Poster Contributions
Hall C
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Session Title: Valvular Heart Disease: Functional Imaging
Abstract Category: 28. Valvular Heart Disease: Clinical
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Background: RV dysfunction often complicates operative following mitral repair (MVR) for degenerative disease. Diagnosis remains challenging due to the elliptical shape of the RV and its interdependence with the left ventricle. We used speckle-tracking derived 2-dimensional RV longitudinal strain (RVLS) analysis to identify subclinical RV dysfunction preoperatively as well as possible postoperative predictors.

Methods: A total of 114 patients with chronic severe degenerative MR were analyzed retrospectively (58% males). Global RV longitudinal strain was computed at baseline and following MVR.

Results: Mean age was 57±12 years. Seventy nine patients (69%) underwent additional Tricuspid ring annuloplasty (median ring size: 26mm). Baseline RVLS was -19.2% (SD: 6.2%) and was lower in patients with starting RVEF<50% (-15.8% vs. -22.5% with RVEF≥50%, P<0.001). RVLS was lower in patient with baseline LVEF< 50% (-11.9% vs. -20.2% with LVEF ≥50%, P<0.001). Postoperatively (4±1.5 days) baseline RVLS decreased significantly (-11.3% vs. -19.2% preoperatively, P<0.0001). RVLS reduction correlated with a decrease in RVEF (r=-0.48, P<0.0001, 95%CI: -0.6 to -0.3) and LVEF (r=-0.36, P=0.0001, 95%CI: -0.5 to -0.2). In total 35 patient had concurrent tricuspid ring annuloplasty, which was the only independent predictor of RV dysfunction postoperatively for the entire study cohort (OR: 3.2, P= 0.014, 95%CI: 1.2 to 8.3), when compared to baseline catheterization pressures (RVSP: P=0.7; RA mean: P=0.6; PA mean: P=0.8), ischemic time (P=0.5) and tricuspid ring size (P=0.8). LVEF decreased >10% in 73 patients (64%), which had lower baseline RVLS compared to those without LVEF reduction after MVR (-17.7% vs. -20.1%, P=0.05). Baseline RVLS predicted reduction of LVEF>10% in stepwise regression (OR: 0.9, P=0.02, 95%CI: 0.8 to 0.9).

Conclusion: RV dysfunction may adversely influence the operative outcome of MVR surgery. Subclinical baseline RV dysfunction, as identified by RV longitudinal strain, may be implicated in the functional deterioration following MVR. The novel method of strain analysis may contribute in identifying at risk patients and help improve timing of surgical intervention.