

Hemodynamics after Glucose Loading in Hispanics With and Without Family History of Type 2 Diabetes

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ABSTRACT

Type 2 Diabetes (T2D) increases cardiovascular mortality 4-fold. Although ~9% of Americans are diagnosed with T2D, T2D incidence is substantially higher in Hispanics and those with a family history of T2D. Traditionally, T2D is diagnosed via oral glucose testing which has been shown to impair microvascular function. However, the effects of glucose loading on hemodynamics and arterial elasticity between healthy Hispanics with and without a family history of T2D are unclear. **PURPOSE:** To determine the effects of an oral glucose challenge (OGC) and a mixed meal challenge (MMC) on hemodynamics in healthy Hispanic individuals with and without family history of T2D. **METHODS:** Thirty-three healthy Hispanic individuals volunteered in this study, including 10 participants with a family history (FH+, 26 ± 7 yrs) of T2D and 23 participants without FH (FH-, 24 ± 5 yrs). Hemodynamics were assessed at rest and 60 minutes after consuming either an OGC or MMC. The OGC consisted of 50g of glucose solution while the MMC consisted of 30g of protein, 5g of fat, and 35g of carbohydrate. A 2x2x2 repeated measures ANOVA was used to evaluate the effects of family history on hemodynamics across conditions and time. **RESULTS:** FH+ had higher ($p < 0.05$) baseline central pulse pressure (FH+ vs. FH-: 37 ± 5 vs. 33 ± 4 mmHg) and brachial pulse pressure (FH+ vs. FH-: 44 ± 5 vs. 50 ± 6 mmHg) compared to FH-. Heart rate (HR) increased ($p < 0.05$) in both groups in response to either OGC or MMC, with a significantly greater increases in FH- compared to FH+. In addition, brachial pulse pressure decreased ($p < 0.05$) while central systolic blood pressure and brachial diastolic blood pressure increased ($p < 0.05$) after consuming either an OGC or MMC in both groups with no difference between OGC and MMC. **CONCLUSIONS:** Healthy Hispanic individuals with family history of type 2 diabetes have higher central and brachial pulse pressure compared to healthy Hispanic individuals without family history of type 2 diabetes. Moreover, glucose loading and mixed meal alter hemodynamics at 60 minutes in healthy Hispanics with and without family history of type 2 diabetes similarly.