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Change in left ventricular ejection fraction and outcome in heart failure patients with mid-range ejection fraction: from the HIJ-HF prospective study

K. Tsukamoto, A. Suzuki, T. Shiga, M.W. Sakai, Y. Tanaka, E. Kouno, A. Osada, J. Matsuura, N. Hayashi, K. Nagara, M.W. Ogiso, H. Nomura, N. Kikuchi, N. Hagiwara

Tokyo Women's Medical University, Department of Cardiology, Tokyo, Japan

Introduction: Heart failure (HF) is categorized on the basis of the eft ventricular ejection fraction (LVEF). The European Society of Cardiology has proposed mid-range EF (HFmrEF) as a new category of HF that includes patients with an LVEF of 40–49%. However, the clinical characteristics, change in LVEF following treatment, and outcome of patients with HFmrEF remain clear

Methods: We conducted a prospective observational study of Japanese hospitalized HF patients between 2015 and 2018 at a single-center (HIJ-HF III). HFmrEF was defined as 40–49% of LVEF on echocardiography at admission. We followed these patients and performed echocardiography to assess LVEF per year after hospital discharge. Clinical outcome was death from any cause.

Methods and results: We studied 138 patients with HFmrEF (median age 71 years, 69% male). They had 32% of ischemic heart disease, 9% of New York Heart Association functional class III or IV at discharge. During median follow-up of 20 [13–28] months, we assessed change in LVEF for 110 patients with HFmrEF. One year after hospital discharge, 49 patients (44%) improved LVEF (\geq 50%) and 21 patients (19%) reduced LVEF (<40%). HFmrEF patients who reduced LVEF (<40%) were significantly higher mortality rate than those who improved LVEF (\geq 50%) (14% vs. 2%, p<0.05) (Figure).

Conclusions: This study demonstrated that 44% of HFmrEF patients improved LVEF following treatment but 19% patients reduced LVEF. Reduced LVEF was associated with poor prognosis.

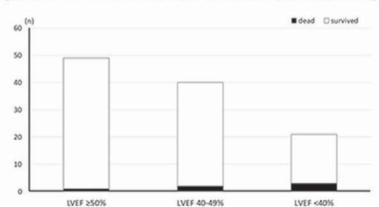


Figure. The number of dead and survived HFmrEF patients divided by LVEF 1 year after hospital discharge.