ABSTRACTS IN CARDIOLOGY

The aortic root in bicuspid aortic values

It is well known that the aortic root at commissural and supra-aortic levels increases in bicuspid aortic stenosis; it is less well known that such root dilation may be instrumental in contributing to aortic regurgitation with bicuspid valves in the absence of any obstruction.

What is of interest is that the aortic root is also dilated with functionally normal bicuspid aortic valves. The aortic root abnormality is thus primary and not a mere secondary phenomenon.

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Association of aortic dilation with regurgitant, stenotic and functionally normal bicuspid aortic valves

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To determine whether aortic root dilation associated with a bicuspid aortic valve occurs independently of valvular hemodynamic abnormality, aortic root dimensions were measured by two-dimensional echocardiography in 83 adults with a functionally normal (n = 19), mildly regurgitant (n = 26), severely regurgitant (n = 27) or stenotic (n = 11) bicuspid aortic valve and compared with findings in normal subjects matched for age and gender. Aortic root measurements were made at four levels: anulus, sinuses of Valsalva, supraaortic ridge and proximal ascending aorta. Seventy-one percent of patients with a bicuspid aortic valve were men.

When compared with control subjects, all hemodynamic sub-groups showed a significantly larger aortic root size at three levels: sinuses of Valsalva, supraaortic ridge and proximal ascending aorta (p < 0.05 to p < 0.001). The prevalence of aortic root enlargement among all hemodynamic subgroups ranged from 9% to 59% at the level of the anulus, 36% to 78% at the sinuses, 47% to 79% at the supraaortic ridge and 50% to 64% in the ascending aorta.

Thus, there is a high prevalence of aortic root enlargement in patients with a bicuspid aortic valve that occurs irrespective of altered hemodynamics or age. These findings support the hypothesis that bicuspid aortic valve and aortic root dilatation may reflect a common development defect.

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