

Young Investigator Research Award Nominee

Abstract 6

Spectral HRV and C-Reactive Protein in a Community-Based Sample of African Americans

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Introduction: Heart rate variability (HRV) and C-reactive protein (CRP) have been reported as independent predictors of heart disease and cardiovascular mortality. CRP levels are associated with various negative conditions, such as depression, diabetes, and the metabolic syndrome. HRV has also been linked to these conditions, providing evidence of a possible overlap between the two biomarkers. However, very few studies have focused on HRV and CRP concurrently while considering various demographic factors. The purpose of this study was to explore the association between HRV and CRP in a community-based sample of African Americans.

Method: Seventy-six (female = 29; male = 47) African Americans from the Washington, DC, metropolitan area were

recruited to participate in the study. Upon entry, participants had blood drawn and completed demographic questionnaires that included medical histories. CRP was obtained via venipuncture by a nurse in the General Clinical Research Center at Howard University Hospital. Five minutes of beat-to-beat intervals were used to derive the baseline measurements of the frequency domain metrics of HRV.

Results: Preliminary findings showed significant correlations between CRP and body mass index (BMI [$r = .530$; $P = .000$]), hypertension ($r = .228$; $P = .024$), and low frequency (LF) HRV ($r = -.242$; $P = .018$). Hierarchical multivariate regression analysis revealed that BMI ($\beta = .500$, $P = .000$) and LF ($\beta = -.210$, $P = .043$) accurately predicted CRP levels while adjusting for demographic factors.

Conclusion: The association of LF and CRP while adjusting for various factors suggests a link between the autonomic nervous system and inflammation. Sympathetic activation is initiated throughout both the acute and chronic phases of the immune response, and the findings in the current study suggest HRV may have a direct impact on CRP levels.

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