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Cardiac contractility modulation in patients with chronic heart failure and atrial fibrillation: 6 months of follow-up

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Background: Heart failure is developed in 30% of patients with atrial fibrillation (AF). It significantly worsens the prognosis and evaluates the fatal risks for patients. Cardiac Contractility Modulation (CCM) is a new therapeutic device for heart failure, which is used in patients with narrow QRS complexes who are refractory to medical therapy.

Purpose: The aim of current study is to demonstrate the effects of CCM on patients with heart failure and AF, influencing on NT-proBNP dynamics and 6 min walk test (6-MWT).

Methods: Fourty patients (40) with symptomatic heart failure (II-III NYHA class), persistent/paroxysmal AF and reduced left ventricular ejection fraction (LVEF ≤ 40%) were included. The average age was 60 ± 6 years. MeanLA-volume was 120± 22 ml and NT-proBNP level was 1336 ± 278pg/ml.A 6-MWT was 246 ± 33 m. All patients were implanted with a CCM Optimizer according to the protocol of implantation without an atrial lead. The study compared the mean state changes from baseline to 6 months' follow-up.

Results: In 6 months' follow-up we observed a significant improvement in functional and symptomatic parameters. NT-proBNP level was 1021 ± 153 pg/ml and mean 6 MWT values were 300 ± 26 m. NYHA improved by at least 1 functional class. MeanLA-volume after 6 months of follow-up was 104,5± 18 ml.

Conclusions:CCM is an effective and safe technology for patients with symptomatic HF. It significantly improves functional parameters, including a 6-minute walk test and NYHA functional class. CCM may prevent HF progression and may influence the outcome.