Clinical features and long-term prognosis of patients with congestive heart failure taking tolvaptan: a comparison between preserved and reduced left ventricular ejection fraction

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Background: There were few reports which investigated the clinical benefit of long-term use of tolvaptan (TLV) for heart failure (HF). The purpose of this study was to evaluate the long-term prognosis of patients administrated TLV for more than 1 year in the HF patients with preserved ejection fraction (HFpEF) and reduced ejection fraction (HFrEF).

Method: In a total of 591 consecutive patients who were admitted to our hospital and administered TLV for HF between 2011 and 2018, we retrospectively enrolled 147 patients who were administered TLV for more than 1 year. The patients were classified into 2 groups, the HFpEF group (n=77, 52.4%) and the HFrEF group (n=70, 47.6%), and clinical backgrounds and long-term prognosis were examined. Furthermore, we performed stratified analysis based on the response to TLV defined by urine osmolality (The responder group n=40, the non-responder group n=52).

Results: The HFpEF group was significantly older (77.7±9.2 vs. 71.3±11.5 years, $P<0.01$) and included more female (41.6 vs. 21.4%, $P<0.01$) compared with the HFrEF group. Other baseline characteristics were not different between the two groups. During the average 2.7 years follow up, the HFpEF group showed significantly lower all-cause mortality and cardiovascular mortality compared to the HFrEF group (24.7 vs. 38.6%, Log-Rank P=0.014, 13.0 vs. 25.7%, Log-Rank P=0.007, respectively). Univariate analysis revealed that male, HFpEF, serum creatinine changes from baseline (△Cre) were the factors correlated with all-cause mortality (HR 2.12, 95% CI 1.02 – 4.40, P=0.045, HR 0.48, 95% CI 0.26 - 0.87, P=0.016 and HR 1.50, 95% CI 1.00 - 2.24, P=0.049, respectively). According to multivariate analysis, HFpEF was the independent influencing factor of all-cause mortality (HR 0.44, 95% CI 0.23 - 0.86, P=0.017). Stratified analysis revealed that in the non-responder group all-cause mortality was significantly lower in the HFpEF group than in the HFrEF group (24.2% vs 48.3%, P=0.049).

Conclusion: Long-term administration of TLV maybe more beneficial for HFpEF compared with HFrEF. This tendency was remarkable at non-responder group.