SCA 115

INTRAOPERATIVE THREE-DIMENSIONAL TRANSESOPHAGEAL ECHOCARDIOGRAPHY FOR THE EVALUATION OF MITRAL VALVE PROLAPSE PROIVIDE MORE ACCURATE INFORMATION THAN TWO-DIMENSIONAL TRANSESOPHAGEAL ECHOCARDIOGRAPHY

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Three-dimensional (3D) imaging provides a more comprehensive view of annular structure and allows accurate reconstructions of mitral valve 1). The purpose of this study is to evaluate the feasibility of intraoperative 3D transesophageal echocardiography (TEE) in patients with mitral valve prolapse (MVP) repair and to compare two-dimensional (2D) TEE with 3D TEE.

Methods: Twelve consecutive patients (mean age 52 +/- 17 years) underwent 2D TEE examination (ATL5000™) with representative five mitral views, following 3D TEE mitral valve formation with Tomtec ™ (Nihonkoden, Japan) before CPB. The location of the prolapse and regurgitation of the mitral valve were assessed with six valve elements (A1, A2, A3, P1, P2, P3: 72 points in 12 patients) and the data were blindly examined with two independent observers.

Results: 3D TEE formation of mitral valve was successful before CPB in all patients. 2D TEE analysis correctly predicted MVP localization in A1, A2, A3, P1, P2, P3, total: 9 (75%), 10 (83%), 6 (50%) , 8 (67%), 9 (75%) 8 (67%); 69.4% and regurgitation site: 9 (75%), 10 (83%), 11 (92%) , 8 (67%), 11 (92%), 6 (50%) ; 76.4% respectively statistically significant (ANOVA $p < 0.05$) between the MVP localization and regurgitatiton site compared with 3D TEE findings. The sensitivity and specificity of MVP are 56.5% and 74.5% and regurgitation site 65.6% and 75.8%.

Discussion: Intraoperative 3D TEE evaluation of MVP is possible before initiation of the surgical procedure and feasible. Accurate anatomical finding of MVP is sometimes difficult to understand with use of 2D TEE findings and even with surgical finding after cardiac arrest especially with prolapse site.

Conclusion: 3D data should be of value to the surgeon when performing mitral valve repair.

References:

1) Kaplan SR et al, Three-dimensional echocardiographic assessment of annular shape changes in the normal and regurgitant mitral valve. Am Heart J 2000 ;139:378-87