

## MP1-13

### Significant Diameter Heterogeneity Between Aortic Root and Aortic Annulus in Bicuspid Aortic Valve

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**Introduction:** Bicuspid aortic valve (BAV) is associated with aortic dilatation and potential dissection. There are 3 major patterns of leaflets fusion in BAV: left and right coronary leaflets fusion (BAV-1), right and non-coronary leaflets fusion (BAV-2), and the rare three-leaflet fusion (BAV-3). We sought to determine the pattern of dilatation according to commonest types of BAV fusion, and whether this could modify patient management. The embryologically different true bicuspid valve is not included in this study.

**Methods and Results:** In this retrospective cross-sectional study, echocardiography reports were reviewed to evaluate the homogeneity of normalized diameters of the aortic valve, the aortic root and the ascending aorta according to fusion morphology. From 216 BAV patients followed at CHU Sainte-Justine between 2009 and 2014 (mean age at echocardiography 1 was  $7.19 \pm 5.56$  years; 74.5% males), 155/216 (71.8%) had BAV-1, and 61/216 (28.2%) had BAV-2;  $p=NS$  for age. Aortic valve stenosis was present in 66/216 (30.6%) patients, with a lower prevalence 39/155 (25.2%) in BAV-1 compared to 27/61 (44.3%) in BAV-2 ( $p=0.006$ ). Aortic coarctation affected both groups similarly (26/155 (16.8%) vs. 10/61 (16.4%) respectively;  $p=NS$ ). There was no statistically significant difference in the ascending aorta between the study groups (Table 1). However, BAV-1 had increased aortic root Z-score compared to BAV-2 ( $p=0.0007$ ) despite a trend towards larger aortic annulus in BAV-2 ( $p=0.11$ ). The difference was not significant between BAV-1 and BAV-2 in cases with valvular stenosis ( $0.67 \pm 1.50$  vs.  $0.17 \pm 1.73$ ;  $p=0.48$ ), but significant in the absence of stenosis ( $0.79 \pm 1.57$  vs.  $-0.25 \pm 0.98$ ;  $p=0.00035$ ) and in the absence of coarctation of the aorta ( $0.88 \pm 1.53$  vs.  $0.04 \pm 1.36$ ;  $p=0.0011$ ). Altogether, there was no significant differences in the ascending aorta dimension in either case (BAV-1 vs. BAV-2, or valvular stenosis vs. no stenosis, or coarctation of the aorta vs. no coarctation).

**Conclusions:** Although not necessarily dilated (mean  $Z < 2.0$ ), type-1 BAV fusion aortic roots are larger than in type-2. The observed difference suggests potential modifications in patient approach with this valvular disease according to the type of fusion.