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IMPACT OF LEFT ATRIAL APPENDAGE PERCUTANEOUS OCCLUSION IN LEFT ATRIUM STRUCTURE AND FUNCTION: AN EXPERIMENTAL STUDY

Oral Contributions
West, Room 2022
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Session Title: Structural Heart Disease (Non-TAVR)
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Background: Favorable results with percutaneous occlusion of the left atrial appendage (LAA) for the prevention of thromboembolic events in patients with non-valvular atrial fibrillation, has lead to a widespread use of this technique. Long-term effects on left atrial (LA) function are unclear and it`s possible that LAA occlusion may increase deterioration of atrial structure and function or accelerate armful atrial remodeling in certain subsets of patients.This study objective was to evaluate the effect of percutaneous occlusion of the LAA in LA structure and function, in a prospective controlled experimental model.

Methods: - Ten common swine models were randomly assigned to Experimental Group (EG) (n = 5) and Control Group (CG) (n = 5). Percutaneous occlusion of the LAA was performed by femoral access in the EG. Evaluation of LA structure and function was performed by transthoracic echocardiography at baseline (B) and at 90 days (FU90d) through the dimensions of LA in 2D, pulsed Doppler of trans mitral flow and pulmonary veins, tissue Doppler imaging of mitral annular motion and LA deformation by speckle tracking. Statistical analysis was performed using comparison tests of mean values at each point of contact and variation of baseline-FU90d (ΔB-FU90).

Results: - Four subjects completed the FU90d in each group. There was an increase in the maximum and minimum atrial volume in the EG in ΔB-FU90d, p=0.035 and p=0.05 respectively, but with no differences in ejection volumes or ejection fraction. The peak velocity of tissue Doppler a` wave has decreased in EG, with a trend toward significant difference in ΔB-FU90d (p = 0.134). In pulsed Doppler of pulmonary veins, the Sp wave velocity significantly decreased in the EG ΔB-FU90d (p=0.029). There were no signs of left ventricle systolic or diastolic dysfunction and filling pressures were maintained. Atrial myocardial deformation parameters showed no differences between groups.

Conclusion: - This study provides initial evidence that percutaneous LAA occlusion is safe and does not lead to adverse atrial remodeling, or changes in mechanical function. There was a slight increase in atrial volume without functional impact or abnormal left ventricular filling.