COMPARISON OF TRICUSPID DYNAMICS IN PATIENTS WITH NORMAL VERSUS ABNORMAL RIGHT HEARTS: A THREE-DIMENSIONAL TRANS-OESOPHAGEAL ECHO STUDY

ACC Poster Contributions
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Background: The tricuspid valve annulus (TVA) is poorly understood. 3D trans-oesophageal echo (TEE) allows us to evaluate its dynamics.

Methods: 20 patients were divided into 2 groups: normal right hearts (n=10), and dilated right hearts (n=10). 3D zoom images of the TVA were acquired using an iE33 machine and X7-2t transducer (Phillips, Andover, MA, USA). Antero-posterior (AP) diameter, septo-lateral (SL) diameter, area and height were measured at 6 points of the cardiac cycle adapting commercially available software designed for assessing the mitral valve (MVQ, Phillips). The eccentricity ratio (ER) was calculated as AP/SL.

Results: TVA area decreases during systole in both groups and is greatest in mid-diastole. The area is significantly larger in the abnormal group (mean 1795mm² abnormal v 1204mm² normal; p<0.01). The SL diameter increased more in the abnormal group, resulting in a circular orifice and lower ER throughout the cycle (mean 0.91 abnormal v 1.22 normal; p<0.01, see graph). Annular height is similar in both groups but has an upward trend in systole in normals and reduces in abnormals, reaching significance at end systole (6.7mm v 4.9mm; p=0.046)

Conclusions: In patients with abnormal right hearts, the TVA dilates in a septo-lateral direction, resulting in a circular orifice. The dynamic changes of the TVA are similar in dilated versus normal right hearts, with the exception of annular height. This pilot study suggests that 3D TEE provides insight into understanding tricuspid annular dynamics.