

**[433] Enhanced External Counterpulsation in the Treatment of Angina Patients with Heart Failure and Diabetes**

**William E. Lawson, John C.K. Hui, Elizabeth D. Kennard, Sheryl F. Kelsey, Marc A. Silver, John E. Strobeck** *Cardiology, State University of New York, Stony Brook, Stony Brook, NY; Epidemiology, University of Pittsburgh, Pittsburgh, PA; Medicine, Advocate Christ Medical Center, Oak Lawn, IL; Cabrini Medical Center, New York, NY*

**Background:** Neurohormonal activation affects the pathophysiology of insulin resistance, diabetes, cardiovascular events, and heart failure (HF). Enhanced External Counterpulsation (EECP) improves endothelial dysfunction, increases nitric oxide and reduces angiotensin II. This study tested the hypothesis that EECP is equally effective in treating diabetics (D) and non-diabetics (non-D) with angina and heart failure (HF).

**Methods:** Patients with angina and HF in the International EECP Patient Registry (IEPR) were analyzed. Outcomes included: change pre- to post-EECP therapy in NYHA and CCS classes, NTG use, quality of Life (QOL) and major adverse cardiovascular events (Death, MI, CABG, PCI).

**Results:** There were 277 (147 D; 130 non-D) patients with HF and angina in the IEPR. The D cohort was significantly heavier (90.4 vs 80.9 kg,  $p < 0.001$ ), had more hypertension (87% vs 74%,  $p < 0.01$ ), hyperlipidemia (92% vs 85%,  $p < 0.05$ ), prior PCI (77% vs 63%,  $p < 0.05$ ), and chronic renal insufficiency (32% vs 19%,  $p < 0.05$ ). At baseline, there were no differences in D vs non-D in NYHA class II and III (81% vs 82%), CCS class III and IV (92% in both group), LVEF (37% vs 35%), multivessel CAD (93%), revascularization candidacy (6%), Ntg use/wk (8 vs 10), with similar medications and angina episodes/wk (12; both groups). D graded functional status by DASI as significantly worse (6.9 vs 9.1,  $p < 0.01$ ). 72% of D and 82% of non-D completed EECP therapy (mean 32 hrs). During therapy there was a significant difference in MACE (6.1% D vs 0% non-D,  $p < 0.01$ ) and higher CHF exacerbation (6.3% D vs 3.2% non-D,  $p = ns$ ). Post EECP, D and non-D reported a comparable  $\geq$  one class reduction in NYHA class (42% D vs 30% non-D), CCS  $\geq$  one class reduction (76% D vs 78% non-D), mean decrease in angina episodes/week (8.7; both groups), and Ntg use (7.4 vs 5.6,  $p = ns$ ). However, post EECP, even though D demonstrated significant improvements in physical functioning score compared with pre-EECP ( $p < 0.001$ ), the mean DASI score was still significantly less than non-D (11.3 vs. 14.7  $p < 0.05$ ).

**Conclusions:** EECP effectively relieves angina and heart failure symptoms in refractory patients with or without diabetes, although D have a significantly higher rate of events during the treatment period.

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**Poster: Clinical Care/Management**

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