Comorbid Diabetes Alters Inflammatory and Cardiometabolic Biomarkers in Persons with Heart Failure

Julia Kamara, Erica Davis, PhD, RN, Melinda K Higgins, PhD, Sandra B Dunbar, PhD, RN, FAAN, FAHA, FPCNA, and Brittany Butts, PhD, RN

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Background A staggering 47.1% of persons diagnosed with HF have comorbid diabetes, intensifying the risk of mortality. Despite higher rates of both HF and diabetes among African Americans, the prevalence of comorbid HF and diabetes among **this population** is not known. Pathologic pathways linking these two conditions **are not well understood.** The p**urpose** of this investigation is to **compare** biomarkers associated with cellular pathways in individuals **living with** HF with and without diabetes.

Methods Black adults living with HF (N=41) were enrolled in this pilot study. Cardiometabolic and inflammatory biomarkers were measured via multiplex immunoassay. T tests were used to identify group differences between persons with HF with comorbid diabetes (n=15) and those without (n=26). Effect sizes were calculated using Cohen's d and identified as small (d = 0.2), medium (d = 0.5), and large (d = 0.8).

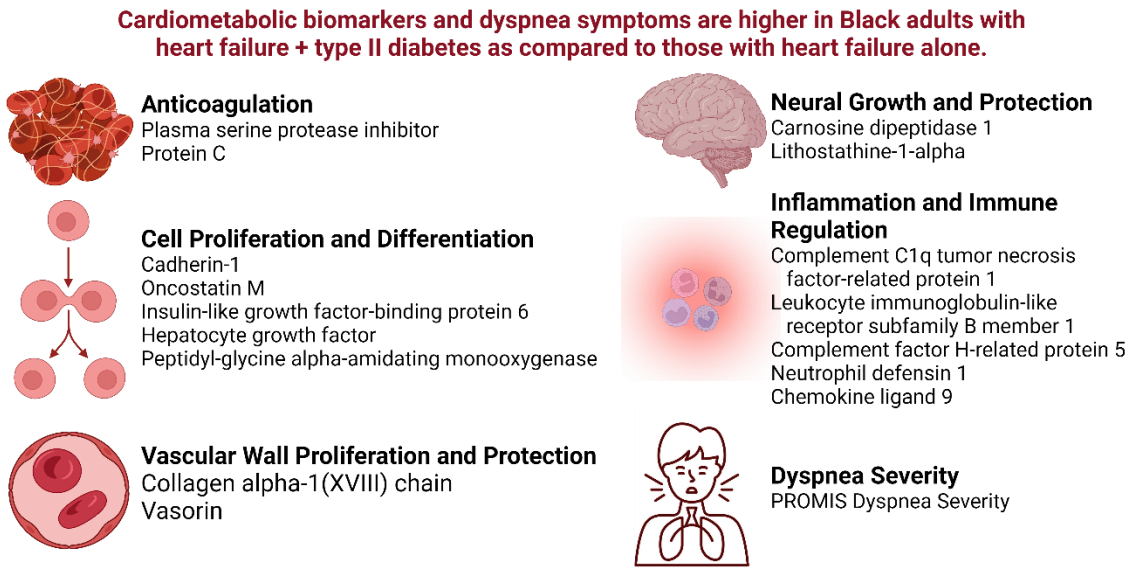
Results The mean age was 57±11 years, 66% were female, and mean LVEF was 33±14%. Persons with diabetes had higher levels of biomarkers involved in regulation of cell proliferation and differentiation (p=.03, d=.716), inflammation and immune regulation (p=.011, d=.868), anticoagulation (p=.048, d=.574), neural growth and protection (p=.029, d=.734), and vascular wall proliferation and protection (p=.019, d=.791) as compared to those without diabetes.

Conclusions In a population of African American persons living with HF, comorbid diabetes was associated with significant differences, with medium to large effect sizes, in biomarkers implicated in multiple physiologic processes, including immune, cellular, and vascular functions. More work understanding the pathophysiologic implications of multimorbidity in HF is needed.

Implications for practice Treatment approaches should consider the **physiologic** pathways influenced by comorbid diabetes in individuals with HF for more targeted and effective interventions. Nurses can play a further role in better understanding symptoms that may be influenced by these pathways in assessing and treating persons with HF and comorbid diabetes.

Contact: Julia Kamara, Undergraduate Research Assistant, Emory University, julia.kamara@emory.edu

Central Figure



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