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Clinical utility of pre-operative 3D TEE in surgical planning in patients with Degenerative or Myxomatous Mitral valve disease: A randomized controlled trial

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Background & Aim: Detailed pre-operative echocardiographic examination of the Mitral Valve (MV) is imperative for proper surgical planning and satisfactory surgical outcome. Trans Esophageal Echocardiography (TEE) is the imaging modality of choice for MV and 3-Dimensional (3D) TEE has become widely adopted due to its advantage over 2-Dimensional (2D) Transthoracic Echocardiography (TTE) in assessment of MV anatomy and Mitral Regurgitation (MR). This study aimed to find out the clinical utility of 3D TEE in surgical planning for MV diseases.

Method: 24 patients with severe MR due to degenerative or myxomatous MV disease and underwent MV surgery from October 2016 to March 2017 were randomized into either those with pre-operative 2D TTE (13 subjects) or those with pre-operative 2D TTE plus 3D TEE (11 subjects). 3D eSie Valves advance analysis of the MV generated quantitative parameters. The pre-operative surgical recommendation and intra-operative technique were obtained. Change in the surgical plan, therapeutic confidence of physicians and duration of MV surgery were compared between the two groups.

Result: There was no significant difference in baseline characteristics between the two groups. Out of the 24 cases, 14 (54%) had MV repair and 10 (42%) had MV replacement (MVR). Overall, there was a significant change in pre-operative surgical plan ($p = 0.031$) noted in 4 cases (36.4%) all from those with pre-operative 3D TEE. There was no significant difference in duration of surgery between the two groups ($p=0.676$). The clinician and surgeon were more confident with their surgical recommendation for patients with pre-operative 3D TEE ($p=0.000$ and $p=0.0007$, respectively), compared to those with only pre-operative 2D TTE.

Conclusion: Use of 3D TEE showed change in surgical recommendation for patients with severe MR secondary to myxomatous or degenerative MV disease. It provided greater operator confidence for making pre-operative surgical recommendation but it did not shorten the duration of surgery. 3D TEE is a very promising technique hence, it requires a commitment to learn how to qualitatively interpret and quantitatively analyze data for proper utilization and optimization in MV surgery.

Biography

Jenny-Lynn V Juhuri has completed her Medicine studies from University of Santo Tomas, Manila, Philippines. She took her Internal Medicine Residency training at Makati Medical Center, Philippines and Cardiology Fellowship at Philippine Heart Center, Philippines. She also had her echocardiography training at Philippine Heart Center. She is currently an active Adult Cardiologist and Echocardiographer at The Medical City South Luzon and Tagaytay Medical Center, Philippines.

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