May 16th, 1:45 PM

Altered Baroreflex-Mediated Cardiovascular Responses to Acute Hypotension in Heart Failure Patients Compared to Healthy Adults

Rachel C. Drew  
*University of Massachusetts Boston*

Chelsea N. Lindblad  
*Penn State College of Medicine*

Soraya M. Samii  
*Penn State College of Medicine*

*See next page for additional authors*

Follow this and additional works at: [http://escholarship.umassmed.edu/cts_retreat](http://escholarship.umassmed.edu/cts_retreat)

Part of the [Cardiology Commons](http://escholarship.umassmed.edu/cts_retreat), [Cardiovascular Diseases Commons](http://escholarship.umassmed.edu/cts_retreat), and the [Translational Medical Research Commons](http://escholarship.umassmed.edu/cts_retreat)

[http://escholarship.umassmed.edu/cts_retreat/2017/posters/20](http://escholarship.umassmed.edu/cts_retreat/2017/posters/20)

This material is brought to you by eScholarship@UMMS. It has been accepted for inclusion in UMass Center for Clinical and Translational Science Research Retreat by an authorized administrator of eScholarship@UMMS. For more information, please contact Lisa.Palmer@umassmed.edu.
Presenter Information
Rachel C. Drew, Chelsea N. Lindblad, Soraya M. Samii, Cheryl A. Blaha, Michael J. White, and Lawrence I. Sinoway

Keywords
heart failure, acute hypotension

Creative Commons License
This work is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 License.

This poster abstract is available at eScholarship@UMMS: http://escholarship.umassmed.edu/cts_retreat/2017/posters/20
Patients with heart failure (HF) exhibit baroreflex dysfunction, which is associated with increased morbidity and mortality. Orthostatic hypotension, a decrease in blood pressure (BP) upon standing, is a condition that often occurs in HF, and may be linked with altered baroreflex responsiveness in this population. However, data on baroreflex-mediated cardiovascular responses to acute hypotension in HF patients are limited. Therefore, 8 HF patients (7 men; mean±SEM 65±3y; ejection fraction 30.5±3.1%) and 7 healthy control (CON) adults (6 men; 65±2y) underwent 7.5 minutes of unilateral lower-limb ischemia via inflation of a thigh cuff on one leg to non-pharmacologically induce acute hypotension upon cuff deflation. Beat-to-beat systolic BP, diastolic BP, and mean arterial BP (MAP; photoplethysmographic finger cuff) and heart rate (HR; electrocardiogram) were recorded continuously before, during, and after cuff inflation. Statistical analysis involved independent-samples t-tests. Baseline values were not different between groups (systolic BP: 128±8 vs. 128±4mmHg; diastolic BP: 73±3 vs. 82±5mmHg; MAP: 90±3 vs. 97±4mmHg; HR: 62±2 vs. 56±2b.min⁻¹ for HF and CON, respectively; P>0.05). The magnitude of the induced decrease in MAP was similar in both groups (HF -11±1 vs. CON -12±2mmHg; P>0.05). However, the time-to-peak MAP decrease was significantly longer in HF compared to CON (HF 11±2 vs. CON 6±1s; P<0.05). The magnitude of the resultant HR increase was not different between groups (HF 2±1 vs. CON 4±1mmHg; P>0.05). However, the time-to-peak HR increase was longer in HF compared to CON (HF 9±1 vs. CON 6±1s; P<0.05). In conclusion, these results demonstrate that in response to acute hypotension, HF patients exhibit prolonged hypotension and a delayed tachycardic response. These findings suggest that baroreflex-mediated cardiovascular responses to acute hypotension are altered in HF compared to CON, which may be linked to the higher occurrence of orthostatic hypotension experienced in this population.

Contact:
Rachel Drew
University of Massachusetts Boston
rachel.drew@umb.edu