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P26 Ascending Aorta Longitudinal Strain is not Altered in Bicuspid Aortic Valve Patients

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ABSTRACT

Background: Impaired ascending aorta (AAo) longitudinal strain, a marker of AAo deformation due to aorto-ventricular mechanical interaction, is related to progressive dilation and aortic events in Marfan syndrome [1]. Whether the high prevalence of dilation in bicuspid aortic valve (BAV) is due to intrinsically-altered aortic wall properties [2] or hemodynamic [3] is widely-discussed [4]. Whether AAo longitudinal strain is altered in BAV patients has never been assessed.

Methods: One-hundred five BAV patients, 47 patients with AAo dilation and tricuspid aortic valve (TAV) and 31 healthy volunteers, free from previous cardiac/aortic surgery, dissection and moderate/severe valvular disease had cine MR images to compute AAo longitudinal strain [1].

Results: Compared to healthy volunteers, the 25 non-dilated (z-score < 2) BAV patients were older ($p < 0.001$), had higher systolic blood pressure (SBP, $p = 0.001$), clinically-meaningless (BAV z-score = 0.74 ± 1.1) larger AAo diameter ($p < 0.001$) and similar diastolic blood pressure (DBP), BSA, stroke volume and heart rate. AAo longitudinal strain was lower in non-dilated BAV compared to healthy volunteers (13.7 vs 10.3%, $p = 0.008$) but this difference was not significant after correction for age. Compared to dilated TAV, dilated BAV patients were younger ($p < 0.001$), had lower BSA ($p = 0.010$) and AAo diameter ($p = 0.003$), higher DBP ($p = 0.032$) and similar SBP, stroke volume and heart rate. AAo longitudinal strain was higher in dilated BAV compared to dilated TAV (10 vs 7.2%, $p < 0.001$) but this difference was not significant after correction for age, BSA and DBP.

Conclusion: AAo longitudinal strain is similar in BAV and TAV matched for aortic dilation.

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