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Title: Role of right ventricular ejection fraction by electrocardiogram-gated 320-slice CT in pulmonary hypertension

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Body: Purpose: Right ventricular function is an important determinant of exercise capacity and survival in pulmonary hypertension (PH). We aimed to study correlation of right ventricular ejection fraction (RVEF) determined by 320-slice CT with hemodynamic factors in patients with PH. Materials and Methods: 59 subjects (17 male, 56±13 yrs) with PH (41 chronic thromboembolic pulmonary hypertension and 18 pulmonary arterial hypertension) underwent enhanced retrospective ECG-gated volume 320-slice CT (Aquilion ONE, Toshiba) and right heart catheterization (RHC). CT images were reconstructed every 5% from 0-95% of the R-R interval. RV end-systolic and end-diastolic true volumes were measured from 3-dimensional reconstruction and used to calculate RVEF. We compared RVEF with the results of RHC. Results: In 320-slice CT, RVEF were 46.4±14.8. In RHC, mean PAP (mPAP), PVR, systolic volume (SV) were 41.5±11.3 mmHg, 655±317 dyne•sec•cm⁻⁵ and 63.7±17.7ml, respectively. The correlation coefficient of RVEF with mPAP, PVR, SV were -0.52 (P<0.001), -0.63 (P<0.001) and 0.61 (P<0.001), respectively. Conclusions: RVEF by ECG-gated 320-slice CT correlated significantly with PVR and SV in subjects with PH.