The combined effect of Sacubitril-valsartan treatment on right ventricular function and cardiorespiratory response in patients with chronic heart failure.

Authors:
C Chrysohoou1, I Terzis1, M Xanthopoulou1, E Tzorvili1, C Konstantinou1, E Solomou1, N Magkas1, CK Antoniou1, P Xydis1, P Dilaveris1, D Tousoulis1, 1rst Cardiology Clinic University of Athens - Athens - Greece.

Topic(s):
Heart Failure with Reduced Ejection Fraction

Cardiorespiratory response, right ventricular and global diastolic function is known to deteriorate the clinical course of patients with chronic heart failure with reduced ejection fraction (HFrEF), even under optimal treatment. In this work we sought to evaluate the impact of sacubitril/valsartan initiation in patients with chronic HFrEF in NYHA clinical status II-III, under optimal medical and invasive treatment. Methods 180 patients (85% male, mean age 62+/-9 years old, 60% ischemic heart failure, 73% with ICD, 45%with CRT and 45% with diabetes mellitus) in NYHA classification II-III-, who were prescribed Sacubitril-Valsartan were evaluated. Clinical status, biochemical parameters, cardiorespiratory exercise response and bi-ventricular Doppler indices were evaluated at first visit and 6 months after. The pulsed tissue Doppler imaging of the systolic and diastolic function of mitral and tricuspid annulus was characterized by the systolic waves Smv and Stv, and the diastolic waves: Emv and Amv; E was the early filling wave in transmitral velocity. Left atrial maximal volume and global longitudinal strain of the left ventricle (GLPS) were measured. In cardiorespiratory exercise Vo2max, VE/VCO2 and Mets achieved were evaluated. All of them received b-blockers, 90% eplerenone or spironolactone, 25% ivabradine and 90% diuretic treatment. Seventy percent of them started with the dose of 50mg of sacubitril/valsartan; while 80% finally received the full dose of 200 mg bid. One third of them were on clinical status NYHA III. Results. Eight of the patients discontinued the medication due to hypotension or renal function worsening. All patients expressed improvement in clinical status; while diuretic therapy was down titrated in all of them and discontinued in 30%. As compared with the initial examination, tricuspid annulus systolic wave velocity increased by 5% (p=0.04); maximum volume of left atrium was decreased by 6% (p=0.004); GLPS average was improved by 41% (p=0.001) and E/Emv ratio was decreased by 22% (p=0.04). Moreover, improvement in Stv was more prominent in DCM as compared to IHF patients; In cardio respiratory exercise VE/VCO2 decreased by 5% (p=0.05); while VO2 max showed a trend in improvement (p=0.06), with no difference detected between DCM and ICM patients; although there was a significant increase (47%) in METS achieved (p=0.02).

Conclusion. Sacubitril/valsartan initiation was associated with improved left diastolic function and right ventricular function, along with functional status improvement in patients with HFrEF. These finding underline the beneficial role of sacubitril/valsartan initiation on the hemodynamic course of patients with systolic heart failure and clinical status deterioration.