EFFECTIVENESS OF CARDIAC RESYNCHRONIZATION THERAPY IN NON-LEFT BUNDLE BRANCH BLOCK MORPHOLOGIES

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Introduction: Strong evidence suggests that cardiac resynchronization therapy (CRT) reduces mortality and hospitalization, improves cardiac function and structure in symptomatic chronic heart failure (HF) patients with severely depressed left ventricular ejection fraction (LVEF) and complete left bundle branch block (LBBB). The evidence of benefit in patients with non-LBBB configuration is weak, particularly in patients with QRS <150 ms. We aimed to describe our population of CRT patients with non-LBBB and to determine their outcomes.

Methods: We evaluated 19 consecutive non-LBBB patients submitted to CRT in a single centre. Clinical features and echocardiographic findings were analysed at baseline and 6 months after CRT. An improvement of ≥1 in NYHA functional class was defined as clinical responders. An improvement of ≥25% in LVEF identified echocardiographic responders. The long-term outcomes were assessed by the combined endpoint of all-cause mortality, HF hospitalization or heart transplant.

Results: Mean age at CRT implantation was 61 ± 15 years, with a male predominance (n=14, 73.7%) and a mean LVEF of 29.4 ± 7.1%. The most common HF aetiology was ischaemic (n=9, 47.4%), followed by idiopathic cardiomyopathy (n=8, 42.1%). QRS morphology was heterogeneous with the following: left anterior hemiblock (n=4, 21.1%); right bundle branch block (n=7, 36.8% - 3 pts also with left anterior hemiblock and long PQ interval, 2 pts also with left anterior hemiblock); nonspecific abnormalities (n=7, 42.1%). QRS median duration was 144.5 ms (IQR 122.5–157.5 ms), with 43.8% of patients having a QRS ≥150 ms. The proportion of clinical responders was 78.9%, while of echocardiographic responders was only 14.3%. A significant percentage (58.3%) of clinical responders had a QRS duration < 150 ms.

The incidence of the combined endpoint of all-cause mortality, HF hospitalization or heart transplant was 47.4%. The subgroup of event-free patients had a higher proportion of clinical responders (100.0% vs. 55.0%, p=0.03) and no difference in echocardiographic responders (28.6% vs. 0.0%, p=0.46).

Conclusions: In this small non-LBBB HF sample, there was a good clinical response after CRT implantation, although with a low effect on reverse remodelling comparing with the results of LBBB patients. Therefore, the use of CRT in non-LBBB patients is still a challenging ongoing debate.