



Imaging

ASSOCIATION OF ALBUMINURIA WITH ADVERSE CARDIAC MECHANICS: FINDINGS FROM THE HYPERGEN STUDY

Poster Contributions

Poster Sessions, Expo North

Saturday, March 09, 2013, 10:00 a.m.-10:45 a.m.

Session Title: Imaging: LV Systolic Function

Abstract Category: 18. Imaging: Echo

Presentation Number: 1142-352

Authors: *Daniel H. Katz, Senthil Selvaraj, Frank Aguilar, Eva Martinez, Lauren Beussink, Kwang-Youn Kim, Jie Peng, Jin Sha, Ryan Irvin, Barry Freedman, John Eckfeldt, Donna Arnett, Sanjiv Shah, Northwestern University, Chicago, IL, USA, University of Alabama Birmingham, Birmingham, AL, USA*

Background: Albuminuria, estimated by urine albumin-to-creatinine ratio (UACR), is a marker of endothelial dysfunction and predicts cardiovascular morbidity and mortality. Increased UACR is also independently associated with increased left ventricular (LV) mass, yet its association with subclinical LV dysfunction remains unclear. We hypothesized that elevated UACR is independently associated with abnormal cardiac mechanics.

Methods: We performed 2D speckle-tracking echo in 2129 participants from the HyperGEN study. We measured global longitudinal strain (GLS), global circumferential strain (GCS), and global radial strain. Clinical and echo characteristics were compared across UACR quartiles, and we used linear mixed effect models to determine the independent association between UACR and cardiac mechanics.

Results: Mean age was 51 ± 14 years, 58% were female, and 46% were African-American. Comorbidities were more prevalent in higher UACR quartiles. Elevated UACR was independently associated with worse GLS ($\beta = -0.09$ per 1 SD increase in UACR; 95% CI [-0.13, -0.05], $P < 0.001$; see Figure) and GCS ($\beta = -0.05$; 95% CI [-0.10, -0.01], $P = 0.017$). Results were similar in subjects without diabetes, in those without LV hypertrophy, and in normotensives, especially for the association between UACR and GLS.

Conclusions: Higher UACR is independently associated with worse cardiac mechanics, suggesting a link between endothelial dysfunction and subclinical cardiac dysfunction.

Global Longitudinal Strain vs. UACR quartiles

