Abstract: P1798

Aortic root dilatation in bicuspid patients: is it a problem?

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Topic(s):
Computed Tomography: Valve Disease

Citation:
European Heart Journal - Cardiovascular Imaging (2019) 20 (Supplement 1), i53

BACKGROUND: The bicuspid aortic valve (BAV) is associated with aortic dilatation (either at the aortic root and/or at the ascending aorta level) and an increased risk of aortic dissection. Dilation of the ascending aorta level may be secondary to aortopathy or impaired blood flow in the ascending aorta. We suggest that aortic root dilatation is due to an anatomical change secondary to BAV.

PURPOSE: to explain the dilatation and the morphology of the aortic root by the type of BAV.

METHODS: 87 patients with BAV without significant valvular dysfunction referred for aortic aneurysm assessment and who had benefited from TTE and CT were studied. Typical BAVs have a horizontal valve opening (type I L-R and type 0 anteroposterior) while atypical BAVs have a vertical valve opening (type I N-R and type 0 lateral) (figure). Using the anterior-posterior plan as a reference, we compared in the typical (n=64) and atypical (n=23) BAVs the orientation of the valve opening and the orientation of the largest diameter of the aortic root.

RESULTS:

1. Age, sex, weight, height and maximal aortic root diameter were not different in patients with typical vs atypical BAVs.

2. Using the anterior-posterior plan as a reference (Figure):

- the angle with the plan of the valve opening is -47° for the typical BAV and +28° for the atypical BAV p<0.0001

- the angle with the maximal aortic root diameter is 25° for the typical BAV and -45° for the atypical BAV p<0.0001

CONCLUSION: In BAV patients, orientation of the aortic valve opening and of the maximum aortic diameter of the aortic root is related to the type of BAV. The asymmetric modification of the aortic root is predictable with the type of BAV. These results suggest that aortic root dilatation may secondary to a BAV related anatomic modification and not be indicative of an increased aortic risk in this population.
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