THE NONDIFFERENTIAL EFFECT OF CHRONIC \( \beta \)-BLOCKER TREATMENT ON LEFT VENTRICULAR FUNCTION AND MYOCARDIAL GLUCOSE UPTAKE IN HEART FAILURE PATIENTS

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Tuesday, March 16, 2010, 9:30 a.m.-10:30 a.m.

Session Title: Betablockers and Heart Failure; New Findings
Abstract Category: Myocardial Function/Heart Failure–Clinical Pharmacological Treatment
Presentation Number: 1235-75

Authors: Biykem Bozkurt, Mariana Bolos, Maithili Shenoy, Haby Henary, Lance K. Gould, Michael E. DeBakey Veterans Affairs Medical Center, Houston, TX, Baylor College of Medicine, Houston, TX

Background: Though exact mechanisms by which \( \beta \)-blockers improve LV function in heart failure (HF) are unknown, improvement in myocardial substrate utilization has been implicated. \( \alpha_1 \), \( \beta_1 \) and \( \beta_2 \) blockers, associated with enhanced insulin sensitivity, may result in increased myocardial glucose uptake (MGU) compared to \( \beta_1 \) blockers. Our aim was to determine whether different types of \( \beta \)-blocker treatment in HF were associated with improvement in MGU.

Methods: 27 \( \beta \)-blockers naive HF patients were prospectively randomized to carvedilol or metoprolol XL. Echocardiogram, cardiac PET for MGU with [18F] fluoro-2-deoxy-D-glucose (FDG) were performed at baseline and after 6 months of treatment.

Results: The mean age of patients was 62.5 yrs, 99.5 % were male, 48% with ischemic HF, 41% diabetes, 81% hypertension. 89 % were on Ace-inh, 81% diuretics. Carvedilol dose at 6 months was 37.5±17.7, metoprolol XL 153.3±93.0 mg/day. After 6 months, there was a significant improvement in NYHA Class (p=0.02), in LVEF (26.3±7.3; 33.3±13.3, p=0.03), in BNP (538.4± 613.1; 207.64±222.9 pg/mL, p=0.03); but no significant change in MGU (0.0314 ± 0.0197; 0.0281± 0.0166 mL/min/g,p=ns) (Figure). There was no difference in change in MGU with carvedilol vs metoprolol XL groups.

Conclusion: In HF patients treated with chronic \( \beta \)-blockers, the improvement in LVEF was not accompanied with improvement in myocardial glucose uptake, and there was no significant difference in MGU between carvedilol and metoprolol XL treated groups.