

Pulmonary Hypertension

IMPAIRED GLOBAL RIGHT VENTRICULAR LONGITUDINAL STRAIN PREDICTS LONG-TERM ADVERSE OUTCOMES IN PATIENTS WITH PRIMARY PULMONARY HYPERTENSION

ACC Oral Contributions

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Background: New 2-dimensional strain echocardiography enables quantification of right ventricular (RV) mechanics by assessing global longitudinal strain of RV (GLSRV) in pulmonary arterial hypertension (PAH) patients. However, prognostic significance of impaired GLSRV is unclear.

Methods: We studied 51 consecutive PAH patients without atrial fibrillation (40 females, 48±14 years old) with long-term follow-up. GLSRV was measured with velocity vector imaging (VVI) using Syngo dynamics.

Results: GLSRV showed significant correlation with RV fractional area change ($r=-0.578$, $P<0.001$), TAPSE ($r=-0.564$, $P<0.001$), and right Tei index ($r=0.591$, $P<0.001$). It showed significant correlations with pulmonary vascular resistance ($r=0.467$, $P=0.001$) and BNP ($r=0.354$, $P=0.018$). During a clinical follow-up time (37±15 months), 22 patients experienced adverse events (AE). Best cutoff value of GLSRV for predicting AE was -16.1% (AUC=0.705, $P=0.023$) with sensitivity 77% and specificity 70%. Four-year event-free survival rate differed according to GLSRV (63±16 vs. 34±10%, $P=0.002$). Best cutoff value of GLSRV for predicting death was -15.5% (AUC=0.729, $P=0.018$) with sensitivity 83% and specificity 72%. Four-year survival rate differed according to GLSRV (93±5 vs. 57±11%, $P=0.001$, Figure).

Conclusions: GLSRV by VVI showed significant correlations with conventional echocardiographic parameters indicating RV systolic function. Lower GLSRV is associated with presence of adverse events and deaths.

