

## **289: ENHANCING COMPUTER-BASED HEART FAILURE TREATMENT BY PROVIDING PHYSICIANS WITH SYMPTOM DATA**

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### **Objective:**

Controlled trials for heart failure (HF) have identified treatments that can reduce HF exacerbations and improve functional status and quality of life. Yet compliance with HF guidelines is suboptimal. We performed a randomized, controlled trial to compare suggestions using only data stored in a comprehensive electronic medical record (EMR) (control care) with EMR-based care suggestions that were triggered by and displayed symptom data (presence and severity) (intervention) on processes and outcomes of care in HF.

### **Methods:**

Before enrolling patients, we randomized VA primary care physicians and nurse practitioners (26 intervention, 21 control). Veterans were enrolled at scheduled visits if they had both a current diagnosis of HF and objective evidence of left ventricular systolic dysfunction by cardiac sonogram, scan, or catheterization. Symptoms were assigned New York Heart Association (NYHA) functional class; additional symptom data were obtained 2-3 weeks before each visit using the Kansas City Cardiomyopathy Questionnaire (KCCQ). CHF-specific quality of life was assessed via the McMaster Chronic Heart Failure Questionnaire (CHQ), while the SF-36 was used to assess generic quality of life. NYHA class and KCCQ data were added to EMR data to assess eligibility for HF care for both intervention and control patients. All physicians received EMR-based HF care suggestions at every scheduled visit, based on guidelines previously published by the VA and the Agency for Healthcare Research and Quality. In addition, intervention physicians' HF care suggestions included NYHA class, severity of symptoms, and their changes since the last primary care visit. Outcomes assessed at 6 and 12 months (controlled for treating physician) included compliance with HF guidelines, changes in baseline generic and specific quality of life, satisfaction with their primary care and physicians, and healthcare utilization (hospitalizations and outpatient visits).

### **Results:**

We enrolled 495 patients (80% of those eligible): 239 intervention and 256 controls. Most patients (98%) were male, 84% were Caucasian, and their mean age was 68 years. Baseline NYHA class was 2.6. The 6-month interviews were completed by 452 patients (91%) and 413 (83%) completed the 12-month interviews. At 12 months, there were no significant differences in compliance with HF guidelines between the two groups ( $p=0.32$ ), nor were there any differences in any of the scales or subscales of the SF-36 ( $p>0.2$ ). At 12 months, there were no differences in all-cause hospitalizations for intervention (0.81 per patient) vs. control (0.83;  $p=0.8$ ) or in outpatient visits (0.91 vs. 0.94,  $p=0.71$ ). Intervention patients were more satisfied with their physicians at 6 months ( $p=0.01$ ) and with their primary care at 12 months ( $p=0.047$ ). At 6 and 12 months, there were no differences between the groups in the overall quality of life or any of its 4 subscales ( $p>0.1$ ) but the overall CHQ improved by 0.24 points (for intervention) on a 7-point scale vs. 0.26 (for control) from baseline (0.5 is considered clinically relevant). There was no difference in the NYHA class between the intervention and control groups at 12 months ( $p=0.27$ ) however, 82% of the intervention and 80% of control did improve or remain in the same NYHA class, mean improvement for intervention patients was 0.55 vs. 0.33 for control.

### **Conclusions:**

Enhanced computer-based suggestions with subjective information gathered from patients prior to scheduled primary care visits were no more effective than suggestions based only on EMR data at improving processes and outcomes of care, both clinical and quality of life for patients with heart failure. Because NYHA functional class improved at 6 months and was sustained at 12 months in both groups in a condition that is known to worsen with time, this suggests that computer reminders did improve patient outcomes, but EMR data sufficed.