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VASCULARIZATION PATTERN OF ASCENDING AORTIC ANEURYSMS ASSOCIATED TO BICUSPID AORTIC VALVE

Poster Contributions
Poster Hall B1
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Session Title: Predictors and Clinical Management of Aortic Disease
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Background: Bicuspid aortic valve (BAV) is frequently associated with ascending aortic aneurysms (AA), which has been linked to intrinsic aortic wall fragility ("bicuspid aortopathy"). Mechanisms leading to development of aortic disease are poorly understood. Our aim was to analyze the vascularization pattern in AA of patients with and without BAV.

Methods: 134 consecutive patients (75% males, mean age 63) undergoing elective repair of an AA were included and classified according to valve morphology (54 patients with BAV). All clinical variables, including aortic dimensions, pattern of dilatation and valve function were prospectively collected. Samples of AA were obtained during surgery. A specialized pathologist evaluated each of the sections. Total thickness of the media and depth of penetration of vasa vasorum (VV) within the media were analyzed. Univariate analysis was performed to identify factors having significant association with depth of penetration of VV. A multivariable lineal regression model was used to identify independent predictors of the depth of penetration of VV.

Results: BAV patients were younger ($p<0.001$) and presented with less comorbidity. Maximum aortic diameters were significantly larger in tricuspid aortic valve (TAV) patients ($p = 0.004$), but we found no differences in the pattern of dilatation. Media thickness was not significantly different in both groups. TAV patients showed a more prominent VV network, with a significantly deeper penetration of VV in the media. Age, hypertension, dislipidaemia, history of ischemic heart disease or renal failure, treatment with RAS inhibitors as well as the presence of significant aortic regurgitation were associated with significant higher depth of penetration of VV. In the regression model valve morphology, renal failure and treatment with RAS inhibitors were found to be independent predictors of depth of penetration of VV.

Conclusion: The pattern of vascularization of media layer differs in these two groups of patients and is characterized by a lower depth of penetration of VV within the media in AA associated to BAV. In the regression model, valve morphology was found to be an independent predictor of the penetration of VV.