

Non-invasive telemonitoring improves outcomes in heart failure with reduced ejection fraction: a study in high-risk patients

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Abstract

Aims

Non-invasive telemonitoring (TM) in patients with heart failure (HF) and reduced left ventricular ejection fraction (HFrEF) may be useful in the early diagnosis of HF decompensation, allowing therapeutic optimization and avoiding re-hospitalization. We describe a TM programme in this population and evaluate its effectiveness during a 12 month period.

Methods and results

We conducted a single-centre study of patients discharged from hospital after decompensated HF, allocated into three groups: prospective TM programme, prospective HF protocol follow-up programme (PFP) with no TM facilities, and retrospective propensity-matched usual care (UC). TM effectiveness was assessed by all-cause hospitalizations and mortality; HF-related hospitalization (HFH), days lost to unplanned hospital admissions/death, functional capacity and quality of life (New York Heart Association, Kansas City Cardiomyopathy Questionnaire, 6 min walk test, and plasma N-terminal pro-brain natriuretic peptide) were also evaluated. A total of 125 patients were included [65.9 ± 11.9 years, 32% female, left ventricular ejection fraction 27% (21–32)]. TM was similar to PFP regarding effectiveness; TM reduced all-cause hospitalization and mortality (HR 0.27; 95% CI 0.11–0.71; P < 0.01) and HFH (HR 0.29; 95% CI 0.10–0.89; P < 0.05) as compared with UC. TM reduced the average number of days lost due to unplanned hospital admissions or all-cause death as compared with PFP (5.6 vs. 12.4 days, P < 0.05) and UC (5.6 vs. 48.8 days, P < 0.01). Impact on quality of life was similar between TM and PFP (P = 0.36).

Conclusions

In patients with HFrEF and recent HF hospitalization, non-invasive TM reduced 12 month all-cause hospitalization/mortality and HFH as compared with usual care. TM also reduced the number of days lost due to unplanned hospital admission/death as compared with either an optimized protocol-based follow-up programme or usual care.

Keywords: Telemonitoring, Non-invasive monitoring, Heart failure, Reduced ejection fraction