Relationship between left and right ventricular ejection fractions in chronic advanced systolic heart failure: insights from the BEST trial.

AIMS: Abnormally low right ventricular ejection fraction (RVEF) is a predictor of poor outcomes in chronic heart failure (HF) patients with low left ventricular ejection fraction (LVEF). However, little is known about the relationship between LVEF and RVEF in these patients.

METHODS AND RESULTS: Of the 2707 Beta-blocker Evaluation of Survival Trial (BEST) participants with ambulatory chronic HF, New York Heart Association class III-IV symptoms, and LVEF ≤ 35%, 2008 patients had gated-equilibrium radionuclide angiographic data on baseline LVEF and RVEF. Patients were categorized into quartiles by LVEF ≥ 29% (n = 507), 23-28% (n = 513), 17-22% (n = 538), and < 17% (n = 450). Logistic regression models were used to determine the association of LVEF quartiles (reference, ≥ 29%) with abnormally low RVEF (<20%). The prevalence of RVEF < 20% for patients with LVEF quartiles ≥ 29, 23-28, 17-22, and < 17% were 3, 6, 15, and 32%, respectively. Unadjusted odds ratios [95% confidence intervals (CIs)] for RVEF < 20% (vs. ≥ 20%) associated with LVEF quartiles 23-28, 17-22, and < 17% (reference, ≥ 29%) were 2.18 (1.14-4.17; P = 0.018), 6.32 (3.54-11.30; P < 0.001), and 16.67 (9.46-29.39; P < 0.001), respectively. Respective multivariable-adjusted odds ratios (95% CIs) were 1.82 (0.94-3.54; P = 0.076), 4.55 (2.48-8.35; P < 0.001), and 10.53 (5.70-19.44; P< 0.001), respectively. Heart failure symptoms and signs had unadjusted associations with low RVEF, but
lacked intrinsic associations.

**CONCLUSION:** In patients with advanced systolic HF, LVEF has a strong dose-dependent relationship with RVEF which is independent of other characteristics, and low LVEF is useful as a surrogate marker of abnormally low RVEF in these patients.

DOI 10.1093/eurjhf/hfq206
Alternate Journal Eur. J. Heart Fail.
PubMed ID 21097899
PubMed Central ID PMC3063564
Grant List R01-HL085561 / HL / NHLBI NIH HHS / United States
R01-HL097047 / HL / NHLBI NIH HHS / United States