

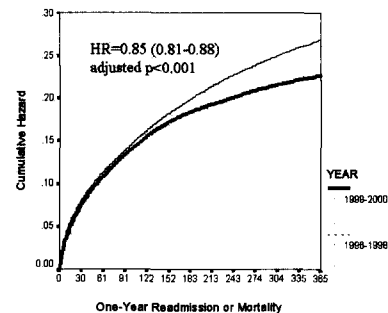
which provided protection against the effects of ischemia and reperfusion in a dose-dependent fashion. In addition, L-arginine cardioprotection was mediated by the activation of guanylate cyclase leading to increased cGMP levels in human heart cells. The final effector of NO/cGMP may be the opening of K_{ATP} channels.

5:00 p.m.

411-5 L-Arginine for Partial Resynchronization of Abnormal Peripheral Vascular Reactivity in Heart Failure: A Prospective Randomized Double-Blind Study

Mohammed Yousofuddin, Mohamed Amrani, Waqar Shamim, Faisal Al-Nasser, Fouad Amin, Nicholas R. Banner, Andrew J S. Coats, National Heart and Lung Institute, London, United Kingdom.

We investigated the effects of oral L-arginine (ARG) supplement on brachial artery (BA) reactivity in patient with CHF. Methods: Fifty-men (59±10 yr.) with stable CHF of NYHA grade I-III and ejection fraction <40% were randomized to oral ARG or matching placebo for 1-week. Twenty-healthy men (57±9yr) with no clinical evidence of disease served as parallel controls for baseline comparison. BA reactivity was measured as a) flow-mediated dilation (FMD) in response to hyperemia induced by 5-min of distal forearm occlusion by blood pressure cuff, b) exercise-induced constriction (EIC) immediately after treadmill exercise, and c) resting, hyperemic and post-exercise BA blood flow by high-resolution ultrasound technique using 8-11 MHz vascular probe connected to SONO 5500 (Agilent Tech, USA). FMD and EIC were measured as % change in diameter of the BA after increased flow and exercise respectively. Exercise was performed with modified Bruce protocol and peak oxygen consumption (VO_2) was measured (AMIS 2000, Denmark). Exhaled nitric oxide (NO) was measured by a chemiluminescence analyzer. Investigations were performed after overnight fast under identical condition. Inferential statistics were restricted to CHF patients. Results: ARG and placebo patient-groups and controls were similar in demographics. Baseline characteristics were comparable between ARG and placebo groups in patients. Controls and patients differ in their BA reactivity and exercise capacity with former showing higher FMD and VO_2 but lower EIC (all $P<0.0001$). At one-wk FMD (2.24 ± 0.89 to 2.6 ± 1.1 Vs 2.3 ± 0.32 to $2.3\pm1.07\%$; $P=0.02$) has increased while EIC (7.2 ± 4.0 to 5.3 ± 2.8 vs 5.9 ± 3.2 to $5.8\pm3.1\%$; $p=0.02$) decreased with ARG supplementation compared to placebo in patients. Exhaled NO was increased, independent of changes in FMD or EIC in ARG arm compared to placebo (7.6 ± 2.8 to 9.4 ± 3.4 ; vs 8.9 ± 2.5 to 9.4 ± 3.4 parts per billion; $P=0.01$). Patients, who received ARG demonstrated a strong trend toward increase in exercise interval, VO_2 , and hyperemic blood flow compared to placebo group. Conclusion: ARG, via an increase in NO bioavailability, partially resynchronizes brachial artery reactivity towards normal in patients with CHF.



8:45 a.m.

849-2 Quality of Care of Patients Admitted With Congestive Heart Failure: Influence of Physician Specialty and Hospital Type

Jay K. Amin, Michael J. Lim, Yassar Almanaseer, Chih-Wen Pai, Gerriann Finnegan, Kim A. Eagle, Rajendra H. Mehta, University of Michigan, Ann Arbor, Michigan, Michigan Peer Review Organization, Plymouth, Michigan.

Background: Congestive heart failure (CHF) is a common admission diagnosis in elderly patients (pts) in the United States. Increased resource utilization by CHF pts has generated great interest in improving quality of care for these pts. The impact of physician specialty and hospital type on the quality of care has not been well studied. **Methods:** We evaluated 5871 Medicare beneficiaries admitted to 31 acute care hospitals in Southeast Michigan with CHF (1/98-12/98). Patients were identified retrospectively using ICD-9 codes for CHF. Indicators were evaluated with respect to physician specialty (cardiologist vs. non-cardiologist) and hospital type (teaching, n=17 vs. non-teaching, n=14).

Results: Indicators are shown (Table). Patients treated by cardiologists had shorter length of stay (LOS, 5.5 vs. 6.0 days, $p<0.01$) and similar 1-year mortality rates (37.9% vs. 35%, $p=.06$) compared to non-cardiologists. Patients treated in teaching hospitals had shorter LOS (5.6 vs. 6.1 days, $p<0.01$) and lower 1-year mortality rates (34.7% vs. 37.4%, $p=.04$).

Conclusion: Quality of care for CHF pts tends to be less optimal in those treated by non-cardiologists and at non-teaching hospitals despite similar or higher mortality rates. This data supports the need for further educating non-cardiologists in the management of elderly pts admitted with CHF. In addition, it suggests that systemization of processes at non-teaching hospitals may improve the quality of care for CHF pts, thus leading to better long-term outcomes.

Quality Indicators	Teaching Hospital, n=3350	Non-teaching Hospital, n=2521	P Value	Cardiologist, n=1297	Non-cardiologist, n=3599	P Value
Discharge ACE-inhibitor/ARB (%)	81.6	73	<0.001	79.6	76.5	0.24
LVEF documented (%)	70.5	64.6	<0.001	65.3	68.3	0.05
Discharge smoking cessation counseling (%)	24.0	34.5	0.08	28.1	27.9	0.98
Discharge written instructions (%)	97.0	97.3	0.75	97.8	97	0.43
Weights measured, >50% hospital days (%)	68.4	61.6	0.006	77.7	62.6	<0.001
Discharge warfarin in CHF pts with atrial fibrillation (%)	48.7	41.7	0.16	56.5	39.1	<0.001

9:00 a.m.

ORAL CONTRIBUTIONS

849 Improving Quality of Care
 Tuesday, March 19, 2002, 8:30 a.m.-10:00 a.m.
 Georgia World Congress Center, Room 367W

8:30 a.m.

849-1 An Institutional Discharge Medication Program Reduces Future Cardiovascular Readmissions and Mortality: An Analysis of 43,841 Patients With Coronary Artery Disease

Robert B. Pearson, Benjamin D. Horne, Chloe A. Allen Maycock, Donald L. Lappe, Susan Kralick-Goldberg, Tami L. Bair, Janette A. Orton, Diane S. Wallace, Haeli Hansean, Dale G. Renlund, Joseph B. Muhlestein, LDS Hospital, Salt Lake City, Utah.

Background: Patients (pts) admitted with a diagnosis of coronary artery disease (CAD) carry a significant risk of re-hospitalization or death during the year after discharge. We have shown that successful implementation of a multi-faceted discharge medication program (DMP) increases the likelihood of CAD pts being discharged on appropriate medical therapy (ASA/Antiplatelet and a statin for all; Beta-Blockers post-MI). We hypothesized that this DMP would result in reduced cardiovascular readmissions and mortality.

Methods: We analyzed 43,841 pts discharged after a CAD-related hospitalization from 10 hospitals within an integrated health care system. Implementation of the DMP was initiated in 1/1999 and increased overall medication use from 65% to 95%. We compared one year cardiovascular readmission or death rates of pts discharged between 1/1996-12/1998 (n=25,185) (pre-DMP) to pts discharged between 1/1999-6/2000 (n=18,656) (post-DMP).

Results: Average pt age was 64±15 years; 62% were male; demographics did not differ between pre- and post-DMP groups. After controlling for age and gender in Cox regression, post-DMP one-year re-admission rates were reduced from 20.4% to 17.7% (hazard ratio [HR]=0.86, $p<0.001$) and one-year mortality was reduced from 4.5% to 3.5% (HR=0.79, $p<0.001$).

Conclusions: The successful implementation of an institutional cardiac DMP can significantly lower the rate at which pts with CAD are readmitted for cardiac complications and also will lower their mortality rates.

849-3 Regional Differences in Quality of Care for Heart Failure: The Role of Patient, Physician, and Hospital Characteristics

Edward P. Havranek, Pam Wolfe, Frederick A. Masoudi, Harlan M. Krumholz, Saif S. Rathore, Beth Stevens, Diana L. Ordín, Colorado Foundation for Medical Care, Aurora, Colorado.

Background: Quality of care for elderly heart failure patients varies across the United States, but the extent to which patient, provider and hospital characteristics contribute to this variation is unknown. **Methods:** We used data from the National Heart Failure project, a Center for Medicare and Medicaid Services quality initiative that studied 37,500 Medicare patients hospitalized with heart failure, to evaluate the extent to which patient, physician and hospital characteristics explain regional variation in heart failure treatment. Small area variation for two quality indicators (QI)- documentation of ejection fraction (EF) and appropriate prescription of angiotensin converting enzyme inhibitor (ACEI)- was assessed by estimating the QI rates by Hospital Referral Regions (HRRs) in the United States using a non-linear mixed-effects model. To identify variables associated with performance on the quality indicators by census divisions we used the method of generalized estimating equations for a logistic model entering HRR as a random effect. We compared the distribution of the predictors across regions using a chi-square test for