points) in the intervention group vs. control ($p<0.05$). Pts from the intervention group displayed a significant decrease in anxiety as measured by both questionnaires vs. control (all $p<0.05$) but the depression scores remained unchanged.

The effects of preventive counseling

	Intervention group		Control group		Differences between groups at 12 months
	Baseline	After 12 months	Baseline	After 12 months	
Stress, VAS points, mean ± SD*	5.1±1.9	3.4±1.8	6.3±1.5	5.1±1.7	p<0.05
High level of stress, %	60.1	23,3	70.2	60.2	p<0.05
Anxiety (≥8 points HADS-A),%	33.3	3.3	45.1	35.3	p<0.05
Depression (≥8 points HADS-D),%	6.7	6.6	23.3	20.2	n/s
State anxiety, mean ± SD	27.9±8.4	19.2±4.6	28.9±14.5	23.6±6.1	p<0.05
Trait anxiety, mean ± SD	45.5±7.9	40.7±7.8	45.4±11.3	42.8±8.4	n/s

SD: standard deviation.

Conclusions: Preventive counseling followed by remote 3 months support via text messaging reduced the level of stress as measured by VAS and anxiety as measured by HADS and STAI questionnaires.

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Effects of two different preventive counselling programs on selected psychosocial risk factors and quality of life in coronary patients with abdominal obesity

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Background: Patients (pts) education has a potential to improve psychological status and quality of life (QoL) in coronary heart disease (CHD).
Purpose: To assess the impact of 2 preventive counselling programs on psychosocial risk factors (RFs) and QoL in CHD pts with abdominal obesity after hospitalization.
Methods: A prospective randomized parallel-group study in hospitalized nonsurgical pts with confirmed stable CHD. Most hospitalizations were due to elective percutaneous coronary intervention. Pts were randomized (1:1:1) into 3 groups. Before discharge, Groups 1 and 2 received comprehensive counselling with focus on diet followed by remote counselling by phone (Group 1) or via text messages (Group 2). Remote counselling was delivered weekly (Months 1–3) and then monthly (Months 4–6). Group 3 received standard advice only. The Hospital anxiety and depression scale (HADS), a 10-point visual analogue scale (VAS) for stress and HeartQol for QoL were used.
Results: A total of 75 pts (mean age±SD, 57.79±6.26 years, men, 82.6%) were enrolled. The Table presents the psychosocial RFs and QoL at baseline and at 12 months. At 1 year, significant improvements of stress level and QoL vs control were seen in both intervention groups. There was also a significant reduction of anxiety in Group 1 (phone). In Group 2 (e-mail or sms) the proportion of anxious pts didn't increase vs control ($p<0.05$).

Table 1

	Group 1 (n=25)	Group 2 (n=25)	Group 3 (control) (n=25)	P for change from baseline	
				Group 1 vs 3	Group 2 vs 3
Pts with anxiety symptoms (HADS-A≥8), %					
Baseline	52	32	36		
At 12 months	17	32	42	<0.05	<0.05
Pts with depressive symptoms (HADS-D≥8), %					
Baseline	28	16	32		
At 12 months	17	24	25	n/s	n/s
Stress level, VAS points, mean ± SD					
Baseline	7.12±1.88	6.16±2.10	6.44±2.16		
At 12 months	3.58±1.89	4.46±2.28	4.83±2.62	<0.05	<0.05
HeartQoL global score, mean ± SD					
Baseline	1.61±0.58	1.97±0.47	2.01±0.47		
At 12 months	2.61±0.64	2.46±0.65	2.08±0.93	<0.01	<0.01

Conclusion: Pre-discharge preventive counselling with subsequent remote support resulted in significant positive changes of selected psychosocial RFs and QoL which were more pronounced in the phone support group.

ECHOCARDIOGRAPHIC ASSESSMENT OF THE RIGHT HEART

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A novel echo-doppler approach for quantitative estimation of pulmonary artery wedge pressure and pulmonary vascular resistances

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Background: Non-invasive echocardiographic assessment of pulmonary hemodynamics is pivotal in patients with heart failure and pulmonary hypertension (PH), but usually based on qualitative measurements.
Objectives: To evaluate diagnostic accuracy of a quantitative approach for echocardiographic estimation of pulmonary arterial wedge pressure (PAWP) and pulmonary vascular resistance (PVR) in patients with different hemodynamic profiles.
Methods: We analyzed 688 consecutive patients (371 males; 68.5±11.6 years old) referred to right heart catheterization (RHC) from the department of cardiology and pneumology. All patients underwent echocardiography within 24 hours before RHC. Multiple linear regression analysis of echocardiographic parameters was then performed to predict RHC-derived PAWP and PVR in the first 200 patients (derivation group). The model was then tested in the following 488 patients (validation group).
Results: PH was established in 404 patients (58.7%): 134 (33.2%) had precapillary PH, 216 (53.5%) had post-capillary PH, and 54 (13.3%) had combined PH. Linear regression analysis estimating PAWP and PVR in derivation group (n=200) included tricuspid regurgitation maximal velocity, mitral E/e' ratio, left ventricle ejection fraction, right ventricle fractional area change, inferior vena cava diameter and left atrial volume index (R^2=0.7; $p<0.001$), independently of mitral regurgitation grade and biohumoral variable (NT-proBNP, hs-cTnT). Model prediction of elevated PAWP (>15 mmHg) in the validation group (n=488) showed a higher diagnostic accuracy (AUC=0.95, 93% sensitivity and 88% specificity) as compared to 2016 ASE/EACVI recommendations (65% sensitivity and 80% specificity, $p<0.001$). Likewise, a highly accurate estimation of elevated PVR (>3 Wood Units) was obtained by the model (AUC=0.95, 86% sensitivity, 94% specificity). Bland-Altman analysis demonstrated satisfactory limits of agreement for PAWP and PVR estimation between RHC and echocardiography.
Conclusions: Echo-derived PAWP and PVR quantitative estimation is feasible and reliable in different hemodynamic profiles. This novel algorithm significantly improves the diagnostic accuracy of echocardiography in the estimation of cardiopulmonary hemodynamics, making it a promising tool to tailor decision making and follow-up in different clinical settings.

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Right atrial strain as a predictor of high pulmonary systolic pressure

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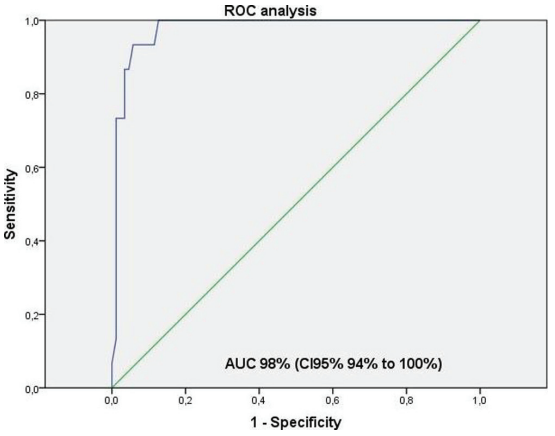
Purpose: The aim of this study was to evaluate the ability of right atrial (RA) strain to predict high pulmonary systolic pressure (PSP).
Methods: 102 patients with sinus rhythm and adequate TR to estimate PSP were prospectively enrolled. TAPSE, tricuspid annular systolic velocity (VAT), right ventricular (RV) diameter and color tissue Doppler were recorded. RA volume from the apical four-chamber view was calculated. Mean maximum lateral RA strain was obtained during the reservoir period by speckle tracking. RA strain was compared between patients with estimated PSP ≤37 mmHg vs. patients with PSP >37 mmHg using t test. Pearson's correlation test was used, calculating its confidential interval with bootstrap resampling technique. Quadratic R2 coefficient was obtained. A multivariate analysis was performed including most relevant variables. ROC curve was constructed to obtain the optimal cut off value, specificity and sensibility; results were expressed as area under the curve (AUC), with CI95%. A $p<0.01$ value was considered statistically significant.

Multivariate analysis

	Odds Ratio	CI 95%	P-Value
RV diameter	1,48	1,02–2,15	0,04
Ee'	1,04	0,76–1,42	0,77
RA Strain	1,16	1,05–1,28	<0,01
TAPSE	0,90	0,67–1,21	0,5
RV tissue velocity	1,21	0,87–1,69	0,24
RA Vol Index	0,95	0,85–1,05	0,36

RV: right ventricle. RA: right atrium. TAPSE: tricuspid anular plane systolic excursion.



ROC analysis of RA strain.

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