Abstract: **P492**

WiCS leadless CRT system implantation: determining optimal endocardial LV electrode position using pre-procedural strain echocardiography

Authors:
D Twomey [1], D Thomas [1], E Beaney [1], J Ainsworth [1], A Owens [1], AJ Turley [1], S James [1], [1]James Cook University Hospital, Division of Cardiothoracic Services - Middlesbrough - United Kingdom,

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Introduction
Endocardial LV pacing is a viable option for CRT where CS pacing is not possible. The WiCS LV system (EBR systems) is a leadless ultrasound-based electrode that can be implanted in any LV region. We report outcomes following the use of strain echocardiography to determine optimal implantation site.

Methods
Nine patients with symptomatic heart failure, prolonged QRS duration and failed CS lead placement (n=7), post-CS lead extraction (n=1) or CS atresia (n=1) were studied. Speckle-tracking strain echocardiography performed during RV pacing was used pre-procedurally to measure latest mechanical activation and determine optimal LV electrode placement. Strain echocardiography and functional status were assessed and compared at baseline and one month post-procedure. Five patients have also undergone 6-month assessment and are presented for numerical comparison only due to the limited size of the dataset.

Results
Electrodes were positioned at the site of latest mechanical activation in 8/9 patients (89%). QRS duration was reduced in all patients (181±20 vs 128±17ms, $p<0.0001$) and dP/dT increased significantly following implantation (1001±158 vs 1201±192mmHg/s, $p=0.01$).
At one month, NYHA grade improved in 7/9 patients (78%), and this was associated with significant improvements in 6MWT and QoL (table 1). Echocardiographic assessment demonstrated significant improvement in EF and reduction in LVESV. Global circumferential strain and strain dyssynchrony also significantly improved at 1 month. At 6 months (n=5), these symptomatic and echocardiographic improvements were sustained.

Conclusion
Endocardial leadless LV pacing is feasible and effective in patients with no option for CS pacing. Echocardiographic strain may have a potential role in determining optimal LV electrode placement; we demonstrated significant improvements in symptoms and dyssynchrony after 1 month, with sustained improvement at 6 months.

Parameter	Baseline	1 month	6 months (n=5)	p value (baseline vs 1 month)
6MWT (m)	265±89	297±115	338±74	0.04
QoL	48±19	32±24	18±10	0.002
Ejection fraction (%)	37±4	46±7	47±5	0.002
LVESV (ml)	73±17	56±8	48±8	<0.001
Global strain (%)	10.6±1.9	13.2±2.9	14.6±2.1	0.01
Strain dyssynchrony (ms)	126±70	58±42	54±28	0.001

Echocardiographic and functional parameters at baseline, 1 month and 6 months.