

### 1049-117 B-Type Natriuretic Peptide Is a Biochemical Predictor of Myocardial Contractile Reserve During Dobutamine Stress Echocardiogram

Ann Tong, Daniel Lenihan, Vivjay Divakaran, Jessica M. Tristan, Mona Nemir, Joseph Swafford, Gregory Geisler, Mary Voelctch, Beverly Handy, Jean-Bernard Durand, University of Texas, M.D. Anderson Cancer Center, Houston, TX

Dobutamine Stress Echocardiography (DSE) is used to assess myocardial contractile reserve (CR) in ischemic and dilated cardiomyopathy (CMP). A higher CR is associated with improved prognosis and LVEF with optimal therapy. No data is available in patients with chemotherapy-induced CMP. Technical limitations due to imaging may improve the diagnostic ability of DSE. Brain Natriuretic Peptide (BNP), a neurohormone secreted from the ventricle in response to volume overload, may provide additional predictive power to DSE.

We hypothesized that BNP can be used as a biochemical marker for CR and may improve the diagnostic capability of DSE. BNP levels were obtained at baseline and prior to DSE in 42 patients (23 men, 19 women) with LVEF < 45%. Baseline demographics: mean age 61±14 yrs, prior chemotherapy 67%, ischemic heart disease 34%, hypertension 36%, diabetes 12%, and NYHA class 2±3±0.9. Patients were categorized based on response of BNP during DSE: Group 1 (n=22, BNP falls) and Group 2 (n=20, BNP rises). See Table 1. With linear regression analysis, there was a significant inverse correlation between changes in BNP and LVEF pre and post DSE (r=0.6, p<0.001).

**Table 1**

<table>
<thead>
<tr>
<th>Change in BNP(pg/ml)</th>
<th>Change in LVEF (%)</th>
<th>Change in LVEF(%)</th>
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<tbody>
<tr>
<td>Group 1 (fall in BNP)</td>
<td>101±90</td>
<td>35±9</td>
</tr>
<tr>
<td>Group 2 (rise in BNP)</td>
<td>68±84</td>
<td>33±9</td>
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</table>

All data is mean ± SD

BNP can identify CR in conjunction with DSE and may be helpful in technically difficult studies. A decrease in BNP after DSE is strongly correlated with the presence of CR, shown by an increase in LVEF. In chemotherapy-induced CMP, a condition generally considered irreversible, BNP in conjunction with DSE may predict improvement of cardiac function.

### 1049-118 N-Terminal Pro-Brain Natriuretic Peptide and Urinary Albumin Excretion Is Independent Predictors of All Cause Mortality in the General Population

Caroline Kistin, Ilan Raymond, Frants Pedersen, Jens Faber, Per Hildebrandt, Frederiksberg, Denmark

Background: N-terminal proBNP (NT-proBNP) and urinary albumin excretion is known important risk factors for mortality in patients with chronic heart failure (CHF) and diabetes mellitus, respectively. It is unclear whether these unconventional risk factors are independent predictors of all cause mortality in the general population. Methods: A total of 658 subjects (age 51-91 years), were consecutively recruited from 4 general practitioners in the Frederiksborg municipality. All subjects underwent echocardiography, measuring left ventricular ejection fraction (LVEF), and plasma NT-proBNP and urinary albumin/creatinine ratio (A/C ratio) were measured at baseline. Mean follow-up time was 48 months. Using multivariate Cox proportional hazard models, the prognosis of the upper quartile of plasma NT-proBNP and urinary A/C ratio was evaluated in two models: Model 1 (total population). Model 2 (after exclusion of patients with known heart failure or LVEF < 50 %, as well as, diabetes by history or HbA1c > 6.1 %).

**Results:** During follow-up there were 55 (8.1%) deaths from any cause in the total population (n = 658). Plasma levels of NT-proBNP and urinary A/C ratio in the upper quartile, was associated with increased risk for total mortality. For NT-proBNP, hazard ratio (HR) was 3.6 (95% CI: 1.6-6.7; p < 0.0001); for urinary A/C ratio, HR was 2.6 (95% CI: 1.4-4.9; p=0.002). In model 2 (n = 496) mortality rates were 5.3 %. For NT-proBNP, HR was 2.8 (95% CI: 1.3-6.2; p=0.002); for urinary A/C ratio, HR was 5.1 (95% CI: 1.8-13.9; p=0.0019), after adjustment for age, gender, LVEF and established risk factors in both models. Median urinary A/C ratio (mg/g) and plasma NT-proBNP (pmol/l) levels in subjects who died was 20 mg/g (347-4), and 94.0 pmol/l (18-3163.2), compared with 6 mg/g (3-66) and 3.1 pmol/l (5.2-202.6) in survivors, p < 0.0001 for both.

**Conclusion:** Plasma NT-proBNP and urinary albumin are independent risk factors for total mortality in the general population. Even when excluding patients with conditions associated with increased plasma NT-proBNP and urinary albumin excretion, both unconventional risk factors remained strong prognostic predictors.

### 1050-120 Echocardiographic and Angiographic Correlations in Cardiogenic Shock

M. Joshua Berkowitz, Shannon Harkness, Judith Hochman, Michael Picard, Timothy Sanborn, Norma Kellar, James Slater, New York University Hospital, New York, NY

**Objectives:** We investigated the correlation between echocardiographic and angiographic core lab data in patients with cardiogenic shock (CS) complicating AMI. **Background:** In patients with CS complicating AMI, both echocardiographic and angiographic findings are used to aid diagnosis, determine prognosis, and guide management. The purpose of this study of the SHOCK trial is to identify relationships between the angiographic and echocardiographic features of patients with CS. Such an analysis may provide insights into the etiology and treatment of CS.

**Methods:** Of 302 randomized patients, a pre-revascularization echocardiogram and angiogram was available in 119 patients. The correlations between almost all echo and angiographic parameters collected within 4 hours and greater than 4 hours of each other were similar. Although the median ejection fraction (EF) derived by echo and LV angiogram was identical, 29.5%, this significant positive correlation was week (R²=0.209, p=0.019) as was the significant negative correlation between EF and angiographic jeopardy scores (R²=0.145, p<0.001). Although the presence of left main obstruction (>50% stenosis) was associated with lower LVEF (26% vs.31%, p<0.03) there was only a trend for decreasing EF with number of diseased vessels. Patients with a higher number of diseased vessels had worse MR by echo (p=0.05). There was a significant, but weak association between LV gram QR grade and echo MR severity (R²=0.162, p=0.015), but there was no association between culprit vessel and degree of MR. Patients with TIMI grade 0/1 were more likely to have impaired LV function (p=0.029). Collateral flow to the culprit vessel was not associated with improved EF. There was a trend towards an increased incidence of LV thrombus in LAD culprit vessels (p=0.060).

**Conclusions:** Higher angiographic jeopardy scores and low TIMI flow scores are associated with worse LV function but collateral flow to the culprit vessel is not associated with improved EF by echo. Worse CAD is associated with more severe MR. Both echo and angiography are valuable and result in similar estimated EF’s in a large cohort however there is wide variation between the techniques in individual patients.