Antiarrhythmic effect of 9-week hybrid cardiac telerehabilitation - subanalysis of the TELEREHabilitation in Heart Failure patients - TELEREH-HF randomized clinical trial

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Background. Cardiac rehabilitation is a component of heart failure (HF) management but its effect on ventricular arrhythmias is not well recognized.

Purpose. We analyzed the antiarrhythmic effect of a 9-week hybrid cardiac telerehabilitation (HCTR) and its influence on long term cardiovascular mortality in HF patients taken from the TELEREH-HF trial.

Methods. We evaluated the presence of non-sustained ventricular tachycardia (nsVT) and frequent premature ventricular complexes ≥10 beats/hour (PVCs ≥10) with 24-hour ECG monitoring at the baseline and after 9-week HCTR or usual care (UC) of 773 HF patients (NYHA I-III, LVEF ≤ 40%).

Results. Among 143 patients with nsVT, arrhythmia subsided in 30.8% after HCTR, similarly among 165 patients randomized to UC who had nsVT 34.5% did not show them after 9 weeks (p = 0.481). There was no significant difference in the decrease in PVC ≥10 over 9 weeks between randomization arms (14.9% vs. 17.8%, respectively p = 0.410). Functional response for HCTR (Δ peak oxygen consumption [pVO2] in cardiopulmonary exercise test >2.0 ml/kg/min) did not affect occurrence of arrhythmias. The multivariable analysis of the entire population did not identify HCTR as an independent factor determining improvement in terms of nsVT or PVCs >10. However, only in the HCTR group, the achievement of the antiarrhythmic effect significantly reduced the cardiovascular mortality in 2 years follow-up (Logrank p = 0.0009) (Figure).

Conclusions. Significant improvement in physical capacity after 9 weeks of HCTR did not correlate with the antiarrhythmic effect in terms of incidence of nsVT or PVCs ≥10. An antiarrhythmic effect after the 9-week HCTR affected long term cardiovascular mortality in HF patients.

Abstract Figure

Kaplan-Meier plot of cardiovascular mortality by randomized treatment arm and nsVT