## THE PARAMOUNT IMPORTANCE OF RENAL FUNCTION IN HEART FAILURE PROGNOSIS - CONCLUSIONS FROM THE REFERENCE STUDY

Innovation in Health Care: New Opportunities for Internal Medicine

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**BACKGROUND:** In heart failure (HF) patients renal dysfunction represents impaired tissue perfusion and is a predictor of poor outcome.

**OBJECTIVE:** We investigated the association of customarily used renal function parameters with early (defined as the period of 90 days post-discharge) rehospitalization due to HF and all-cause mortality, and long-term all-cause mortality in HF patients.

**METHODS:** Baseline and admission urea, creatinine and glomerular filtration rate (GFR) and type 1 cardiorenal syndrome (CRS) were evaluated in patients hospitalized with acute decompensated HF in class III or IV of New York Heart Association (NYHA). Descriptive analysis was performed using t test or Wilcoxon Rank test as applicable. Categorical variables were compared using chi-squared test or Fisher's Exact test. Univariate Cox proportional hazard model was used to assess the relationship between variables and outcomes.

RESULTS

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

Characteristics

Median follow-up: 13.7 months

[Q1: 6.7 to Q3: 18.9]

Patients (n=65)

**Table 1** – General baseline characteristics

Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  145.0 (121 - 163)  145.0 (121 - 163)  NYHA class III, n (%)  43 (66.2)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  11 (16.9)	Characteristics	raticitis (II-05)
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)         Urea (Admission), median       47.0 (35 - 76)         Urea (Admission), median       64.0 (38 - 97)         Creatinine (Baseline), median       1.3 (1.0 - 1.8)         Cardiorenal Syndrome, n (%)       35 (53.8)         Previous Acute Myocardial Infarction, n (%)       27 (41.5)         Hypertensive Cardiomyopathy, n (%)       22 (33.8)         Valvular Cardiomyopathy, n (%)       22 (33.8)         Valvular Cardiomyopathy, n (%)       56 (86.2)         LVEF, mean (SD)       50.38 ± 19.07         Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)       17.7 ± 4.0         Pulmonary Artery Systolic Pressure (PSAP), median       145.0 (121 - 163)         NYHA class III, n (%)       43 (66.2)         ACE Inhibitor, n (%)       43 (66.2	Age, mean (SD)	79.2 ± 10.8
Type 2 Diabetes, n (%)  Dyslipidemia, n (%)  Desity, n (%)  Atrial Fibrillation, n (%)  Eamily History of CVD, n (%)  Chronic Kidney Disease, n (%)  GFR (Baseline), median  GFR (Baseline), median  Urea (Baseline), median  Urea (Admission), median  Urea (Admission), median  Creatinine (Baseline), median  Creatinine (Baseline), median  Creatinine (Admission), median  Creatinine (Admission), median  1.3 (1.0 - 1.8)  Cardiorenal Syndrome, n (%)  Previous Acute Myocardial Infarction, n (%)  Hypertensive Cardiomyopathy, n (%)  Uzea (Saseline), median  Cardiorenal Syndrome, n (%)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  NyHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Mineralocorticoid Receptor Blocker, n (%)  11 (16.9)	Female Gender, n (%)	37 (56.9)
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)         Urea (Baseline), median       47.0 (35 - 76)         Urea (Admission), median       64.0 (38 - 97)         Creatinine (Baseline), median       1.0 (0.8 - 1.4)         Creatinine (Admission), median       1.3 (1.0 - 1.8)         Cardiorenal Syndrome, n (%)       35 (53.8)         Previous Acute Myocardial Infarction, n (%)       27 (41.5)         Hypertensive Cardiomyopathy, n (%)       22 (33.8)         Valvular Cardiomyopathy, n (%)       22 (33.8)         Valvular Cardiomyopathy, n (%)       22 (33.8)         Valvular Cardiomyopathy, n (%)       56 (86.2)         LVEF, mean (SD)       50.38 ± 19.07         Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)       17.7 ± 4.0         Pulmonary Artery Systolic Pressure (PSAP), median       34.60 (25.94 - 50.05)         Systolic Blood Pressure (Admission), median       145.0 (121 - 163)      <	Hypertension, n (%)	58 (89.2)
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)         Urea (Baseline), median       47.0 (35 - 76)         Urea (Admission), median       1.0 (0.8 - 1.4)         Creatinine (Baseline), median       1.3 (1.0 - 1.8)         Cardiorenal Syndrome, n (%)       35 (53.8)         Previous Acute Myocardial Infarction, n (%)       27 (41.5)         Hypertensive Cardiomyopathy, n (%)       22 (33.8)         Valvular Cardiomyopathy, n (%)       44 (67.7)         Ischemic Cardiomyopathy, n (%)       22 (33.8)         Valvular Cardiomyopathy, n (%)       56 (86.2)         LVEF, mean (SD)       50.38 ± 19.07         Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)       17.7 ± 4.0         Pulmonary Artery Systolic Pressure (PSAP), median       34.60 (25.94 - 50.05)         Systolic Blood Pressure (Admission), median       145.0 (121 - 163)         NYHA class III, n (%)       43 (66.2)         ACE Inhibitor, n (%)       43 (66.2) <td< th=""><th>Type 2 Diabetes, n (%)</th><th>25 (38.5)</th></td<>	Type 2 Diabetes, n (%)	25 (38.5)
Atrial Fibrillation, n (%) Family History of CVD, n (%) Tabagism, n (%) Chronic Kidney Disease, n (%) GFR (Baseline), median GFR (Admission), median Urea (Baseline), median Urea (Baseline), median GFR (Admission), median Urea (Admission), median Urea (Admission), median Creatinine (Baseline), median Creatinine (Admission), median Creatinine (Admission), median Cardiorenal Syndrome, n (%) STS, (33.8) Previous Acute Myocardial Infarction, n (%) Hypertensive Cardiomyopathy, n (%) Urea (Admission) Sylvalur Cardiomyopathy, n (%) Stehemic Cardiomyopathy, n (	Dyslipidemia, n (%)	41 (63.1)
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)         Urea (Baseline), median       47.0 (35 - 76)         Urea (Admission), median       64.0 (38 - 97)         Creatinine (Baseline), median       1.0 (0.8 - 1.4)         Creatinine (Admission), median       1.3 (1.0 - 1.8)         Cardiorenal Syndrome, n (%)       35 (53.8)         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         Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)       17.7 ± 4.0         Pulmonary Artery Systolic Pressure (PSAP), median       34.60 (25.94 - 50.05)         Systolic Blood Pressure (Admission), median       145.0 (121 - 163)         Diastolic Blood Pressure (Admission), median       145.0 (121 - 163)         NYHA class III, n (%)       43 (66.2)         ACE Inhibitor, n (%)       38 (58.5)         Mineralocorticoid Receptor Antagonists, n	Obesity, n (%)	17 (26.2)
Tabagism, n (%)       21 (32.3)         Chronic Kidney Disease, n (%)       34 (52.3)         GFR (Baseline), median       57.8 (43.8 - 82.2)         GFR (Admission), median       47.0 (35 - 76)         Urea (Baseline), median       64.0 (38 - 97)         Creatinine (Baseline), median       1.0 (0.8 - 1.4)         Creatinine (Admission), median       1.3 (1.0 - 1.8)         Cardiorenal Syndrome, n (%)       35 (53.8)         Previous Acute Myocardial Infarction, n (%)       27 (41.5)         Hypertensive Cardiomyopathy, n (%)       22 (33.8)         Valvular Cardiomyopathy, n (%)       22 (33.8)         Valvular Cardiomyopathy, n (%)       56 (86.2)         LVEF, mean (SD)       50.38 ± 19.07         Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)       17.7 ± 4.0         Pulmonary Artery Systolic Pressure (PSAP), median       34.60 (25.94 - 50.05)         Systolic Blood Pressure (Admission), median       145.0 (121 - 163)         NYHA class III, n (%)       43 (66.2)         ACE Inhibitor, n (%)       43 (66.2)         Beta Blocker, n (%)       19 (29.2)         Angiotensin II Receptor Blocker, n (%)       11 (16.9)	Atrial Fibrillation, n (%)	28 (43.1)
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)         Urea (Baseline), median       47.0 (35 - 76)         Urea (Admission), median       64.0 (38 - 97)         Creatinine (Baseline), median       1.0 (0.8 - 1.4)         Creatinine (Admission), median       1.3 (1.0 - 1.8)         Cardiorenal Syndrome, n (%)       35 (53.8)         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         Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)       17.7 ± 4.0         Pulmonary Artery Systolic Pressure (PSAP), median       34.60 (25.94 - 50.05)         Systolic Blood Pressure (Admission), median       145.0 (121 - 163)         NYHA class III, n (%)       43 (66.2)         ACE Inhibitor, n (%)       43 (66.2)         Beta Blocker, n (%)       19 (29.2)         Angiotensin II Receptor Blocker, n (%)       11 (16.9)	Family History of CVD, n (%)	31 (47.7)
GFR (Baseline), median       57.8 (43.8 - 82.2)         GFR (Admission), median       47.9 (33.2 - 68.1)         Urea (Baseline), median       47.0 (35 - 76)         Urea (Admission), median       64.0 (38 - 97)         Creatinine (Baseline), median       1.0 (0.8 - 1.4)         Creatinine (Admission), median       1.3 (1.0 - 1.8)         Cardiorenal Syndrome, n (%)       35 (53.8)         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         Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)       17.7 ± 4.0         Pulmonary Artery Systolic Pressure (PSAP), median       34.60 (25.94 - 50.05)         Systolic Blood Pressure (Admission), median       145.0 (121 - 163)         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)	Tabagism, n (%)	21 (32.3)
GFR (Admission), median       47.9 (33.2 - 68.1)         Urea (Baseline), median       47.0 (35 - 76)         Urea (Admission), median       64.0 (38 - 97)         Creatinine (Baseline), median       1.0 (0.8 - 1.4)         Creatinine (Admission), median       1.3 (1.0 - 1.8)         Cardiorenal Syndrome, n (%)       35 (53.8)         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         Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)       17.7 ± 4.0         Pulmonary Artery Systolic Pressure (PSAP), median       34.60 (25.94 - 50.05)         Systolic Blood Pressure (Admission), median       145.0 (121 - 163)         Diastolic Blood Pressure (Admission), median       145.0 (121 - 163)         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)	Chronic Kidney Disease, n (%)	34 (52.3)
Urea (Baseline), median  Urea (Admission), median  Creatinine (Baseline), median  Creatinine (Admission), median  1.0 (0.8 - 1.4)  Creatinine (Admission), median  1.3 (1.0 - 1.8)  Cardiorenal Syndrome, n (%)  Previous Acute Myocardial Infarction, n (%)  Hypertensive Cardiomyopathy, n (%)  Schemic Cardiomyopathy, n (%)  Valvular Cardiomyopathy, n (%)  LVEF, mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Tricuspid Annulus Plane Systolic Pressure (PSAP), median  Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  145.0 (121 - 163)  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  11 (16.9)	GFR (Baseline), median	57.8 (43.8 - 82.2)
Urea (Admission), median  Creatinine (Baseline), median  1.0 (0.8 - 1.4)  Creatinine (Admission), median  1.3 (1.0 - 1.8)  Cardiorenal Syndrome, n (%)  Previous Acute Myocardial Infarction, n (%)  Hypertensive Cardiomyopathy, n (%)  Schemic Cardiomyopathy, n (%)  Valvular Cardiomyopathy, n (%)  LVEF, mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Pulmonary Artery Systolic Pressure (PSAP), median  Diastolic Blood Pressure (Admission), median  145.0 (121 - 163)  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Angiotensin II Receptor Blocker, n (%)  Alia (10.0 - 1.4)  1.0 (0.8 - 1.4)  1.0 (0.8 - 1.4)  1.0 (0.8 - 1.4)  1.0 (0.8 - 1.4)  1.0 (0.8 - 1.4)  1.0 (0.8 - 1.4)  1.0 (0.8 - 1.4)  1.0 (0.8 - 1.4)  1.0 (41.5)  1.0 (25.94 - 50.05)  34.60 (25.94 - 50.05)  43 (66.2)  43 (66.2)  43 (66.2)  ACE Inhibitor, n (%)  Alia (66.2)	GFR (Admission), median	47.9 (33.2 - 68.1)
Creatinine (Baseline), median  1.0 (0.8 - 1.4) Creatinine (Admission), median  1.3 (1.0 - 1.8) Cardiorenal Syndrome, n (%)  Previous Acute Myocardial Infarction, n (%)  Hypertensive Cardiomyopathy, n (%)  Valvular Cardiomyopathy, n (%)  LVEF, mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Tricuspid Annulus Plane Systolic Pressure (PSAP), median  Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  NYHA class III, n (%)  ACE Inhibitor, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  11.0 (0.8 - 1.4) 1.3 (1.0 - 1.8) 2.10 1.3 (1.0 - 1.8) 2.10 1.3 (1.0 - 1.8) 2.10 1.3 (1.0 - 1.8) 2.10 1.3 (1.0 - 1.8) 2.10 2.10 2.11 2.15 2.15 2.16 2.17 2.16 2.17 2.17 2.18 2.18 2.19 2.20 2.33.8 2.20 2	Urea (Baseline), median	47.0 (35 - 76)
Creatinine (Admission), median  Cardiorenal Syndrome, n (%)  Previous Acute Myocardial Infarction, n (%)  Hypertensive Cardiomyopathy, n (%)  Valvular Cardiomyopathy, n (%)  LVEF, mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Pulmonary Artery Systolic Pressure (PSAP), median  Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  13. (1.0 - 1.8)  35 (53.8)  27 (41.5)  44 (67.7)  122 (33.8)  56 (86.2)  50.38 ± 19.07  17.7 ± 4.0  17.7	Urea (Admission), median	64.0 (38 - 97)
Cardiorenal Syndrome, n (%)  Previous Acute Myocardial Infarction, n (%)  Hypertensive Cardiomyopathy, n (%)  Schemic Cardiomyopathy, n (%)  Valvular Cardiomyopathy, n (%)  LVEF, mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Pulmonary Artery Systolic Pressure (PSAP), median  34.60 (25.94 - 50.05)  Systolic Blood Pressure (Admission), median  145.0 (121 - 163)  Diastolic Blood Pressure (Admission), median  145.0 (121 - 163)  NYHA class III, n (%)  43 (66.2)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  11 (16.9)	Creatinine (Baseline), median	1.0 (0.8 - 1.4)
Previous Acute Myocardial Infarction, n (%)  Hypertensive Cardiomyopathy, n (%)  Schemic Cardiomyopathy, n (%)  Valvular Cardiomyopathy, n (%)  LVEF, mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Pulmonary Artery Systolic Pressure (PSAP), median  Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  127 (41.5)  44 (67.7)  127 (41.5)  44 (67.7)  42 (33.8)  50.38 ± 19.07  17.7 ± 4.0  34.60 (25.94 - 50.05)  17.7 ± 4.0  17.7	Creatinine (Admission), median	1.3 (1.0 - 1.8)
Hypertensive Cardiomyopathy, n (%)  Ischemic Cardiomyopathy, n (%)  Valvular Cardiomyopathy, n (%)  LVEF, mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Pulmonary Artery Systolic Pressure (PSAP), median  34.60 (25.94 - 50.05)  Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  12 (33.8)  22 (33.8)  56 (86.2)  17.7 ± 4.0  17.	Cardiorenal Syndrome, n (%)	35 (53.8)
Ischemic Cardiomyopathy, n (%)  Valvular Cardiomyopathy, n (%)  LVEF, mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Pulmonary Artery Systolic Pressure (PSAP), median  Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  145.0 (121 - 163)  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  122 (33.8)  56 (86.2)  17.7 ± 4.0  34.60 (25.94 - 50.05)  145.0 (121 - 163)	Previous Acute Myocardial Infarction, n (%)	27 (41.5)
Valvular Cardiomyopathy, n (%)  LVEF, mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Pulmonary Artery Systolic Pressure (PSAP), median  Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  56 (86.2)  50.38 ± 19.07  17.7 ± 4.0  34.60 (25.94 - 50.05)  145.0 (121 - 163)  145.0 (121 - 163)  43 (66.2)  43 (66.2)  19 (29.2)  11 (16.9)	Hypertensive Cardiomyopathy, n (%)	44 (67.7)
LVEF, mean (SD)  Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Pulmonary Artery Systolic Pressure (PSAP), median  Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  17.7 ± 4.0  14.0  145.0 (121 - 163)	Ischemic Cardiomyopathy, n (%)	22 (33.8)
Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)  Pulmonary Artery Systolic Pressure (PSAP), median  Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  17.7 ± 4.0  34.60 (25.94 - 50.05)  145.0 (121 - 163)  43 (66.2)  43 (66.2)  38 (58.5)  19 (29.2)  Angiotensin II Receptor Blocker, n (%)	Valvular Cardiomyopathy, n (%)	56 (86.2)
Pulmonary Artery Systolic Pressure (PSAP), median  34.60 (25.94 - 50.05)  Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  34.60 (25.94 - 50.05)  145.0 (121 - 163)  43 (66.2)  43 (66.2)  43 (66.2)  19 (29.2)  11 (16.9)	LVEF, mean (SD)	50.38 ± 19.07
Systolic Blood Pressure (Admission), median  Diastolic Blood Pressure (Admission), median  145.0 (121 - 163)  145.0 (121 - 163)  NYHA class III, n (%)  43 (66.2)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  11 (16.9)	Tricuspid Annulus Plane Systolic excursion (TAPSE), mean (SD)	17.7 ± 4.0
Diastolic Blood Pressure (Admission), median  NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  145.0 (121 - 163)  43 (66.2)  43 (66.2)  19 (29.2)  11 (16.9)	Pulmonary Artery Systolic Pressure (PSAP), median	34.60 (25.94 - 50.05)
NYHA class III, n (%)  ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  11 (16.9)	Systolic Blood Pressure (Admission), median	145.0 (121 - 163)
ACE Inhibitor, n (%)  Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  11 (16.9)	Diastolic Blood Pressure (Admission), median	145.0 (121 - 163)
Beta Blocker, n (%)  Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  138 (58.5)  19 (29.2)  11 (16.9)	NYHA class III, n (%)	43 (66.2)
Mineralocorticoid Receptor Antagonists, n (%)  Angiotensin II Receptor Blocker, n (%)  11 (16.9)	ACE Inhibitor, n (%)	43 (66.2)
Angiotensin II Receptor Blocker, n (%)	Beta Blocker, n (%)	38 (58.5)
	Mineralocorticoid Receptor Antagonists, n (%)	19 (29.2)
F 4 /00 4)	Angiotensin II Receptor Blocker, n (%)	11 (16.9)
Loop Diuretic, n (%) 54 (83.1)	Loop Diuretic, n (%)	54 (83.1)
Digoxin, n (%) 8 (12.3)	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.

- Variables associated with an increased risk for early rehospitalization were:
  - Baseline urea (HR: 1.098, 95% CI: 1.022-1.179, P-value=0.01)
  - Admission urea (HR: 1.048, 95% CI: 1.013-1.084, P-value=0.006)
  - Baseline creatinine (HR: 1.111, 95% CI: 1.004-1.229, P-value=0.041)
  - Admission creatinine (HR: 1.047, 95% CI: 1.005-1.092, P-value=0.027)
  - Admission GFR <30 mL/min (HR: 3.535, 95% CI: 1.467-8.518, P-value=0.005).

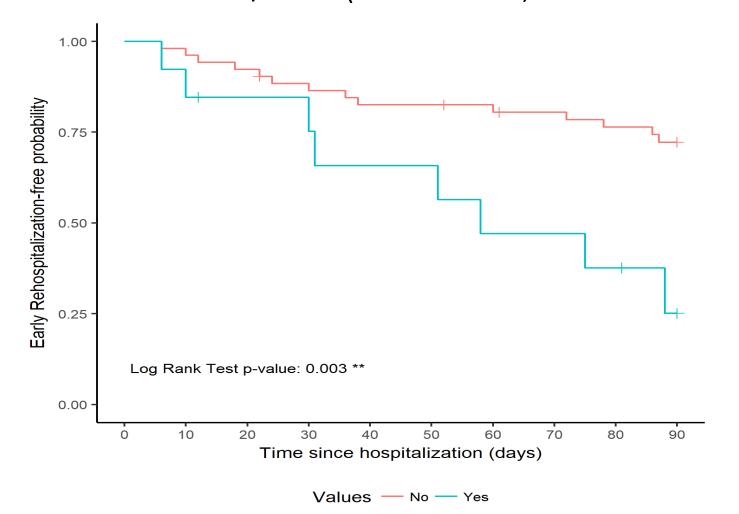


Figure 1- Early Rehospitalization - Kaplan Meier: admission GFR <30 ml/min

- Increased risk for short-term mortality was associated with:
- Baseline urea (HR: 1.145, 95% CI: 1.032-1.270, P-value=0.010),
- Admission urea (HR: 1.076, 95% CI: 1.021-1.135, P-value=0.006),
- Baseline creatinine (HR: 1.157, 95% CI: 1.009-1.328, P value=0.037),
- Admission creatinine (HR: 1.127, 95% CI: 1.055-1.204, P-value<0.001),
- Admission GFR <30 ml/min (HR: 9.791, 95% CI: 2.855-33.580, P-value<0.001).

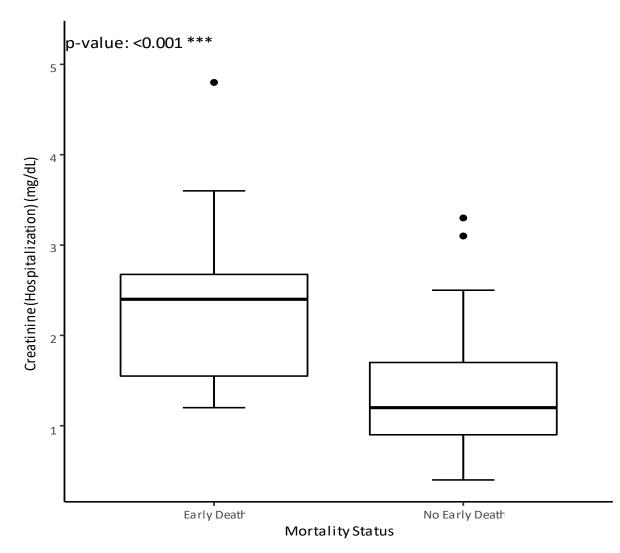


Figure 2- Baseline comparison of subjects by short-term mortality status: Admission creatinine

- Variables associated with an <u>increased risk for long-term mortality</u> were:
  - Admission urea (HR: 1.056, 95% CI: 1.019-1.094, P-value=0.003)
  - Admission creatinine (HR: 1.104, 95% CI: 1.054-1.156, P- value<0.001),
  - Admission GFR <30 ml/min (HR: 3.906, 95% CI: 1.7208.871, P- value=0.001).</li>

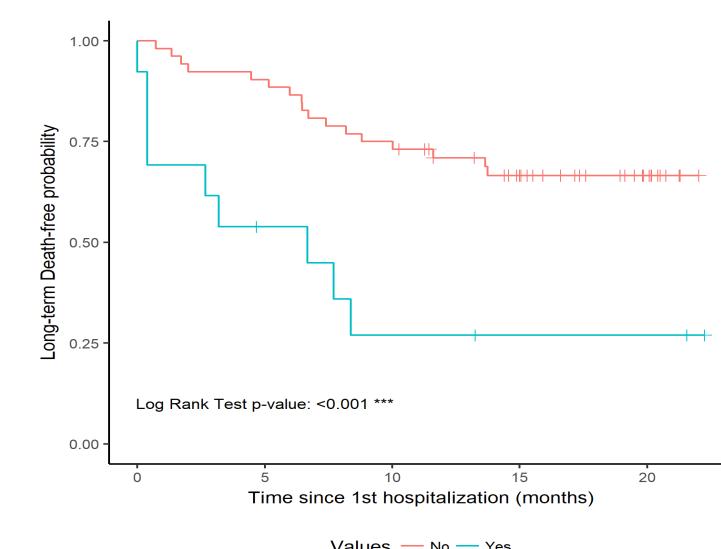


Figure 3- Long term mortality- Kaplan Meier: admission GFR <30 ml/min

• According to descriptive analysis short-term mortality risk was related with prior of chronic kidney disease (CKD) (P-value=0.024).

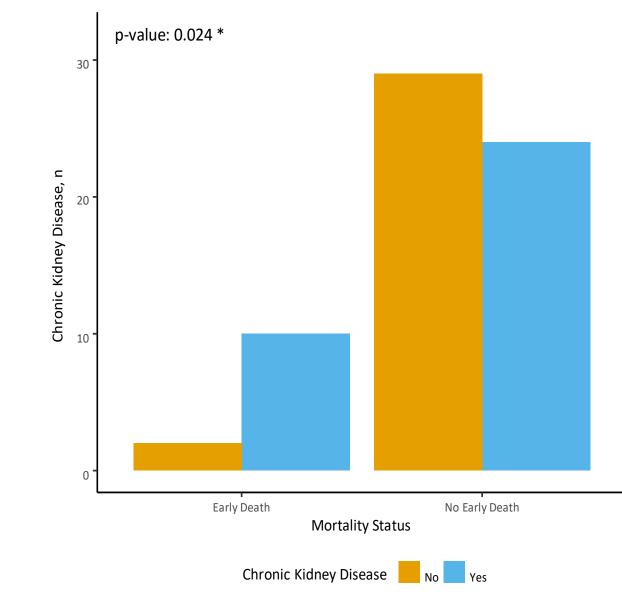


Figure 4 - Baseline comparison of subjects by short-term mortality status: Chronic kidney disease

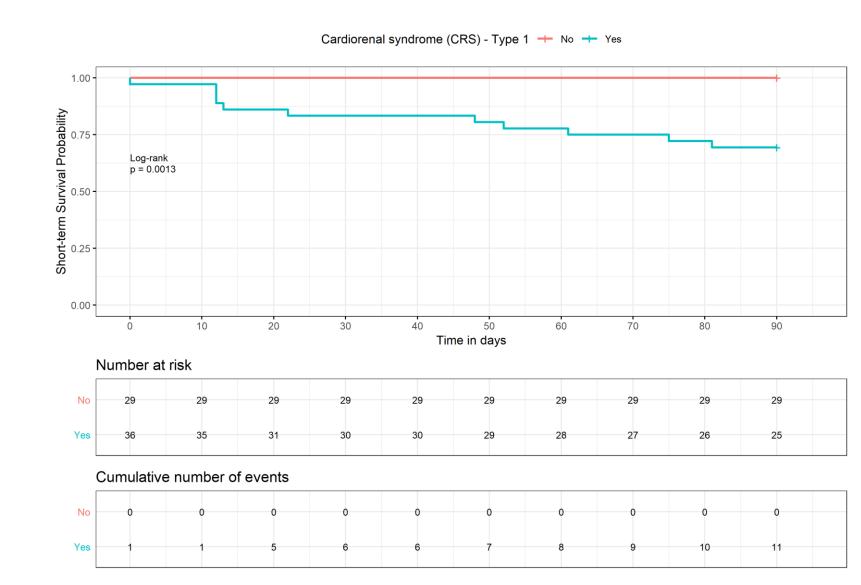


Figure 5 - Short-term mortality - Kaplan Meier: Cardiorenal syndrome