Impact of sacubitril/valsartan on reverse cardiac remodeling in Taiwan population

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Background: Sacubitril/valsartan is an angiotensin receptor and neprilysin inhibitor (ARNI), which benefits the patients with heart failure and reduced ejection fraction (HFrEF). The literature of ARNI impact on cardiac remodelling for Asian is sparse.

Purpose: The objective of this study is to use echocardiography to evaluate the effect of ARNI on the cardiac remodelling of the HFrEF patients using echocardiography in Taiwan population.

Methods: We performed a retrospective study of 136 HFrEF patients using ARNI during the period from 1 November 2016 to 30 November 2017. Data including clinical characteristic, comorbidity, medications, renal function, NT-pro B-type Natriuretic Peptide (NT-BNP) and New York Heart Association (NYHA) functional class of the patients were collected. Besides, we analysed the relevant echocardiography parameters of left ventricle (LV) and right ventricle (RV), which indicating cardiac remodelling before and six months after using ARNI.

Results: A total of 136 patients with HFrEF were analysed in the given period. The study population mean age was 69.6 ± 11.6 years and men made up 82% of them. NYHA class II, III and IV constituted 21.3%, 67.6%, and 11.1%, respectively. LV ejection fraction (LVEF) significantly increased (34.7% vs 41.8%, p<0.001) and LV mass index (LVMI) reduced obviously (100.7g/m2 vs 74.3g/m2, p<0.001) after six months of ARNI therapy. Parameters indicated the systolic function of LV also showed noticeable improvement, including LV internal diameter end-systole (LVIDs, 5.37cm vs 4.99cm, p<0.001), LV end-systolic diameter (LVESD, 5.31cm vs 4.98cm, p<0.001), LV end-systolic volume (LVESV, 157.7ml vs 122.7ml, p=0.011). The size of left atrium was also found to have reduced (4.43cm vs 4.23cm, p=0.014). However, LV end-diastolic volume (LVEDV), LV end-diastolic diameter (LVEDD), E/A ratio and RV S’ have no statistical difference after six months. Conclusions: The HFrEF population treated with ARNI have statistically significant improvement in LA size, LVEF, LVMI, LVIDS, LVESD, and LVESV after six months. This result emphasised the effectiveness of ARNI on LV reverse remodelling process in the Asian population. However, larger cohort studies are needed to confirm the results and to ensure the role of ARNI in the management of patients with heart failure.