3154

Resolution of right atrial congestion before LVAD implantation is associated with improved outcomes

Gaurav Gulati[1], Nilay Sutaria[1], Amanda Vest[1], David DeNofrio[1], Masashi Kawabori[1], Gregory Couper[1] and Michael Kiernan[1]
[1]Tufts Medical Center

OBJECTIVES/SPECIFIC AIMS: Increased right atrial pressure is known to be a predictor of poor outcomes after LVAD implantation. Whether resolution of right heart congestion prior to LVAD implantation is associated with more favorable outcomes is not well understood. METHODS/STUDY POPULATION: We analyzed LVAD recipients from our institution from 1/1/2015 to 2/28/2018. We excluded patients bridged to LVAD with ECMO support. Patients with admission right atrial pressure (RAPadmit) and implant RAP (RAPimplant) $\geq$ 14 mmHg were defined as having persistent congestion, while patients with RAPadmit $\geq$ 14 mmHg and RAPimplant < 14 mmHg were defined as having resolved congestion. Baseline characteristics between groups were compared using the Chi-square and unpaired t-tests. Time to death or RVAD was compared between groups using Cox proportional hazards models. RESULTS/ANTICIPATED RESULTS: Of 57 LVAD recipients with RAPadmit $\geq$ 14 mmHg, 14 (25%) had persistent congestion at the time of LVAD implantation. While there were no statistically significant differences between groups, patients with persistent congestion were more likely to be INTERMACS profile 1 (21.4% vs 9.5%), less likely to have a destination therapy device strategy (28.6% vs 34.9%), less likely to have moderate or severe right ventricular (RV) dysfunction (64.3% vs 83.7%), and had similar RAPadmit (20.4 mmHg vs 18.9 mmHg) compared to patients with resolved congestion. Median follow up was 307 days. Patients with persistent congestion had a higher frequency of death or RVAD implantation compared to those with resolved congestion (50% vs 14%, HR 3.75, 95% CI 1.25–11.25, p=0.02). DISCUSSION/SIGNIFICANCE OF IMPACT: Among patients with elevated RAP at admission, patients with persistently elevated RAP at the time of LVAD implantation had worse outcomes than patients who were able to be decongested prior to surgery. These data support optimization of RV filling pressures prior to LVAD surgery.

3099

Risk of substance abuse onset in adults diagnosed with epilepsy or migraine

Stephanie Jones[1], Jeffrey E. Korte and Dulaney Wilson
[1]Medical University of South Carolina

OBJECTIVES/SPECIFIC AIMS: The study investigated whether adults diagnosed with epilepsy or migraine (a neurological disorder with common features to epilepsy) are at increased risk for developing substance abuse disorders following diagnosis compared to (presumably healthy) adults with lower extremity fracture (LEF). METHODS/STUDY POPULATION: A retrospective cohort analysis was conducted using a subset of surveillance data of hospital admissions, emergency department visits and outpatient visits in South Carolina, USA from January 1, 2000 through December 31, 2011. Individuals aged 18 years or older were identified using the International Classification of Disease, 9th Revision Clinical modification (ICD-9) with a diagnosis of epilepsy (epilepsy-cohort 1; n = 78,547; 52.7% female, mean age [SD] 51.3 years [19.2]), migraine (migraine-cohort 2; n = 121,155; 81.5% female, mean age [SD]

40.0 years [14.5]), or LEF (control cohort; n = 73,911; 55.4% female, mean age [SD] 48.7 years [18.7]). Individuals with substance abuse or dependence diagnosis following epilepsy, migraine, or LEF were identified with ICD-9 codes. Cox proportional hazard regression analyses modelled the time to substance abuse diagnosis comparing epilepsy to LEF and comparing migraine to LEF. RESULTS/ANTICIPATED RESULTS: Adjusting for insurance payer, age and sex, adults with epilepsy are diagnosed with substance abuse disorders at 2.5 times the rate of those with LEF [HR 2.54 (2.43, 2.67)] and adults with migraine are diagnosed with substance abuse disorders at 1.10 times the rate of those with LEF [HR 1.10 (1.04, 1.16)]. An interaction between exposure and insurance payer was found with hazard ratios comparing epilepsy to LEF of 4.56, 3.60, and 1.94 within the commercial payer, uninsured and Medicaid strata, respectively. DISCUSSION/SIGNIFICANCE OF IMPACT: Compared to adults with LEF, adults with epilepsy had a substantially higher hazard of subsequent substance abuse, while adults with migraine showed a small, but still significant, increased hazard of subsequent substance abuse.

3384

Serum Metabolites from the Trimethylamine Pathway Associate with Left Ventricular Diastolic Function: The Bogalusa Heart Study

Alexander C. Razavi[1], Camilo Fernandez[1], Xuenan Mi[2], Jiang He[1], Lydia Bazzano[1], Jovia Nierenberg[2], Shengxu Li[2] and Tanika N. Kelly[2]
[1]Tulane University, School of Medicine and [2]Tulane University, School of Publich Health and Tropical Medicine

OBJECTIVES/SPECIFIC AIMS: This population-based study aims to assess the individual and collective relationship between TMA-associated metabolites and echocardiographic parameters of left ventricular diastolic function. METHODS/STUDY POPULATION: The study cohort consisted of 1,039 adult participants of the Bogalusa Heart Study (35.13% black, 57.94% female, aged 33.60 to 57.47 years). Left ventricular diastolic function was assessed via two dimensional and tissue Doppler echocardiography. Echocardiographic parameters of diastolic function included peak early (E, cm/s) and late transmitral flow velocities (A, cm/s), septal mitral annular velocity (e', cm/s), left ventricular isovolumic relaxation time (IVRT, ms), and peak early diastolic transmitral flow velocity deceleration time (DT, ms). Metabolomic analysis of fasting serum samples was conducted via ultrahigh performance liquid chromatography-tandem mass spectroscopy. Six metabolites in the TMA pathway, carnitine, choline, TMAO, betaine, ergothioneine, dimethylglycine, and two composite variables, the betaine/choline ratio as well as the weighted sum of the six TMA-associated metabolites (TMA score), were selected a priori and tested for association with echocardiographic parameters of diastolic function. Raw metabolite values were divided by their respective standard deviation to create an exposure variable for each individual metabolite. The betaine/choline ratio was calculated utilizing the raw value of each metabolite. The z-score method was used to transform the six metabolites to the same scale and these values were used to calculate the TMA score. Multivariable-adjusted linear regression models were employed to assess the relationship of TMA-associated metabolites with echocardiographic measures of diastolic function. Covariates adjusted for included sex, age, race, education, alcohol drinking, cigarette smoking, heart rate, systolic blood pressure, glomerular filtrate rate, body mass index, low density lipoprotein cholesterol, high density lipoprotein cholesterol, hemoglobin A1c, serum triglycerides, as