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Congenital Heart Disease

COARCTATION MAY BE ASSOCIATED WITH MORE RAPID AORTIC DILATION IN INDIVIDUALS WITH BICUSPID AORTIC VALVE: INSIGHTS FROM THE GENTAC REGISTRY

Poster Contributions
Poster Hall B1
Saturday, March 14, 2015, 3:45 p.m.-4:30 p.m.

Session Title: The Vasculature in Congenital Heart Disease
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Background: Bicuspid aortic valve (BAV) is associated with thoracic aortic aneurysms and dissections. The prevalence of aortic coarctation is increased in patients with BAV. We hypothesize that patients with coarctation are at increased risk for aortic complications compared to those with isolated BAV and may benefit from more intensive surveillance. We therefore compared of aortic dilation at the sinuses of Valsalva and ascending aorta in BAV subjects with and without coarctation.

Methods: Individuals with BAV +/- coarctation were selected from the National Registry of Genetically Triggered Thoracic Aortic Aneurysms and Cardiovascular Conditions (GenTAC). Genetic syndromes were excluded. Longitudinal regression models were used to evaluate the average annual change in aortic root or ascending aortic diameters after adjustment for age, sex, BSA and previous cardiac surgery.

Results: We included 468 subjects (49 with coarctation): 24% female, mean age 41 (IQR 25-56), mean BSA 2.15 m2 (IQR 1.73-2.10). Seventy-three subjects had multiple images with a mean interval of 1.84 years (IQR 0.9-2.42). Subjects with coarctation were significantly younger, more likely to be female and had smaller aortic diameters at baseline. The mean dilation rate of the sinuses and ascending aorta were both 1 mm/year. Rates of dilation at the sinuses (+2.4 mm/year) and ascending aorta (+2.6 mm/year) were more rapid in subjects with coarctation than in those with isolated BAV, but were not statistically significant (minimum P=0.35). These findings were similar when percent change in aortic diameter was substituted as the primary endpoint. Prior cardiac surgeries other than coarctation repairs were similar between groups and were not associated with aortic diameter or growth rate.

Conclusion: Coarctation may be associated with increased rates of aortic dilation in BAV patients. Limitations of this study include the sparsity of data points and brief follow up intervals, as well as incomplete data on valve configuration, coarctation anatomy and surgical repair. Our results suggest that individuals with BAV and coarctation may be at increased risk for aortic complications and merit validation in larger studies.