

## ABSTRACT

**Background:** Cardiac resynchronization therapy (CRT) is a well-established treatment in selected patients with drug-refractory heart failure. In order to improve the response rate of patients treated with CRT, imaging can provide information on mechanical dyssynchrony, viability, and cardiac venous anatomy. Two-dimensional speckle tracking imaging, a new echocardiographic method could be useful in assessing dyssynchrony and regional contractility.

**Aim of the work:** the aim of the present study was to evaluate the ability of longitudinal strain and strain rate imaging by two-dimensional speckle tracking to predict echocardiographic response under CRT.

**Subjects and Methods:** We studied 28 consecutive CRT patients with class II-IV heart failure, ejection fraction (EF)  $\leq 35\%$ , with LBBB and QRS with  $\geq 120$  ms or non LBBB with QRS  $\geq 150$  ms. baseline dyssynchrony was evaluated by speckle tracking longitudinal strain. Pre-specified outcome variables were EF response, reverse remodeling, 6 MWTs improvement and quality of life questionnaire in the following 3 months.

**Results:** After 3 month follow up patients one patient was excluded as he died before he completed 3 months follow up period then the pts were divided into 19 pts (70%) responders and 8 pts (29.6%) non-responders according reduction of LVESV by  $\geq 15\%$ . There was statistically significant difference between responders and non-responders for their baseline speckle-tracking longitudinal dyssynchrony predicted CRT response according to significant reduction in LVESV (reverse remodeling) as Bs-BI with cutoff value 135 ms and Ms-MI with cutoff value 125 ms showed high sensitivity and specificity 95% and 100 %

respectively for both respectively but Ba-Bi with cutoff value 135 ms showed lower sensitivity and specificity 85 % and 87.5 % respectively

**Conclusion:** The LV dyssynchrony assessed by speckle tracking using longitudinal strain was predictive to response to CRT

Key words: Heart Failure – CRT – speckle tracking