Abstract: P1367

Low gradient aortic stenosis: can LVOT area evaluation by 3D Transoesophageal echocardiogram help?

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Topic(s):
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Introduction: An important proportion of patients (pts) with aortic stenosis (AS) have low-gradient (LG) AS. This can be due to the presence of a low left ventricle (LV) outflow state, which may occur with reduced LV ejection fraction (LVEF) (classical low-flow, low-gradient (LF-LG)) or preserved LVEF (paradoxical LF-LG). Furthermore, a substantial proportion of pts with AS may have normal-flow low-gradient (NF-LG) AS. The management of this subset is challenging because the AVA-gradient discrepancy raises uncertainty about the real stenosis severity. The evaluation of the LV outflow tract (LVOT) by 3D Transoesophageal echocardiogram (TEE) may contribute to a correct classification.

Purpose: To evaluate the proportion of LG AS pts with reclassification of AS severity after LVOT measurement by 3D TEE planimetry, to investigate predictors of reclassification and to determine its impact on prognosis. To compare LG AS with a control population of severe highgradient (HG) AS.

Methods: Prospective, unicenter, study that included pts with LG AS according to the conventional criteria submitted to 3D TEE during 2012-2017 period and comparison with a control population of pts with severe HG-AS.

Results: Were included 58 pts (57% males, mean age 76±8 years). 42 (72%) pts had LG AS: 8 pts had classical LF-LG, 18 pts had paradoxical LF-LG and 16 pts had NF-LG. 16 pts had HG AS. Compared to HG AS, LG AS pts had more diabetes (57 vs 25%; p=0.028), coronary artery disease (55 vs 13%; p=0.004), chronic renal disease (49 vs 6%, p=0.003) and LVOT with a superior eccentricity index (1.3 vs 1.15, p=0.01). After assessing the LVOT area by 3D TEE, 19 (45%)pts were reclassified as having moderate AS: 63% of NF-LG, 50% of classical LF-LG, 28% of paradoxical LF-LG and 19% of HG AS (p=0.048). The predictors of 3D TEE reclassification were: male sex (OR 10; p=0.001), bicuspid aortic valve (OR 5, p=0.011), peak transaortic jet velocity < 3.2 m/s (OR 6; p=0.02), mean gradient <30 mmHg (OR 4.2; p=0.015), VTI ratio =0.23 (OR 4.6; p=0.03), peak gradient <55 mmHg (OR 4, p=0.02), LVOT diameter =19.5cm (OR 4.3, p=0.01), AVA by continuity equation =0.64 cm2 (OR 12, p=0.02), AVA by 2D planimetry =0.86 cm2 (OR 6.4, p=0.04), AVA by 3D planimetry =0.75 cm2 (OR 24, p=0.003). During a mean FUP of 24±18 months, 24 pts (41%) were submitted to valvular intervention. Compared to HG AS, pts with LG AS had lower levels of valvular intervention (75 vs 26%, p=0.001), particularly cardiac surgery (16 vs 56%, p=0.006). The mortality rate was 22.4% and the 1-year mortality rate was 13%. There was no association between the groups regarding death rate, number of hospitalizations and NYHA class.

Conclusion: This study demonstrates that a significant proportion (45%) of pts with LG AS, mainly NF-LG AS, are reclassified into moderate AS, after LVOT area evaluation by 3D TEE. It remains to be clarify whether this evaluation has an impact on therapeutic approach or prognosis.
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