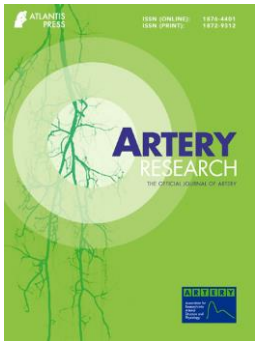

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PO-11: SEX DIFFERENCES IN THE DEVELOPMENT OF ABNORMAL ENDOTHELIUM-DEPENDENT VASODILATION IN AORTA FROM TYPE 2 DIABETIC RATS: POSSIBLE ROLE OF NITRIC OXIDE

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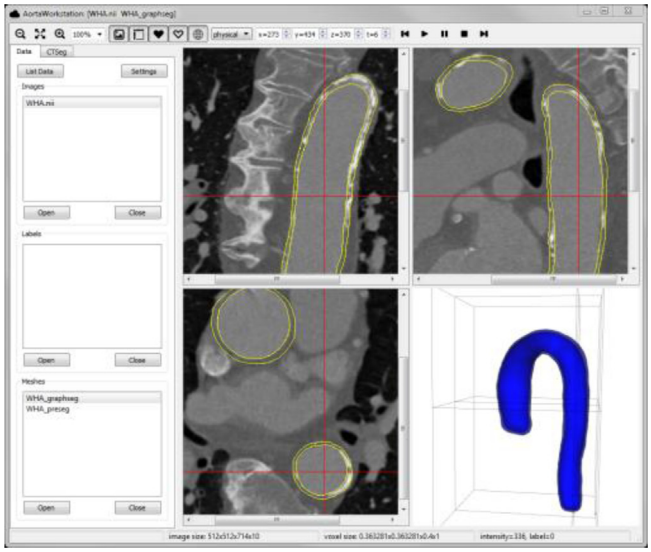

Figure 1 Example of data visualization: image data is shown on three orthogonal slices, segmented surface is shown by 3D rendering and its intersections with image slices (yellow contours).

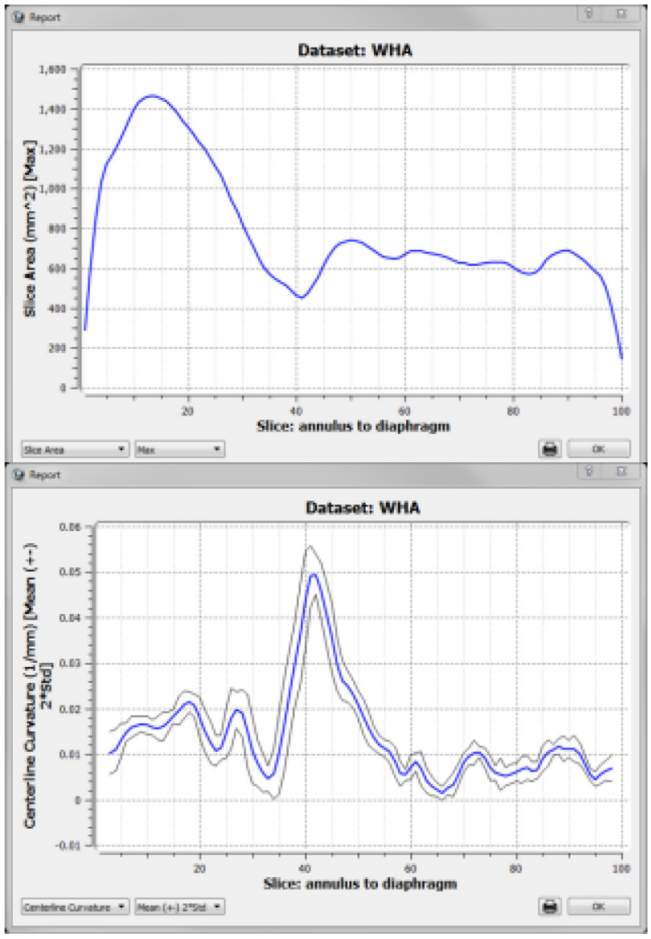

Figure 2 Examples of quantitative indices derived from a cardiac cycle. Top: maximal cross-sectional areas, bottom: range (mean and 2*standard deviation) of centerline curvature.

PO-11

SEX DIFFERENCES IN THE DEVELOPMENT OF ABNORMAL ENDOTHELIUM-DEPENDENT VASODILATION IN AORTA FROM TYPE 2 DIABETIC RATS: POSSIBLE ROLE OF NITRIC OXIDE

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Little is known about the interaction between diabetes and sex in vasculature. This study was designed to investigate whether there were sex differences in rat aortic endothelium-dependent vasodilation (EDV) in Zucker diabetic fatty (ZDF) rats, and the potential role of nitric oxide (NO). EDV to acetylcholine (ACh) was measured in aortic rings pre-contracted with phenylephrine (PE). Contractile responses to PE were generated before and after treatment with L-NAME (200 μM), a NO synthase (NOS) inhibitor. In addition, the levels of endothelial NOS (eNOS) and NADPH oxidase (NOS, a potent source of superoxide) mRNA expression were determined using real-time RT-PCR. Type 2 diabetes significantly impaired EDV in aortic rings from female ZDF rats, however, potentiated the relaxation in males. Diabetes decreased the contractile responses to PE in aortic rings from rats, regardless of sex. Moreover, diabetes enhanced the extent of PE potentiation after blocking eNOS with L-NAME in females. Accordingly, the levels of eNOS mRNA expression were substantially enhanced in aorta of female ZDF rats compared to those in lean animals. In addition, Nox1 and Nox4 mRNA expression were substantially enhanced in aorta of female ZDF rats. These data suggest that the predisposition of the female aorta to injury in type 2 diabetes may be, in part, due to the alteration of NO production (supported by NIH/NIDCR).

PO-12

RACIAL DIFFERENCES OF eNOS EXPRESSION RESPOND TO C-REACTIVE PROTEIN

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Background: African Americans (AA) have higher rates of cardiovascular diseases (CVD) compared to Caucasians (CA). Endothelial dysfunction is a common feature of CVD risk factors. Previous studies suggest racial differences in endothelial function exist at the physiological level. C-reactive protein (CRP), a risk marker for CVD, causes a reduction in eNOS expression and bioactivity in endothelial cells (ECs). AA individuals have significant higher concentrations of CRP than Caucasian (CA) individuals. The aim of this study was to investigate the racial differences of endothelial function under CRP stimulation at the cellular level.
Methods: Eight human umbilical vein endothelial cells (HUVECs) lines from African American (AA) and Caucasian (CA) donors with gender split evenly were cultured and incubated with CRP for 24-hrs. Doses of CRP were 0, 25, 50 and 100 μg/mL. Western blot was conducted to measure the expression of eNOS after CRP incubation. ImageJ densitometric analysis of eNOS bands expressed in relation to β-actin.