Global longitudinal strain predicts future cardiovascular hospitalizations and death in patients with non-ischemic cardiomyopathy and recovered left ventricular ejection fraction: a multicenter study

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Topic(s):
Chronic Heart Failure – Epidemiology, Prognosis, Outcome

Citation:
Background: Patients with recovered left ventricular ejection fraction (LVEF) remain at increased risk for adverse outcomes but we currently have very limited tools to risk stratify them. A prior single center analysis showed that in this patient population an absolute Global Longitudinal Strain (aGLS) = 16 correlates with a decreased risk of redeveloping a depressed LVEF (<50%). However, it is unknown whether this translates into a reduced risk of adverse outcomes.

Purpose: To test the hypothesis that in patients with non-ischemic cardiomyopathy (NICM) and recovered LVEF, aGLS = 16 is predictive of future cardiovascular hospitalizations and all-cause mortality.

Methods: We combined databases from 3 tertiary centers in 2 different countries and identified patients with NICM who initially had a reduced LVEF (<50%), but whose LVEF had increased by at least 10% and normalized (LVEF >50%). Speckle tracking GLS was quantified at the time of LVEF recovery and studied in relation to cardiovascular hospitalizations and death during follow-up.

Results: We identified 222 patients meeting inclusion criteria. Mean reduced LVEF was 31 ± 9%, mean LVEF at the time of EF recovery was 55% (Range 50 to 72), mean aGLS at the time of EF recovery was 13.6 (range 4.1 to 22.7). During a mean follow up of 5.5± 2.74 years, 80 patients had at least one hospitalization for cardiac causes and 39 patients died. During follow up, patients with aGLS = 16 at the time of LVEF recovery had a lower probability of experiencing cardiovascular hospitalizations or death (Odds Ratio 0.50, 95% CI 0.28-0.90, p=0.02). In a time to event analysis, patients with aGLS = 16 had also a lower risk of death for any cause in the first 5.5 years since normalization of LVEF (Log-Rank p<0.01, Fig 1). The reduction in mortality risk persisted with longer follow up but lost statistical significance (p=0.22).

Conclusions: GLS has important prognostic significance in HF patients with non-ischemic cardiomyopathy and recovered LVEF. An abnormal GLS in the setting of recovered LVEF portends an increased risk of cardiovascular hospitalizations and death.
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