TACSM Abstract

Postprandial And Fasting Lipopolysaccharide Levels In Healthy Hispanic Residents Of Southeast Texas With Positive Family History Of Type 2 Diabetes

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ABSTRACT

PURPOSE: Healthy people with a family history (FH+) of type 2 diabetes (T2D) display impaired metabolic and microvascular function prior to glucose intolerance, and are at greater risk for developing T2D. While mechanisms to explain this disparity are lacking, it is possible that intestinal permeability plays a role, as it is also linked with insulin resistance, glucose intolerance, and chronic inflammation. Lipopolysaccharides (LPS) act as an outer membrane component of gram-negative bacteria in intestines and play a role in inflammation and chronic disease when in circulation, thus serving as a surrogate measure of intestinal permeability. However, the link between FH+ health disparities and intestinal permeability has not been studied. Thus, the purpose of this study was to quantify circulating plasma LPS in healthy FH+ and FH-. **METHODS**: In this cross-sectional study, FH- (n=14) and FH+ (n=18) participants matched for age (24.4 ± 1.6 and 25.0 ± 2.3 respectively) and BMI (25.0 ± 1.1 and 25.0 ± 1.1 years respectively) had blood drawn while fasting, and 60-min after consuming a mixed composition meal to quantify changes in plasma LPS, and had body composition determined via iDXA. Other anthropogenic data were collected. **RESULTS**: Fasting LPS was lower in FH- than FH+ ($p < 0.5$, 42.3ng/ml ± 5.3 and 48.1ng/ml ± 6.8 respectively) with postprandial LPS increasing more in FH- than FH+ ($p<0.05$, +10.3ng/ml ± 3.1 and + 1.4ng/ml ± 3.1 respectively). No group differences ($p>0.5$) were noted in blood pressure (115/69 and 116/69mmHG) LDL-c (4.3mmol/L and 4.4mmol/L), HDL-c (2.2mmol/L and 2.3mmol/L), body fat (29% and 28%), or android fat (30.4% and 30.7%) between FH- and FH+ groups respectively. **CONCLUSION:** Disparities noted for increase T2D risk in FH+ have been linked to microvascular and metabolic function, with mechanisms for these remaining elusive. However, differences in circulating LPS suggest varying intestinal permeability in these groups, which may help explain the varying risk for T2D. Further work to characterize intestinal microbiota may advance our understanding of health disparities in this and other high-risk populations.