

RELATIONSHIP BETWEEN IMPROVED PULMONARY ARTERIAL PRESSURE AND CHANGES IN INTERVENTRICULAR SEPTAL CONFIGURATION BY 320-SLICE CT IN PATIENTS UNDER PULMONARY ENDARTERECTOMY

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Objective: We retrospectively determined whether changes of the curvature of the interventricular septum measured by ECG-gated 320-slice CT were influenced by improved pulmonary artery (PA) pressure in patients with chronic thromboembolic pulmonary hypertension (CTEPH) undergoing pulmonary endarterectomy (PEA).

Methods: Thirty-six patients (13 male, 59 ± 9 yrs) with proven CTEPH underwent right heart catheterization (RHC) and double-volume retrospective ECG-gated enhanced volume scanning using 320-slice CT before and after PEA. CT images were reconstructed every 5% from 0-95% of the R-R interval, and a series of short-axis images of the heart at the level of the left ventricle papillary muscle was acquired using double-oblique multiplanar reformation. Septal bowing expressed as end-systolic curvature (reciprocal of radius [cm]) was measured (a leftward curvature was denoted as a negative value). The relationships between septal curvature (SC) and hemodynamics measured by RHC before and after PEA were evaluated by linear regression analysis.

Results: The correlation coefficients of SC with systolic PA pressure (sPAP) before and after PEA were -0.83 ($P < 0.001$) and -0.46 ($P = 0.005$), respectively. The correlation coefficients of SC with mean PA pressure (mPAP) before and after PEA were -0.83 ($P < 0.001$) and -0.46 ($P = 0.005$), respectively. The change in SC before and after PEA was also correlated with the change in sPAP ($r = -0.64$, $P < 0.001$) and the change in mPAP ($r = -0.65$, $P < 0.001$).

Conclusions: SC based on ECG-gated 320-slice CT can be used to accurately estimate improved hemodynamics in patients undergoing PEA.