). After 3 months of indapamide therapy, the median blood pressure of subjects with SS was 132 mmHg (122, 146), while the median blood pressure of subjects with NSS was 138 mmHg (128, 150) ( $P < 0.001$ , SS vs NSS, ANOVA, Holm-Sidak test).

We conclude that the determination of GRK4 gene variants may be important in predicting the response to modest dietary sodium reduction and diuretic therapy for hypertension.