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On behalf of: the PREFICTER investigators group
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Background: In patients with heart failure (HF), the implementation of an advance care planning and the evaluation of End-of-Life preferences is recommended. However, data on cardiopulmonary resuscitation (CPR) preferences in elderly patients admitted for HF are scarce.

PURPOSE: To determine preferences for CPR in patients admitted for decompensated HF and to evaluate the characteristics and outcomes at 6 months associated with the decision of “do not attempt cardiopulmonary resuscitation”. Finally, we also assessed how many patients changed their preferences.

METHODS: Observational, multicenter, hospital-based study that included patients admitted for HF in Spanish hospitals. Demographic data, comorbidities, symptoms, HF aetiology and left ventricular ejection fraction (LVEF) were collected. All patients underwent a prospective evaluation asking their preferences regarding CPR. Patients were asked again about their CPR preferences at 6 months. Mortality, visits to the emergency room and readmissions due to HF were recorded.

RESULTS: A total of 866 patients were included in 53 hospitals. Of them, 242 (27.9%) patients did not want to undergo CPR, and 322 (37.2%) had not decided on it. Patients who did not want CPR were older and more often women or lived in nursing homes. They more frequently had advanced functional class, lower Barthel scale score, valvular disease, and severe asthenia. After adjusted multivariate analysis, age >85 years, the presence of valvular disease, having implanted devices, and having a low mood were associated with the preference for no resuscitation (Table 1). Patients with a desire for no CPR had significantly more overall and cardiovascular mortality at 6 months compared to the rest of the patients (Figure 1, Survival at 6-month according to CPR preferences: green line: CPR, red line: undecided, blue line: no CPR, log rank p=0.002). Resuscitation preferences were not related with Emergency Room visits or readmissions. A total of 454 patients expressed their preferences both at admission and 6 months later. Of them, 141 patients (31%) changed their preference: 38 wanted CPR (27%), 69 did not want CPR (49%) and 34 changed to “Undecided” (24%).

CONCLUSIONS: A significant percentage of patients had no preferences regarding CPR during a hospital admission for HF. Those who did not want to undergo CPR had a higher mortality at 6 months. Almost a third of patients changed their preferences after 6 months, which reinforces the need for periodic reassessment.

Table 1: Multivariate analysis of factors related to the preference for no cardiopulmonary resuscitation

	Adjusted OR (CI 95%)	P
Age>85 years	1.62 (1.16-2.80)	0.005
Chronic obstructive pulmonary disease	0.67 (0.46-0.98)	0.040
Devices (CRT, ICDs, pacemakers)	1.88 (1.10-2.57)	0.017
Severe low mood	1.61 (1.04-2.49)	0.031
Moderate-severe valve disease	1.39 (1.01-1.90)	0.041

Analysis adjusted for: sex, marital status, nursing home, family caregiver, Barthel Index <80 points, Frail Scale >2 points and severity of the following symptoms: asthenia and poor appetite.

Abbreviations: CRT: cardiac resynchronization therapy; COPD: Chronic obstructive pulmonary disease; ICDs: implantable cardioverter defibrillator.

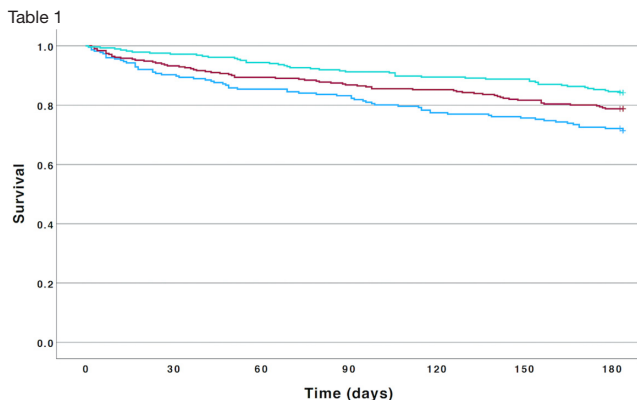


Figure 1

Heart Failure - Chronic Heart Failure, Epidemiology, Prognosis, Outcome

Genotype-driven prognostication in dilated cardiomyopathy

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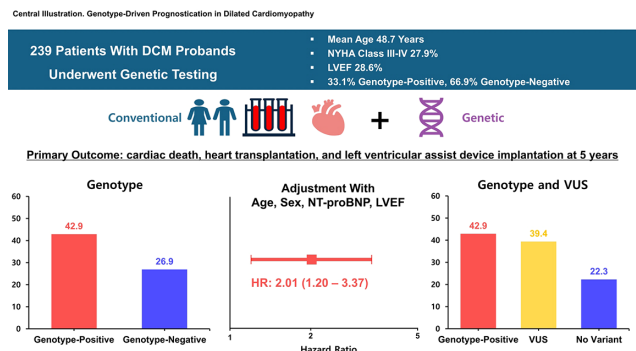
Background: Dilated cardiomyopathy (DCM) has a variable prognosis with generally poor outcomes. Genetic testing could identify patients at higher risk.

Objectives: This study aimed to evaluate the prognostic impact of genetic testing in patients with DCM.

Methods: This retrospective study included consecutive patients with DCM who underwent targeted panel sequencing or whole genome sequencing at Samsung Medical Center from 2018 to 2023. Patients were divided into genotype-positive and genotype-negative groups based on the presence of pathogenic or likely pathogenic variants. The primary outcome was a composite of cardiac death, heart transplantation, and left ventricular assist device implantation at 5 years. The primary outcome was compared according to the results of genetic testing.

Results: In total, 239 patients were analyzed and followed for a median of 2.6 years. Among the patients, 79 (33.1%) were genotype-positive and 160 (66.9%) were genotype-negative. The genotype-positive group had a significantly higher risk of the primary outcome than the genotype-negative group (hazard ratio 1.80; confidence interval 1.10-2.95; P=0.020). Further dividing genotype-negative patients based on the presence of a variant of uncertain significance (VUS) revealed a stepwise increase in the incidence of the primary outcome among the three groups (no variant 22.3%, VUS 39.4%, genotype-positive 42.9%; overall log-rank P=0.032). Also, the incidence of the primary outcome differed significantly in genotype-positive patients according to the affected functional gene group (overall log-rank P=0.003).

Conclusions: Patients with DCM exhibited varying prognoses according to genotype. Further research is warranted to optimize the use of genetic testing for risk stratification and patient management in DCM.



Heart Failure - Chronic Heart Failure, Epidemiology, Prognosis, Outcome

Age-related disparities in heart failure: insights into clinical profiles, treatment gaps, and outcomes from a multi-center and multi-ethnic study

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Background: Heart failure (HF) is a significant cause of morbidity and mortality. Differences in clinical characteristics and treatment outcomes between elderly and younger patients remain underexplored.

Purpose: To evaluate disparities in demographics, comorbidities, prescription of guideline-directed medical therapy (GDMT), and clinical outcomes in elderly versus younger HFref patients.

Methods: A retrospective, multi-center cohort study analyzed 578 HF patients who attend dedicated HF clinics in ten hospitals between January 1, 2021, and June 30, 2023, categorized into elderly (≥ 65 years, $n=176$) and younger (<65 years, $n=402$) groups. Data included demographics, comorbidities, EF, New York Heart Association (NYHA) functional class, GDMT prescription at baseline, 3 months, and 6 months, and clinical outcomes, including hospitalizations and mortality.

Results: Elderly HF patients demonstrated notable differences compared to younger patients in several demographic, clinical, and outcome measures. They had a higher proportion of females (34.7% vs. 19.2%, $p<0.001$) and exhibited a greater prevalence of comorbidities, including hypertension (76.6% vs. 63.9%, $p=0.003$), diabetes (47.4% vs. 36.8%, $p=0.017$), dyslipidemia (63.6% vs. 48.3%, $p<0.001$), atrial fibrillation (36.2% vs. 17.5%, $p<0.001$), chronic kidney disease (41.9% vs. 21.2%, $p<0.001$), and anemia (39.4% vs. 22%, $p<0.001$). Regarding cardiac function, elderly patients had a higher proportion of EF $> 40\%$ (16.1% vs. 9.8%, $p=0.007$), with 6.9% having EF 41-49% and 9.2% EF $\geq 50\%$, compared to 6.8% and 3%, respectively, in younger patients. Baseline EF was significantly lower in younger patients ($32.4 \pm 12.4\%$ vs. $28.1 \pm 9.9\%$, $p=0.041$), though both groups showed comparable improvements over six months. In terms of guideline-directed medical therapy (GDMT), elderly patients achieving lower RAAS inhibitor prescriptions at three months (81% vs. 88.1%, $p=0.034$). Elderly patients had fewer 3-pillars and 4-pillars GDMT than younger patients at three months (74.5% vs. 84.0%, $p=0.044$) and 6 months (75.1% vs. 86.0%, $p=0.005$). Outcomes revealed that elderly patients had higher six-month mortality rates (12.7% vs. 5.9%, $p=0.007$), although heart failure hospitalization rates were similar between the groups (6.2% vs. 9.1%, $p=0.219$).

Conclusion: Elderly HF patients face greater challenges in managing comorbidities and achieving optimal GDMT prescription, contributing to higher mortality rates. Tailored interventions are needed to improve outcomes in this high-risk population.

Heart Failure - Chronic Heart Failure, Epidemiology, Prognosis, Outcome

Associations of infectious disease and polygenic risk score with heart failure and cardiac remodeling: findings from UK Biobank and ARIC study

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Background: Infectious disease (ID) has been reported to exacerbate heart failure (HF); however, a comprehensive evaluation of ID in relation to incident HF is limited. **Purpose:** We aim to assess the association of ID and ID-polygenic risk score (PRS) with incident HF and cardiac remodeling.

Methods: We ascertained over 900 IDs in participants from the UK Biobank (UKB) and the Atherosclerosis Risk in Communities (ARIC) study to assess the associations of ID with incident HF and HF subtypes (HF with reduced ejection fraction [HFrEF] and HF with preserved ejection fraction [HFpEF]). Cardiac morphology was evaluated through cardiac MRI and echocardiography. Fibro-inflammatory pathway-specific ID-PRS was calculated.

Results: In the UKB, 6,484 HF cases occurred during a median of 13.5 years, and ARIC recorded 2,062 cases over 22.4 years. IDs were associated with a higher HF risk in UKB (HR: 1.54, 95% CI 1.46-1.63) and ARIC (1.84, 1.68-2.00). The risk was consistent across pathogens (P for difference >0.05) and HF subtypes, more pronounced in those with atrial fibrillation (P for interaction <0.001), highest within 180 days after infection (HR: 5.88, 95% CI 4.49-7.71), and remained elevated after one year (1.45, 1.37-1.54). IDs were associated with reduced cardiac pumping and filling capacity, cardiac hypertrophy, and elevated left ventricular filling pressures. In ID-free individuals, a higher ID-PRS correlated with adverse cardiac status, with the involvement of TGF- β and inflammation pathways.

Conclusions: ID was associated with higher HF risk regardless of pathogen type and was related to cardiac remodeling. ID-PRS also had an adverse cardiac impact, even in the population in the absence of overt infection.

Heart Failure - Chronic Heart Failure, Epidemiology, Prognosis, Outcome

Road to recovery - can your history impact your heart failure future

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Introduction: Heart Failure (HF) is a clinical syndrome of varying etiology. Patients often have multiple complex comorbidities that have a multifaceted interrelationship and impact on the cardiovascular (CV) system. It has been established that patients with multiple comorbidities have a worse prognosis with regards to HF including left ventricular systolic function (LVSF) recovery to an ejection fraction (EF) $\geq 50\%$. However, there is limited research in the frequency of recovery of LVSF associated with each comorbidity.

Methods: 314 consecutive patients with HF with reduced EF (243 patients; 77%) and midrange EF (71 patients; 23%) were included in this single centre retrospective study. All attended the HF specialist nurse clinic from August 2022 to June 2023 for optimisation of GDMT. Using electronic health records, demographics and comorbidities of patients who had recovery of LVSF were compared to those who had no recovery.

Results: Of 314 patients, 132 patients (42%) had recovery of LVSF with an EF $\geq 50\%$ post-optimisation of GDMT, 123 patients (39%) had no recovery of LVSF and 59 patients (19%) had no post-optimisation echocardiogram. There was no significant difference in GDMT between those who had LVSF recovery and those who did not with 67% of patients on four HF pillars compared to 77% respectively ($p=0.08$). There was a significant sex difference between the recovered and non-recovered groups. 66% patients were male and 34% were female in the recovered group compared to 79% male patients and 21% female patients in the non-recovered group ($p=0.021$). There was no significant difference in GDMT between male and female patients ($p=0.168$). In comparing co-morbidities there was no significant difference between the recovered and non-covered groups for most of the variables. 42% in the recovered group and 38% in the non-recovered group had atrial fibrillation (AF) ($p=0.493$). 44% in the recovered group and 50% in the non-recovered group had hypertension ($p=0.366$). 13% in the recovered group and 16% in the non-recovered group had COPD ($p=0.444$). 21% in the recovered group and 28% in the non-recovered group had diabetes ($p=0.18$). 50% in the recovered group and 48% in the non-recovered group had ischaemic heart disease (IHD) ($p=0.746$). The only co-morbidity found to have a significant difference was previous cerebral vascular accident (CVA) with 5% and 14% incidence in the recovered and non-recovered groups respectively ($p<0.05$).

Conclusion: These findings suggest that the female sex is positively associated with recovery. This positive prognostic factor has been well established elsewhere. A history of CVA had a negative association with LVSF recovery but AF, hypertension, COPD, diabetes, and IHD had no definitive association. This suggests an interplay of CV risk factors that may be synergistic in the limitation of HF recovery. This that requires more research to provide patients and practitioners information on the prospect of LVSF recovery.

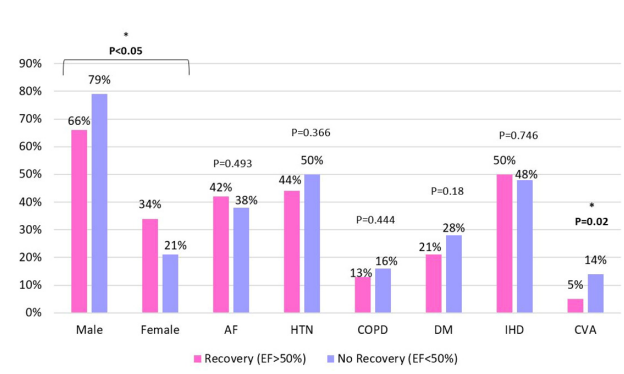


Figure 1. Association of recovery of LVSF with sex and comorbidity.

Heart Failure - Chronic Heart Failure, Epidemiology, Prognosis, Outcome

Survival analysis of nonagenarian patients in a specific heart failure unit

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Background: Heart failure (HF) is the leading cause of hospitalisation in Internal Medicine Departments, primarily affecting elderly patients. Its complexity in this