Abstract: **P322**

Prognostic value of echo contrast enhanced 3D dobutamine stress echocardiography.

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Background: Three-dimensional (3D) imaging allows acquisition of non-foreshortened reproducible planes compared to two-dimensional (2D) imaging, and administration of echo contrast improves image quality.

**Purpose**: To compare the diagnostic accuracy and prognostic value of 3D and 2D echo contrast enhanced Dobutamine stress echocardiography (DSE)

**Methods**: Seven hundred and eighteen consecutive patients without atrial fibrillation indicated for DSE (Vivid-7, GE Healthcare) were included in the study. All patients had standard 2D, and echo contrast (Sonovue®, BRACCO, Milan) enhanced 2D and 3D (triplane and full volume after breath hold) acquisitions for left ventricular opacification (LVO) at rest and peak dose. Chi-square test was done to assess relationship between DSE result and early revascularization. Kaplan Meier plots with Logistic regression analysis predicted late major cardiac events (MACE) at a maximum follow up of 84 months.

**Results**: The mean age was 67±12 years (61% males) and follow up was obtained in 692/718 (96.4%) patients, of these 352/692 (51%) had known coronary artery disease. Only 32% had excellent baseline image quality. Abnormal DSE was diagnosed in 134/692 patients (19.4%) on 2D, in 118/692 (17.1%) on 2D-LVO and in 132/692 (19.1%) on 3D-LVO. The agreement between the various modalities for DSE result were: kappa = 0.486, p<0.0001 for 2D and 2D-LVO; kappa = 0.274, p<0.0001 for 2D and 3D-LVO and kappa = 0.727, p<0.0001 for 2D-LVO and 3D-LVO. Early revascularization was performed in 44/134 (32.8%; Chi-square with continuity correction= 101.226, df=1, p <0.0001) of abnormal 2D studies, in 54/118 (45.8%; Chi-square with continuity correction= 211.335, df=1, p <0.0001) abnormal 2D-LVO studies and in 64/132 (48.5%; Chi-square with continuity correction= 281.223, df=1, p <0.0001) of abnormal 3D-LVO studies. Early revascularization was performed in 66/111 patients undergoing cardiac catheterization after the DSE. After excluding the 66 patients with early revascularization 68/626 (10.9%) had a hard event at a maximum follow up of 84 months. Kaplan Meier plots showed that stress positive 2D-LVO and 3D-LVO patients not receiving early revascularization had significantly worse outcomes for MACE compared to stress negative patients (OR 4.45; 95% CI : 1.42–13.93; p=0.0104 and OR 11.05; 95% CI: 1.15–39.04; p =0.0002, respectively).

**Conclusion**: In this real world clinical scenario of performing DSE, 3D-LVO acquisitions were feasible during routine 2D-DSE study time slots, showed improved diagnostic accuracy for early revascularization and better prognostic value at a maximum follow up of 84 months.