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Identification of responders to CRT by stress echo: no contractile reserve, no party
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Background: Cardiac resynchronization therapy (CRT) is increasingly used, but the identification of "responders" remains challenging.

Aim: to assess the value of inotropic reserve during pharmacological echo stress to identify responders.

Materials and methods: We enrolled 32 patients (age 69 ± 9 years; 9 females) referred to CRT, all with LV ejection fraction (LVEF) $\leq 35\%$, NYHA \geq IIb and QRS duration ≥ 130 milliseconds. Twenty-two patients showed echocardiographic criteria for dyssynchrony (at least one of M-mode, Tissue Doppler, or live 3D echo criteria). All patients underwent pharmacological stress echo (dobutamine, up to 40 mcg/Kg/min in 29, dipyridamole 0.84 mg/kg 10 min, in 3). Patients were considered with contractile response if variation of WMSI (from 1=normal, to 4=dyskinetic, 17 segment model of left ventricle) stress-rest (Δ WMSI) was ≥ 0.20 . "Responders" to CRT were defined at 6 months follow-up as survivors with NYHA class improvement ≥ 1 grade and without new hospital admission for acute heart failure.

Results: In the follow-up (median=20 months), 16 patients were responders to CRT (Group I) and 16 non-responders (Group II). Responders showed a wider QRS (I= 162 ± 25 vs. II= 142 ± 27 msec; $p=.044$) and a greater Δ WMSI (I= 0.34 ± 0.25 vs. II= 0.15 ± 0.18 ; $p=.021$). At individual patient analysis, inotropic reserve was more often associated with a favourable clinical outcome (see figure) whereas dyssynchrony criteria by echocardiography were equally present in the two groups (I=12/16 vs. II=10/16, $p=ns$). In the follow-up there were 5 deaths, all in group II.

Conclusion: Patients with contractile reserve during stress echo show a favourable clinical response to CRT. This parameter shifts the focus from electrical (dyssynchrony) to the myocardial substrate of functional response: no muscle, no party!

