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Long term changes in retinal vasculature from Kawasaki Syndrome and its potential role in coronary risk stratification

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Introduction: We hypothesize that Kawasaki Syndrome(KS), a multisystem vasculitis of childhood causes longstanding changes in the retinal vasculature as a result of its attendant inflammatory effects. This is similar to the well documented changes to the retinal vasculature of adults who have traditional coronary risk factors like diabetes mellitus and hypertension.

Methods: We compared the retinal vascular dimensions of children in the post acute phase of KS to well matched normal controls. All subjects underwent high resolution digital retinal photography during which the diameters of all arterioles and venules coursing through a specified area one-half to one disc diameter from the optic disc were measured with a computer program (IVAN), according to a published standardized protocol. Central retinal arteriolar equivalent (CRAE), central retinal venular equivalent (CRVE), arteriole-to-venule ratio (AVR) were calculated for each retina photo.

Results: 18 patients with KS and 54 controls were examined. KS subjects had a mean CRAE of 157.1 μm , a mean CRVE of 209.7 and AVR of 0.70, which were statistically different from controls who had mean CRAE of 149.3 μm (p 0.046), a mean CRVE of 221.7 (p 0.007) and AVR of 0.66 (p 0.011).

Cases were matched for age, gender, ethnicity, and body surface area.

Conclusions: KS results in substantial changes to retinal vasculature leading to a significantly wider retinal arteriolar caliber, narrower retinal venular caliber and an increased AV R ratio. Retrospective study may correlate with severity of initial inflammation and longitudinal follow up may allow for coronary risk stratification.