

INSIGHTS FROM THE PREDICTORS OF EARLY READMISSION IN CHRONIC HEART FAILURE (REFERENCE) STUDY

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BACKGROUND: Albeit we have assisted to a consistent decline in the rate of heart failure hospitalizations, surprisingly, short-term readmission and mortality persist high, irrespective of clinical innovations and guideline directed management, representing a tremendous health care burden.

OBJECTIVE: To characterize at risk patients for early (defined as the period of 90 days post-discharge) readmission due to heart failure and overall death.

METHODS: Adult patients admitted, to an Internal Medicine ward, with acute decompensated heart failure in class III or IV of New York Heart Association (NYHA) were assessed. Subgroup analysis was performed according to the left ventricular ejection fraction (LVEF) in light of the current European Society of Cardiology guidelines. Comparison between patients with and without each of the events was performed for all variables using t test or Wilcoxon Rank test as applicable. Categorical variables were summarized by relative and absolute frequencies, and compared using chi-squared test or Fisher's Exact test as applicable. Univariate Cox proportional hazard model was used to evaluate the relationship between variables and outcomes.

RESULTS

N=65 HF patients
Mean age: 79.2 (SD 10.8)

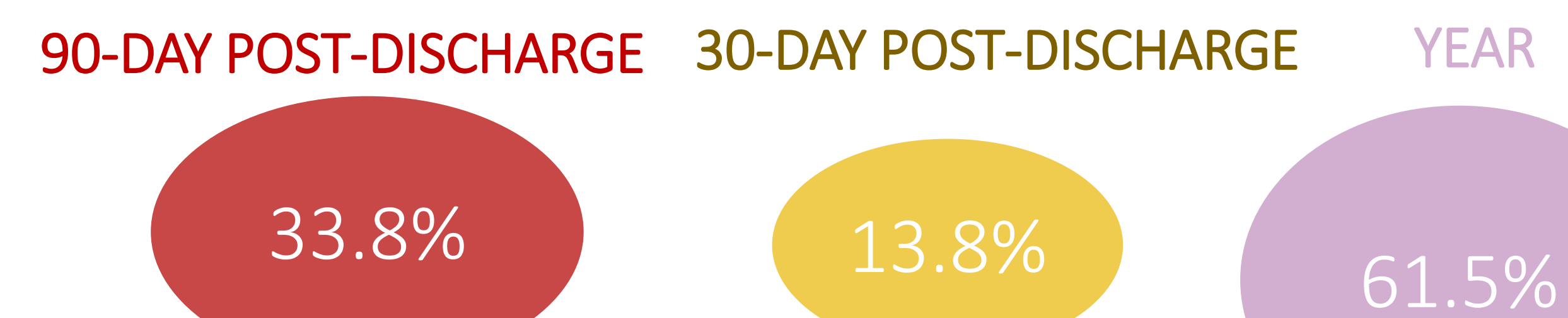
Median follow-up : 13.7 months
[Q1: 6.7 to Q3: 18.9]

Table 1 – General baseline characteristics

Characteristics	Patients (n=65)
Age, mean (SD)	79.2 ± 10.8
Female Gender, n (%)	37 (56.9)
Hypertension, n (%)	58 (89.2)
Type 2 Diabetes, n (%)	25 (38.5)
Dyslipidemia, n (%)	41 (63.1)
Obesity, n (%)	17 (26.2)
Atrial Fibrillation, n (%)	28 (43.1)
Family History of CVD, n (%)	31 (47.7)
Tabagism, n (%)	21 (32.3)
Chronic Kidney Disease, n (%)	34 (52.3)
GFR (Baseline), median	57.8 (43.8 - 82.2)
GFR (Admission), median	47.9 (33.2 - 68.1)
Previous Acute Myocardial Infarction, n (%)	27 (41.5)
Hypertensive Cardiomyopathy, n (%)	44 (67.7)
Ischemic Cardiomyopathy, n (%)	22 (33.8)
Valvular Cardiomyopathy, n (%)	56 (86.2)
LVEF, mean (SD)	50.38 ± 19.07
NYHA class III, n (%)	43 (66.2)
ACE Inhibitor, n (%)	43 (66.2)
Beta Blocker, n (%)	38 (58.5)
Mineralocorticoid Receptor Antagonists, n (%)	19 (29.2)
Angiotensin II Receptor Blocker, n (%)	11 (16.9)
Loop Diuretic, n (%)	54 (83.1)
Digoxin, n (%)	8 (12.3)

Values are median (IQR), n (%), or mean±SD.
IQR: interquartile range and minimum/maximum, SD: standard deviation, CVD: cardiovascular disease, GFR: glomerular filtration rate, ACE: Angiotensin-Converting-Enzyme.

Readmission rate



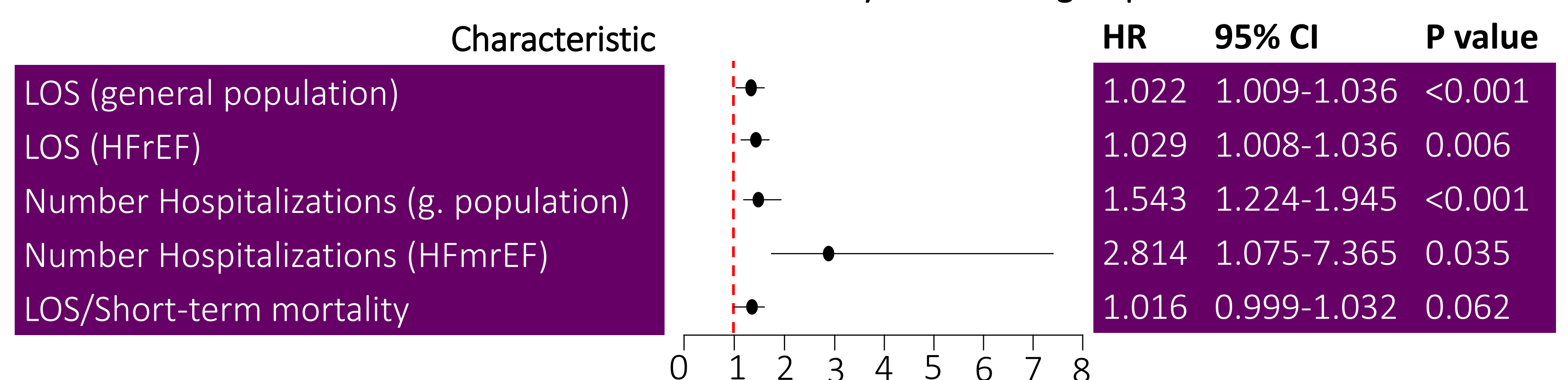
Mortality rate 18.5% Mortality 10.8% Mortality 36.9% Mortality

The year mortality was 36.9% and 40% of the patients had deceased at the end of the follow-up

The length of stay (LOS) represented a risk factor for short-term readmission

Short-term readmission

Forest Plot of Hazard Ratios by Patient Subgroups



LOS, length of stay; HR, Hazard ratio.; HFReEF, Heart Failure with Reduced Ejection Fraction; HFmrEF, Mid-Range Ejection Fraction

CONCLUSION:

- The high short-term readmission and mortality rates acknowledged are consentaneous with other studies.
- The LOS and the number of hospitalizations were associated with worse short-term outcome.
- Based on these findings, one can assume that the requirement for hospitalization is a relevant predictor of poor outcome as it reflects more severe disease, and that patients hospitalized longer or repeatedly face a worse outcome.
- We believe that these results corroborate the assumption that HF has a tremendous social and economic impact.