

Usefulness of strain imaging to determine prognosis in pulmonary hypertension

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Introduction: Pulmonary hypertension (PH) is defined as mean pulmonary arterial pressure (mPAP) ≥ 25 mmHg at rest, measured by right heart catheterization (RHC).

Purpose: To describe classical and myocardial deformation echocardiographic parameters in patients with established PH and to identify prognostic variables

Methods: We prospectively enrolled 76 patients with mPAP ≥ 25 mmHg undergoing RHC between 2017 and 2018. All subjects underwent transthoracic echocardiography (TTE) according to the latest ASE/EACVI guidelines the same day of the RHC. Strain analysis was carried out by speckle-tracking echocardiography (QLAB 10.7, Philips). Clinical events during the follow-up were: acute heart failure hospitalization, cardiac transplant and all-cause mortality.

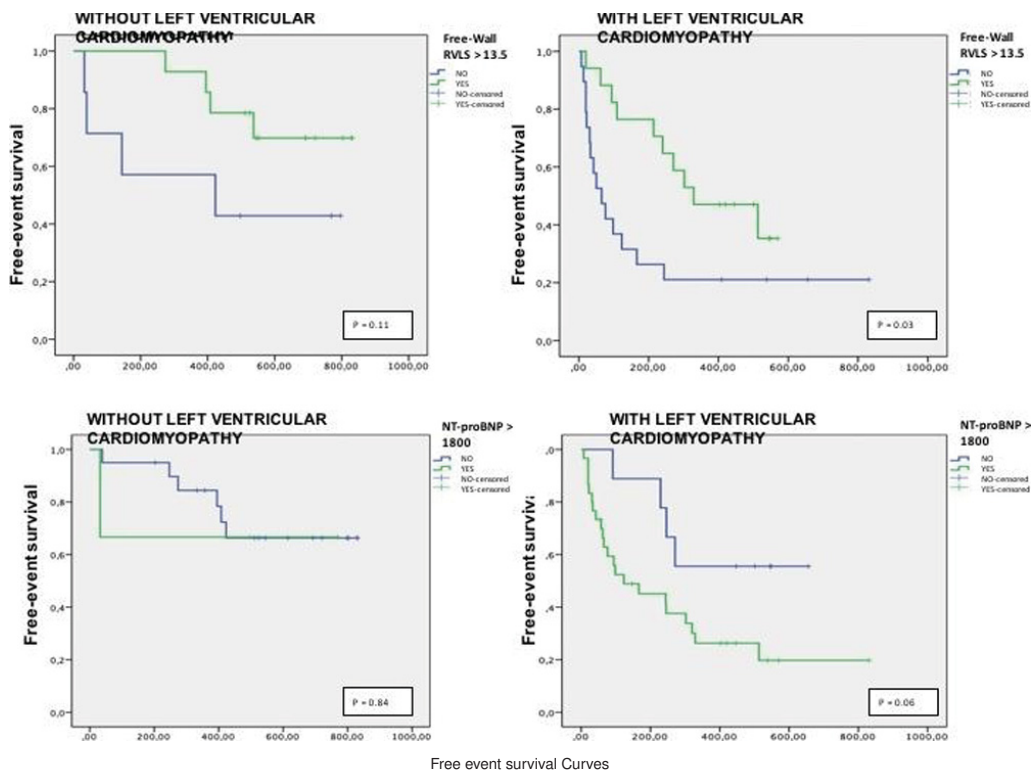
Results: Mean age was 59 ± 12 , 43.4% were women and 49 patients

(64.5%) belonged to group 2 of PH. The median follow-up was 288 (ICR 92–534) days. Total number of events was 42 (55.3%, 9 deaths). Variables associated to events are shown in Table 1. All classic LV and RV systolic function and strain parameters were associated with a worse prognosis, being free-wall RV longitudinal strain (RVLS) the only one that remained as a prognostic factor in multivariate analysis. Other variables associated with a worse prognosis were PCP > 15 mmHg and NT-proBNP > 1800 , the latter being independent predictor of events. The attached figure shows event-free survival curves for the global population divided according to whether or not they belong to group II PH.

Conclusions: Our data highlight the prognostic value of free-wall RVLS and NT-proBNP in patients with established PH. NT-ProBNP was only useful in group II PH while free-wall RVLS identified patients with a higher risk of events in both groups, mainly in patients with heart disease

Variables associated with events

Variables	OR	P
Univariate analysis		
NTproBNP > 1800	3.5 (1.7–7.4)	0.001
LVEF < 40%	2.4 (1.3–4.4)	0.006
LV GLS < 13	2.8 (1.5–5.4)	0.002
Free-wall RVLS < 13.5	2.8 (1.4–5.6)	0.004
PCWP > 15	2.7 (1.3–5.6)	0.006
TAPSE < 15.5	2 (1.1–3.8)	0.030
Multivariate analysis		
Free-wall RVLS < 13.5	2.9 (1.4–5.9)	0.003
NTproBNP > 1800	4 (1.8–9.1)	0.00



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