

AUTONOMIC AND BAROREFLEX FUNCTION IN HEART FAILURE PATIENTS CANDIDATE TO CARDIAC RESYNCHRONIZATION THERAPY

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Introduction: Cardiac resynchronization therapy (CRT) has shown several benefits in the treatment of selected patients (P) with chronic heart failure (HF). Although the mechanisms underlying the response to CRT are still not clear, the autonomic nervous system seems to play a role on the reverse remodeling phenomena, as heart rate variability (HRV) improves after CRT. However, there is lack of data regarding the arterial baroreflex (a well-established independent prognostic marker in HF) in candidates to CRT.

Aim: to assess arterial baroreflex function in P with HF referred for CRT.

Methods: HF P with indication for CRT (sinus rhythm, NYHA class II-IV; LVEF<35%; QRS>120ms) were included in this clinical prospective study. P with atrial fibrillation, AV block II-III, frequent ectopies and those with atrial pacing were excluded. An orthostatic tilt test (700) was performed to assess HRV and to measure baroreflex sensitivity (BRS) and the baroreflex effectiveness index (BEI) through the sequence method. The study population consisted of 21P (65±10 years, NYHA functional class ≥III in 11P, LVEF of 29±5%, mean brain natriuretic peptide of 322±236 pg/ml and a peak VO₂ of 18.5±4.9 ml/kg/min). This group was compared with 14 healthy individuals age matched.

Results: HF patients showed a depressed BEI when compared with the control group (29.5±11.7% vs. 47.5±17.2%, p=0.001). BRS was not significantly lower (p=0.1). Within the HF population group, a reduced BEI was associated with a lower LVEF (p=0.015) and with a lower peak VO₂ (p=0.019), while a reduced BRS was associated only with a lower LVEF (p=0.05). By applying a cut-off value for the BEI, 2 clusters of P with varying degrees of HF severity were found: Cluster 1 (BEI>30%) - LVEF >30%, BNP <190 pg/ml, peak VO₂ >20.3ml/kg/min; Cluster 2 (BEI≤30%) - LVEF <28%, BNP >593 pg/ml, peak VO₂ <16.6ml/kg/min. When using BRS values to stratify the HF group, the same clusters were found.

Conclusion: HF P who are candidates for CRT show depressed arterial baroreflex function, with lower baroreflex function being associated with poorer clinical parameters (LVEF, BNP and peak VO₂). Therefore, BEI and BRS may contribute to improve risk stratification in HF, which can have an

important impact in clinical management.