



## Valvular Heart Disease

### AORTIC DISSECTION IN PATIENTS WITH BICUSPID AORTIC VALVES: CLINICAL AND PATHOLOGIC COMPARISON WITH TRICUSPID VALVES

Moderated Poster Contributions

Poster Sessions, Expo North

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**Background:** Bicuspid aortic valve (BAV) is common and associated with a higher risk of aortic dissection (AD) compared to the predominantly tricuspid aortic valve (TAV) general population. The differences between BAV and TAV patients presenting with AD are unknown.

**Methods:** We retrospectively analyzed clinical characteristics, aortic imaging, and pathologic findings of all patients with confirmed BAV and AD from 1980-2010. Characteristics were compared to a consecutive TAV control group with AD.

**Results:** Of 47 BAV patients (mean age  $58 \pm 14$ , 77% male), 31(66%) had acute AD, 16(34%) chronic AD, 40(85%) had typical BAV, 32(68%) had hypertension and 11(23%) had previous aortic coarctation. Of 53 TAV patients (mean age  $66 \pm 13$  [ $p=0.007$ ], 76% male), 34(66%) had acute AD ( $p=1.0$ ) and 46(87%) had hypertension ( $p=0.03$ ). More BAV patients had known aortic dilatation prior to AD (49% vs. 17%,  $p=0.001$ ). Symptoms at presentation were no different between groups (all  $p=NS$ ). Maximal ascending aortic diameter at AD was higher in the BAV group compared with TAV group ( $66 \pm 15$ mm vs.  $56 \pm 11$ mm,  $p=0.0004$ ). Previous aortic valve replacement was more common in BAV (23% vs 6%,  $p=0.02$ ). Of 11 BAV patients with previous isolated aortic valve replacement, 7 had  $\geq$ moderate ascending aorta dilatation at the time of surgery. BAV patients had increased aortic jet velocity (40% vs. 9%) and more severe aortic stenosis (19% vs. 0%) at presentation compared to TAV patients ( $p=0.0004$  and  $0.0007$ ). In patients presenting with acute AD, aortic medial degeneration was found in 75% of BAV aortic specimens, versus 41% of TAV specimens ( $p=0.01$ ). Conversely, aortic atherosclerosis was more frequent in TAV patients (56% vs. 26%,  $p=0.02$ ) with acute AD.

**Conclusions:** BAV patients presenting with AD are younger, have a lower prevalence of hypertension, higher prevalence of previous coarctation, higher prevalence of previous valve replacement and valve stenosis, higher maximal aortic dimension, and worse aortic medial degeneration, compared with TAV patients. AD could have been prevented by elective aorta repair in 7 out of 11 BAV patients with previous valve replacement and moderate aortic dilatation.