April 2021 – Kuschyk et al: " Long-term clinical experience with cardiac contractility modulation therapy delivered by the Optimizer Smart system" European Journal of Heart Failure

<https://onlinelibrary.wiley.com/doi/epdf/10.1002/ejhf.2202>

**Aims**

We assessed long-term effects of cardiac contractility modulation delivered by the Optimizer Smart system on quality of life, left ventricular ejection fraction (LVEF), mortality and heart failure and cardiovascular hospitalizations.

**Methods and Results**

CCM-REG is a prospective registry study including 503 patients from 51 European centres. Effects were evaluated in three terciles of LVEF (≤25%, 26–34% and ≥35%) and in patients with atrial fibrillation (AF) and normal sinus rhythm (NSR). Hospitalization rates were compared using a chi-square test. Changes in functional parameters of New York Heart Association (NYHA) class, Minnesota Living with Heart Failure Questionnaire (MLWHFQ) and LVEF were assessed with Wilcoxon signed-rank test, and event-free survival by Kaplan–Meier analysis. For the entire cohort and each subgroup, NYHA class and MLWHFQ improved at 6, 12, 18 and 24 months (P <0.0001). At 24 months, NYHA class, MLWHFQ and LVEF showed an average improvement of 0.6±0.7, 10±21 and 5.6±8.4%, respectively (all P <0.001). LVEF improved in the entire cohort and in the LVEF ≤25% subgroup with AF and NSR. In the overall cohort, heart failure hospitalizations decreased from 0.74 [95% confidence interval (CI) 0.66–0.82] prior to enrolment to 0.25 (95% CI 0.21–0.28) events per patient-year during 2-year follow-up (P <0.0001). Cardiovascular hospitalizations decreased from 1.04 (95% CI 0.95–1.13) events per patient-year prior to enrolment to 0.39 (95% CI 0.35–0.44) events per patient-year during 2-year follow-up (P <0.0001). Similar reductions of hospitalization rates were observed in the LVEF, AF and NSR subgroups. Estimated survival was significantly better than predicted by MAGGIC at 1 and 3 years in the entire cohort and in the LVEF 26–34% and ≥35% subgroups.

**Conclusions**

Cardiac contractility modulation therapy improved functional status, quality of life, LVEF and, compared to patients’ prior history, reduced heart failure hospitalization rates. Survival at 1 and 3 years was significantly better than predicted by the MAGGIC risk score.