

Carvedilol corrects Interventricular And Intraventricular Dyssynchrony in Chronic Heart Failure.

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Carvedilol an adrenergic antagonist, improves left ventricular (LV) remodeling and reduces morbidity and mortality in chronic heart failure (HF) patients. These salutary effects could be related to restoration of cardiac synchrony.

Objective: To evaluate the effects of carvedilol on cardiac contractile synchrony in patients with HF and LV systolic dysfunction.

Methods: 31 patients with stable HF, NYHA class II-III, LVEF <40%, under usual treatment, except by β -blockers or pacemaker were included. Multigate equilibrium blood pool scintigraphy was used to measure interventricular and intraventricular synchrony and LVEF at baseline and after 6 months of carvedilol. Phase image analysis was applied to the scintigraphic data and mean phase angles computed for the right and LV. Interventricular synchrony was calculated as the difference between the mean phase angle of each ventricle and the intraventricular synchrony using the standard deviation of the phase angles.

Results: Mean age was 55 ± 13 years, 22 (71%) male, 11 (35%) patients had ischemic etiology and 9 (29%) LBBB. After 6 months of therapy with carvedilol (maintenance mean dose = 25 mg, range 6.25 to 50 mg per day), there was an improvement in functional class and in the 6-min-walk-distance (499 ± 18 to 534 ± 17 meters, $p=0.032$). The LVEF increased from 24 ± 8.3 to 31 ± 11.3 ($p < 0.001$). Patients with the worst synchrony under 50th percentile at baseline improved after treatment: intraventricular (113 ± 7 vs. 94 ± 10 msec, $p=0.02$) and interventricular (62.8 ± 7 vs. 39.4 ± 9 msec, $p=0.02$). The patients with non-ischemic etiology had a significant improvement in both intraventricular (103.8 ± 7 vs. 78.3 ± 12 msec, $p=0.04$) and interventricular synchrony (68.1 ± 9 vs. 35.3 ± 12 msec, $p=0.02$). Patients without LBBB improved the intraventricular synchrony (112.1 ± 8 vs. 88.5 ± 11.2 msec, $p=0.01$). No significant changes were observed in patients with ischemic etiology or LBBB.

Conclusion: Carvedilol in patients with heart failure and LV dysfunction improves interventricular and intraventricular contractile synchrony. These findings could be related to favourable effects in cardiac remodeling.

Fondecyt 1010992 and FONDAP 1501006