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Salt Intake, Cardiac Renal/ Vascular Endothelial Function and Neurohumoral Factors in Heart Failure Patients: Therapeutic Effect and Prognosis

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Summary

The natriuretic peptides (NPs) are not only useful biomarkers for HF, but are properties of diuretics, organ protection and improvement of salt and water retention in HF. Salt restriction is an important treatment in hypertension and is considered to be important for HF as well, but no evidence has been established in HF. Also, some patients are ineffective by the drugs of acute HF, but it is still unknown whether any external factors such as salt intake or ambient temperature play roles in prognosis of HF. Therefore, we thought to determine the relationship between the salt intake and various factors such as cardiorenal/endothelial functions and ambient temperature, and prognosis in patients with chronic HF during outpatient visits. Additionally, for acute HF patients, we sought to define if the effect of atrial NP compared to the vasopressin receptor antagonists were affected by salt intake, and cardiorenal/endothelial functions. Regarding to the prospective studies of chronic HF and acute HF, the enrollments and data collections are on-going. We also examined retrospectively on 110 chronic HF patients (43 males, age 84 (median)). Most of patients had preserved ejection fraction, atrial fibrillation and valvular disease. As for salt intake, only 10 people were measured, but an average was 10.9 g / day. BNP was significantly positively correlated with temperature difference of the day, and renal function according to eGFR was negatively correlated to each temperature of the day. Then we divided into two groups by the median value of eGFR (46 ml/min). In the group with worsening renal function (WRF), BNP had positively correlated with each temperature and the temperature difference. There were no deaths during the follow-up period (median 399 days). There was no difference in hospitalization for HF between two groups by eGFR, but additional HF medication was provided more in WRF group. These results suggest that HF may be worsened when the temperature difference is large or in winter especially in patients with renal failure. It may be interesting and important how salt intake and vascular endothelial function would be related to these findings and HF therapeutics in the current on-going prospective study.