| Table J-17. Studies evaluating independent predictive value of NT-proBNP for the outcome of all-cause mortality - admission and discharge (from 24 months to 7 years) in patients with decompensated heart failure  |
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| **Author****Year** | **Study Design****Population** | **n****Mean Age (SD)****% male** | **BNP Levels (pg/mL)** | **Prognostic Markers** | **Followup****Outcomes****(#events, #risk)** | **Model** | **Adjusted/Non-adjusted Covariates** | **Measure(s) of Risk (95% CI,)**  |
| Andersson682008 | CohortElderly patients (age >65y) admitted to ED with HF | n=365mean age:alive=80y (73-85)\*\*dead=83y (78-88)\*\*51.0% male  | ADM mean:alive=5,734 (3,696-10,966)\*\*dead=1,668 (6,337-28,605)\*\*D/C mean: NRCutpoint: NR | log2NT-proBNP, age, systolic BP, furosemide, ACE inhibitors/ARBs | 24mAll-cause mortality(127, 365) | Multivariable cox regression | Age, systolic BP, furosemide, ACE inhibitors/ARBs | ADM: HR=1.6 (1.4-1.9) per doubling the NT-proBNP levels, p<0.001 |
| CohortPatients in Q2 (NT-proBNP, 3,001-5,000) vs. Q1 (NT-proBNP <3,000) | n=131mean age:NR% male: NR | ADM mean: NRD/C mean: NRCutpoint: 3,001-5,000 | NT-proBNP (quartiles), LVEF, NYHA class, chest radiology | 24mAll-cause mortality(NR) | Multivariable cox regression | LVEF, NYHA class, chest radiology |  ADM: HR=3.4 (0.79-15.0), p=0.10 |
| CohortPatients in Q3 (NT-proBNP, 5,001-10,000) vs. Q1 (NT-proBNP <3,000) | n=129mean age:NR% male: NR | ADM mean: NRD/C mean: NRCutpoint: 5,001-10,000 | NT-proBNP (quartiles), LVEF, NYHA class, chest radiology | 24mAll-cause mortality(NR) | Multivariable cox regression | LVEF, NYHA class, chest radiology |  ADM: HR=4.5 (1.1-19.0), p=0.04 |
| CohortPatients in Q4 (NT-proBNP >10,000) vs. Q1 (NT-proBNP <3,000) | n=165mean age:NR% male: NR | ADM mean: NRD/C mean: NRCutpoint: >10,000 | NT-proBNP (quartiles), LVEF, NYHA class, chest radiology | 24mAll-cause mortality(NR) | Multivariable cox regression | LVEF, NYHA class, chest radiology |  ADM: HR=7.4 (1.8-30.0), p=0.006 |
| Pascual-Figal742011 | CohortPatients admitted with acute decompensated HF | n=107mean age:72y (13)56.0% male:  | ADM mean: 3,724 (1,954-7,666)\*\*D/C mean: NRCutpoint: NR | NT-proBNP, sST2, hs-cTnT, age, sex, BMI, Hb, NYHA class, BUN, prior MI, creatinine, LVEF | 739\*\* dAll-cause mortality(29, 107) | Bootstrapped multivariable cox regression | sST2, hs-cTnT, age, sex, BMI, Hb, NYHA class, BUN, prior MI, creatinine |  HR=1.005 (1.000-1.01) per 100pg/mL increase |

| Table J-17. Studies evaluating independent predictive value of NT-proBNP for the outcome of all-cause mortality - admission and discharge (from 24m to 7 years) in patients with decompensated heart failure (continued) |
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| **Author****Year** | **Study Design****Population** | **n****Mean Age (SD)****% male** | **BNP Levels (pg/mL)** | **Prognostic Markers** | **Followup****Outcomes****(#events, #risk)** | **Model** | **Adjusted/Non-adjusted Covariates** | **Measure(s) of Risk (95% CI,)**  |
| Harutyunyan792012ECHO | CohortPatients with HF and severe LVSD | n=717mean age:70y (NR)73.0% male  | ADM mean: NRD/C mean: NRCutpoint: NR | log2NT-proBNP, age, gender, and LVEF, Hb, history of HF, ischemic HD, COPD, stroke/TIA, and DM, log2hs-CRP, eGFR  | 6.8yAll-cause mortality(458, 717) | Multivariable cox regression | Age, gender, and LVEF,Hb, history of HF, ischemic HD, COPD, stroke/TIA, and DM, log2hs-CRP, eGFR  | ADM HR=1.28 (1.15, 1.44), p<0.0001 |

**Abbreviations:** ACE = angiotensin converting enzyme; ADM = admission; ARB = angiotensin receptor blockers; BMI = body mass index; BNP = B-type natriuretic peptide; BP = blood pressure; BUN=blood urea nitrogen; 95% CI, = confidence interval; COPD = chronic obstructive pulmonary disease; d = day(s); D/C = discharge; DM = diabetes mellitus; ECHO = EchoCardiography and Heart Outcome Study; ED = emergency department; eGFR = estimated glomerular filtration rate; Hb = hemoglobin; HD = heart disease; HF = heart failure; HR = hazard ratio; hs-CRP = high-sensitivity c-reactive protein; hs-cTnT = high-sensitivity cardiac troponin T; LVEF = left ventricular ejection fraction; LVSD = left ventricular systolic dysfunction; m = month(s); MI = myocardial infarction; n=number; NR = not reported; NS = non-significant; NT-proBNP = N-terminal pro-B-type natriuretic peptide; NYHA = New York Heart Association; OR = odds ratio; pg/mL = picograms per milliliter; RR = relative risk; SD = standard deviation; sST2 = soluble ST2; TIA = transient ischemic attack; vs. = versus; y = year(s)