

**Evaluation of the ventricular functions, ascending aorta and aortic root widths in the asymptomatic patients with isolated bicuspid aortic valve**

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**Objective:** Aortic root and/or ascending aorta dilatation is frequently encountered in patients with bicuspid aortic valve (BAV). The aim of this study is to evaluate the ventricular functions, ascending aorta and aortic root widths in asymptomatic patients with isolated BAV to define their prognosis.

**Method:** 3 to 17 years old (mean  $9,5\pm 3,9$ ) 49 patients (41 males, 8 females) with BAV with/without stenosis or insufficiency and 3 to 15 years old (mean  $8,8\pm 2,9$ ) 20 healthy controls (15 males, 5 females) were enrolled in this study. Their aortic root, ascending and descending aorta widths, aorta and sinus valsalva elasticities were measured. Aortic valve morphology, valve regurgitation (AR) jet length and directions were recorded. Tissue Doppler Imaging (TDI) was performed to obtain views from interventricular septum (IVS), mitral and tricuspid free wall in apical four chamber position. Blood natriuretic peptide (BNP) levels were measured.

**Results:** No difference was found between the age, height, weight, systolic and diastolic blood pressures of two groups. The most common valve morphologies in these patients were: right to left cusp fusion (40.8%), right non-cusp fusion (36.7%), bicuspid (18.3%) and left non-coronary cusp fusion (4.08%). The most common two directions of AR jets were central (27%) and left eccentric (26%). Neither stenosis nor insufficiency was observed in 11 (22.44%) patients. Ascending aorta systolic ( $2.29\pm 0.36$  and  $2.06\pm 0.29$  cm,  $p<0.05$ ) and diastolic ( $2.08\pm 0.36$  and  $1.90\pm 0.27$  cm,  $p<0.05$ ) measurements of the patient group were found significantly higher than the control group. Mitral valve early and late diastolic (MA) flow velocities of the patient group were significantly lower than the controls (E:  $0.97\pm 0.13$  A:  $0.59\pm 0.13$ , E:  $0.89\pm 0.13$  A:  $0.50\pm 0.07$  m/sn). IVS early diastolic flow velocity of the patient group was significantly lower than the controls in TDI ( $11.28 \pm 1.82$  and  $12.9 \pm 1.73$ ,  $p<0.05$ ). A positive correlation was found between BNP and ascending aorta stiffness, ascending aorta systolic, descending aorta systolic and diastolic diameters, also between AR length and aortic valve diastolic diameter measurements and between AR thickness and TDI MA.

**Conclusion:** The systolic functions were preserved whereas diastolic functions were disturbed in patients with isolated BAV. AR thickness and length, BNP measurement and TDI may be used to follow these patients.