Table K-2. Studies evaluating incremental value of BNP to predict the outcome of cardiovascular mortality in patients with decompensated heart failure for all time points

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| **Author, Year,****Length of F/U** | **Study Description** | **Peptide Levels (pg/mL)** | **Prognostic Markers** | **Model Descriptions****Measure(s) of Risk (95%CI)** | **Discrimination Statistics****(C-statistics/C-index)** | **Global Model Fit Statistics✝** | **Calibration Statistics (Hosmer-Lemeshow Statistic)** | **Measure of Risk Reclassification****(IDI and NRI)** |
| Zairis,52010F/U: 31d  | Study design: Cohort Population: Patients hospitalized with acutely decompensated severe low-output CHF (NYHA class III/IV) n, Mean Age (SD), % Males:577, 74.2yrs(8.2), 68.3%Outcomes (#events, #risk):Cardiac mortality (102, 577) | ADM mean: 1,110.1 (410.7) D/C mean: NR Cutpoint: NR | BNP, age ≥75y, acute pulmonary edema, LVEF<25%, GFR<30 ml/min, Hx of MI, CHF of ischemic etiology, AF or flutter, Hb (g/dl), Serum cTnI, Serum hs-CRP | Model: Multivariate Cox regression Adjusted/Non-Adjusted Covariates: Age≥75 (years), acute pulmonary edema, LVEF<25%, GFR<30 ml/min, Hx of MI, CHF ischemic etiology, AFor flutter, Hb (g/dl), serum cTnI, serum hs-CRPHR=2.2 (1.5-3.7) | c-statistics: model with all univariate predictors except biomakers: 0.70 model + BNP=0.79 model + cTnI=0.77 model + hs-CRP=0.74 model + BNP + cTnI=0.81 model + BNP + cTnI + hs-CRP=0.82 | NR | NR | NR |
| Nunez,22010F/U: 6m  | Study design: Cohort Population: Patients admitted with AHF n, Mean Age (SD), % males:1,111, 73yrs(11), 49%Outcomes (#events, #risk): CV mortality (154, 1,111) | ADM mean: 237\*\* (97 to 434) D/C mean: NR Cutpoint: NR | log BNP, log CA125 | Model: Adjusted (multivariable) Cox Regression Adjusted/Non-Adjusted Covariates: Age, sex, prior ADM for AHF, AHF category, SBP, angiotensin receptor blockers, beta-blockersHR=1.48 (1.24 to 1.77) | NR | NR | NR | Absolute IDI index (%) vs. base model alone:BNP + base model=1.23 BNP + CA125 + base model=3.65 base model + CA125=2.31. Addition of CA125 to base model + BNP=2.41 |

| Table K-2. Studies evaluating Incremental value of BNP to predict the outcome of Cardiovascular in decompensated Heart Failure patients for all time points (continued) |
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| **Author, Year,****Length of F/U** | **Study Description** | **Peptide Levels (pg/mL)** | **Prognostic Markers** | **Model Descriptions****Measure(s) of Risk (95%CI)** | **Discrimination statistics****(C-statistics/C-index)** | **Global Model fit statistics✝** | **Calibration Statistics (Hosmer-Lemeshow statistic)** | **Measure of risk reclassification** **(IDI and NRI)** |
| Nunez,22010F/U: 6m  | Study design: Cohort Population: Patients admitted with AHF n, Mean Age (SD), % Males:1,111, 73yrs(11), 49%Outcomes (#events, #risk): HF Mortality (99, 1,111) | ADM mean: 237\*\* (97 to 434) D/C mean: NR Cutpoint: NR | log BNP, log CA125 | Model: Adjusted (multivariable) Cox regression Adjusted/Non-Adjusted Covariates: Age, sex, prior ADM for AHF, AHF category, SBP, angiotensin receptor blockers, beta-blockersHR=1.47 (1.19 to 1.81) | NR | NR | NR | Absolute IDI index (%) vs. base model alone:BNP + base model=1.23 BNP + CA125 + base model=3.65 base model + CA125=2.31. Addition of CA125 to base model + BNP=2.41 |

✝Likelihood-based measures i.e., log likelihood ratio, likelihood ratio chi-square, Global chi-square, incremental chi-square

\*Insignificant

\*\*Median Values

**Abbreviations:** ADM = admission; AF = atrial fibrillation; AHF = acute heart failure; BMI = body mass index; BMod = behavior modification; BNP = B-type natriuretic peptide; BP = blood pressure; CA125 = carbohydrate antigen 125; CHF = congestive heart failure; CP = cutpoint; CRP = C-reactive protein; cTnI = cardiac troponin I; CV = cardiovascular; d = days; D/C = discharge; F/U = followup; GFR = glomerular filtration rate; Hb = hemoglobin; HF = heart failure; HR = hazard ratio; Hs-CRP = Hx = history; IDI = integrated risk improvement; IQR = Interquartile range; LVEF = left ventricular ejection fraction; m = months; MI = myocardial infarction; mmol/L = milli mol per liter; NR = not reported; NS = not significant; NYHA = New York Heart Association; pg/mL = picograms per milliliter; SBP = systolic blood pressure; TnT = troponin T; vs. = versus; yrs = years