MicroPort®

Hemodynamic Device-based Optimization in Cardiac Resynchronization Therapy: Concordance with Systematic Echocardiographic Assessment of AV and VV Intervals

Oliveira M, Branco L, Galrinho A, da Silva N, Cunha PS, Valente B, Feliciano J, Pimenta R, Delgado AS, Ferreira RC. Hemodynamic device-based optimization in cardiac resynchronization therapy: concordance with systematic echocardiographic assessment of AV and VV intervals. Research Reports in Clinical Cardiology. 2015;6:97-103 https://doi.org/10.2147/RRCC.S82540

Background & objectives

→ Cardiac resynchronization therapy (CRT) has demonstrated significant clinical benefits and left ventricular (LV) reverse remodeling in selected patients with heart failure (HF), severe LV dysfunction, and a wide QRS complex.

→ Inappropriate settings of atrioventricular (AV) and ventricular-ventricular (VV) intervals can be one of the factors impacting response to CRT.

Objective: To investigate the optimal concordance of AV and VV intervals between echocardiographic-based assessment and device-based **automatic programming with a hemodynamic sensor**, **SonR®**, together with left ventricle (LV) reverse remodeling after 6 months of regular automatic device-based optimization

Methodology

17 patients enrolled

- NYHA class III
- 76% with NIDCM
- LVEF 35%
- QRS ≥130 ms
- LV dyssynchrony

30 echos

- Conventional echo
- TSI
- TDI
- Radial strain
- 3D echo

Results

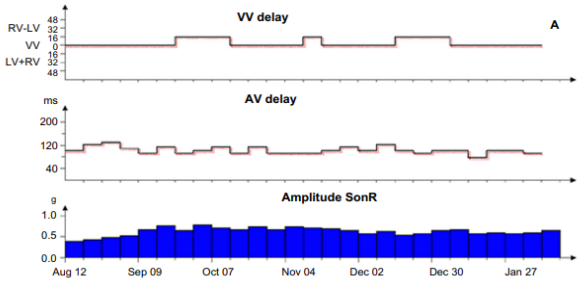
76.5% responders with **LV reverse remodeling** - of those **69.2%** were **super-responders**[1]

ECHO DATA			
Parameters	**Pre-implant**	**First month**	**Sixth month**
LVEF (%) *P<0.01*	25.5±7.9	38.8±11.9	37.9±12.0
LVEDV (mL) *P<0.05*	209.2±47.9	192.5±74.5	169.5±67.5
LVESV (mL) *P<0.05*	158.6±43.8	125.8±67.4	123.8±62.9

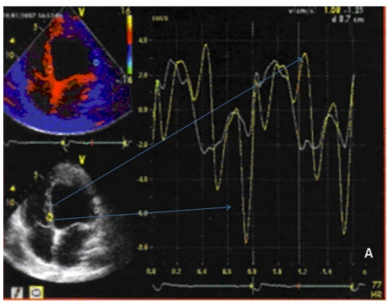
1. *Patients with a final LVEF of >40% and an LVEF improvement of ≥20% above baseline*

80% of Patients with **NO AV/VV dyssynchrony at 6 months**

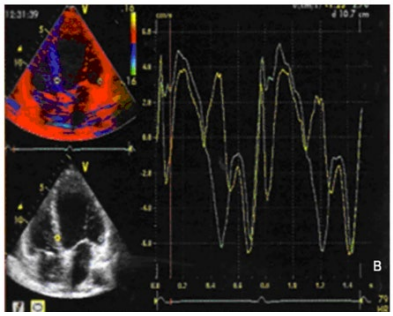
View of hemodynamic sensor amplitude profile and automatic programming of AV + VV intervals during the first 6 months after CRT implant in a super-responder patient (73 years old, ischemic cardiomyopathy, **baseline LVEF 34%, 6-months LVEF 55%**).



(**A**) Pre-CRT septal delay



(**B**) Post **SonR®** optimization **with synchrony improvement**



Conclusion

→ **80% concordance** between **echocardiographic** methods and **SonR®** optimization was found in most examinations post-CRT.

→ After 6 months of systematic optimization with **SonR®** patients showed a statistically significant **increase in LVEF**, with a **high rate of reverse remodeling.**