with the development of MetS and identifiable endothelial dysfunction in a cohort of Hispanic pre-pubertal children. To do so we propose the following aims: (1) To measure expression of adiponectin and leptin levels in a Hispanic pre-pubertal cohort and determine their correlation with features of the MetS. (2) To perform proteomic analysis in a Hispanic pre-pubertal cohort. (3) Evaluate early onset of endothelial dysfunction and its correlation with expression of adiponectin and leptin levels in a Hispanic pre-pubertal cohort.

METHODS/STUDY POPULATION: A cross-sectional pilot study will obtain a representative sample of children aged 6-12 years from all geographical areas of Puerto Rico. Children will be assessed regarding pre-pubertal status through Tanner staging and later divided into pre-MetS Versus MetS groups as well as controls. MetS will include children meeting 3 or more of the current International Diabetes Federation (IDF) criteria. Pre-MetS will include children with at least 1 criterion for MetS. Anthropometric data, blood pressure, and laboratory test results will be collected. Total adiponectin and leptin levels will be measured using a commercially available quantitative sandwich enzyme-linked immunoassay test. The study will be submitted to the University of Puerto Rico Medical Sciences Campus Institutional Review Board (IRB) for approval. Written consent and assent will be obtained from parents and children respectively to ensure patient anonymity.

RESULTS: We hypothesize that low levels of adiponectin and high levels of leptin will correlate with features of the MetS as defined by the IDF consensus statement, as well as with clinical features of MetS in undiagnosed Hispanic pre-pubertal youth. We also hypothesize that non-invasive testing for endothelial dysfunction, and laboratory assays will be performed to the study population and data analyzed for correlation. Total adiponectin and leptin levels will be measured using a commercially available quantitative sandwich enzyme-linked immunoassay test. The study will be submitted to the University of Puerto Rico Medical Sciences Campus Institutional Review Board (IRB) for approval. Written consent and assent will be obtained from parents and children respectively to ensure patient anonymity.

OBJECTIVES/SPECIFIC AIMS: The goal of this study was to investigate whether RF-RDN attenuates renal fibrosis and inflammation in SHR with established hypertension. METHODS/STUDY POPULATION: Twenty-two-week-old SHR received bilateral RF-RDN or Sham-RDN (Biosense Webster Stockert 70 generator and RF-probe). Four weeks later, SHR were sacrificed and paraffin sections of kidneys were stained for fibrosis by Masson’s trichrome staining. Kidney tissue were homogenized for measurement of cytokines levels by ELISA. RESULTS/ANTICIPATED RESULTS: The results showed that Sham-RDN treated SHR had extensive fibrosis as demonstrated by moderate thickening of Bowman’s capsule, collagen deposition in glomerulus, extensive tubulointerstitial fibrosis, and segmental glomerulosclerosis. In contrast, RF-RDN significantly reduced each of these pathological components of fibrosis in kidney cortex and medulla as compared with Sham-RDN treated kidneys. In CD4+ CD8+ T cells, and CD9+ T cells in the kidney of RF-RDN treated SHR were reduced as compared with respective levels in Sham-RDN. DISCUSSION/SIGNIFICANCE OF IMPACT: Together, these findings demonstrate that removal of the influence of heightened renal sympathetic activity by RF-RDN decreases kidney inflammatory markers and attenuates renal fibrosis in hypertensive SHR.

Regulation of retinal protein O-GlcNAcylation by angiotensin-(1-7) and cAMP
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OBJECTIVES/SPECIFIC AIMS: Increased retinal protein O-GlcNAcylation occurs in response to hyperglycemia and contributes to diabetic retinopathy. Beneficial effects of RAS blockers are often attributed to production of angiotensin-(1-7) (Ang1-7). The objective here is to determine the impact of Ang1-7 on retinal protein O-GlcNAcylation. METHODS/STUDY POPULATION: C57/BL6 mice were fed a high-fat diet for 8 weeks and then treated for 3 weeks with either a vehicle control, the RAS blocker captopril, or captopril and the Ang1-7 receptor antagonist A779. R2B cells were used to assess levels of O-GlcNAcylated proteins in response to Ang1-7, and the role of cAMP was investigated with addition of forskolin, 6-Bnz-cAMP-AM, and 8-pCPT-2-O-Me-cAMP-AM to cell culture medium. RESULTS/ANTICIPATED RESULTS: Captopril attenuated retinal protein O-GlcNAcylation in mice fed a high-fat diet. This effect was reversed by A779. Ang1-7 attenuated protein O-GlcNAcylation and increased cAMP levels. Forskolin and the EPAC selective cAMP analog 8-pCPT2-O-Me-cAMP-AM, but not the PKA selective cAMP analog 6-Bnz-cAMP-AM, attenuated O-GlcNAcylation. Inhibiting EPAC blocked the effect of forskolin, whereas inhibiting PKA did not. DISCUSSION/SIGNIFICANCE OF IMPACT: This study demonstrates a novel role for Ang1-7 in the retina and identifies a potential EPAC-dependent mechanism that regulates protein O-GlcNAcylation. Thus, future therapeutics targeted at an Ang1-7/EPAC axis in retina may be used to address Diabetic Retinopathy.

Relationship power imbalance and history of male partner HIV testing among pregnant women in central Uganda
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OBJECTIVES: The correlation of RF-RDN with renal fibrosis and inflammation in SHR with established hypertension. METHODS/STUDY POPULATION: Twenty-two-week-old SHR received bilateral RF-RDN or Sham-RDN (Biosense Webster Stockert 70 generator and RF-probe). Four weeks later, SHR were sacrificed and paraffin sections of kidneys were stained for fibrosis by Masson’s trichrome staining. Kidney tissue were homogenized for measurement of cytokines levels by ELISA. RESULTS/ANTICIPATED RESULTS: The results showed that Sham-RDN treated SHR had extensive fibrosis as demonstrated by moderate thickening of Bowman’s capsule, collagen deposition in glomerulus, extensive tubulointerstitial fibrosis, and segmental glomerulosclerosis. In contrast, RF-RDN significantly reduced each of these pathological components of fibrosis in kidney cortex and medulla as compared with Sham-RDN treated kidneys. In CD4+ CD8+ T cells, and CD9+ T cells in the kidney of RF-RDN treated SHR were reduced as compared with respective levels in Sham-RDN. DISCUSSION/SIGNIFICANCE OF IMPACT: Together, these findings demonstrate that removal of the influence of heightened renal sympathetic activity by RF-RDN decreases kidney inflammatory markers and attenuates renal fibrosis in hypertensive SHR.

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