



IMAGING AND DIAGNOSTIC TESTING

ASSESSMENT OF RIGHT VENTRICULAR FUNCTION WITH LONGITUDINAL TWO DIMENSIONAL STRAIN: COMPARISON BETWEEN LOW AND INTERMEDIATE RISK PULMONARY EMBOLISM

ACC Poster Contributions

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Background: Right ventricular dysfunction is a key point for the stratification of pulmonary embolism (PE) risk and affects therapeutic strategies. Longitudinal 2 dimensional (L2D) strain measure is a technique for assessment of ventricular function. The aim of our study was to determine the inter-observer variability of right ventricular L2D strain measure, and whether L2D strain may appropriately differentiate low risk and intermediate risk PE.

Methods: Patients with low or intermediate risk PE were included in the study and underwent echocardiogram at admission. Intermediate risk was defined by troponin elevation and/or echocardiographic right ventricular dysfunction. An apical 4 chamber view was recorded and analyzed by 2 independent observers. Lateral and septal right ventricle walls were divided into basal, mid and apical segments. L2D strain was calculated for each segment, for the lateral wall, septal wall and the whole ventricle.

Results: 50 patients were included, mean age 65 years, 24 with low risk and 26 with intermediate risk PE. Bland and Altman test showed a good inter-observer reproducibility. There was a significant difference between the intermediate and low risk patients for L2D strain of right ventricle (-13.1% vs -18.6%, $p < 0.01$), lateral wall (-12.7% vs -20%, $p < 0.01$) and septal wall (-13.5% vs -17.3%, $p = 0.05$).

Conclusion: Right ventricle L2D strain is a reproducible and potentially useful technique for the assessment of right ventricular function and PE risk stratification.

LD Strain (%)	Low Risk	Intermediate Risk	p
Right ventricle	-18.6	-13.1	<0.01
Lateral Wall	-20	-12.7	<0.01
- Basal	-20.6	-18.9	0.51
- Mid	-20.2	-11.8	<0.01
- Apical	-19.1	-7.4	<0.01
Septal Wall	-17.3	-13.5	<0.01
- Basal	-16.4	-15.5	0.6
- Mid	-18	-15	0.07
- Apical	-17.4	-9.9	<0.01