

Sex Differences in the Relationship Between Baroreflex Effectiveness Index and Spontaneous Cardiac Baroreflex Sensitivity

ZIBA TAHERZADEH, NICOLE A. GARZA, RACHEL J. SKOW, BENJAMIN E. YOUNG, PAUL J. FADEL

Human Neural Cardiovascular Control Lab; Department of Kinesiology; University of Texas at Arlington; Arlington, TX

Category: Doctoral

Advisor / Mentor: Fadel, Paul (paul.fadel@uta.edu)

ABSTRACT

Baroreflex effectiveness index (BEI) is a relatively new measure used to assess cardiac baroreflex function. It is unclear whether BEI provides independent or complementary information compared to traditional spontaneous cardiac baroreflex sensitivity (BRS) measures. **PURPOSE:** The purpose of this project was to begin to explore the relationship between BEI and BRS in young adults and to investigate the impact of sex on these potential relationships. We hypothesized that there would be a positive correlation between BEI and BRS in both males and females. **METHODS:** We studied 45 young healthy adults, 17 males (24 ± 4 years) and 28 females (23 ± 4 years). Heart rate (ECG) and beat-to-beat arterial blood pressure (finger photoplethysmography) were continuously recorded during a five-minute resting baseline. Spontaneous cardiac BRS was measured using the Sequence Method, by identifying the gain of the relationship between systolic blood pressure and RRI from sequence(s) of three or more consecutive heartbeats in which systolic blood pressure and RRI change in the same direction. BEI was quantified as the ratio of the number of baroreflex-driven ramps relative to all systolic blood pressure ramps. **RESULTS:** BEI (Male: 0.65 ± 0.14 , Female: 0.61 ± 0.13 ; mean \pm SD, $p=0.27$) and BRS (Male: 21.3 ± 8.4 , Female: 27.27 ± 12.6 , $p=0.09$) between groups was not different. There was no significant relationship between BEI and BRS among all participants ($r=0.13$, $p=0.36$). However, sex-specific analysis data revealed a positive correlation in our male group ($r=0.57$, $p=0.01$), and no relationship in our female group ($r=0.03$, $p=0.84$). **CONCLUSION:** These preliminary data suggest that the relationship between BEI and BRS may be sex-dependent.