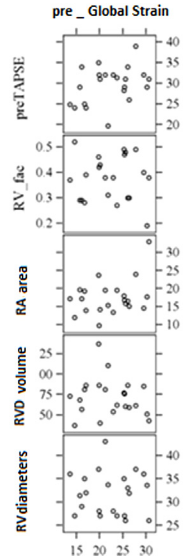
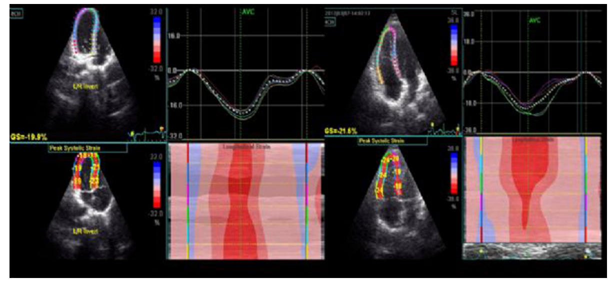
Correlation with right ventricular global strain and other parametres of right ventricul

Pearson Correlation Coefficients, N = 22 Prob > |r| under H0: Rho=0	
RV basic parameters	**Pre GS**
preTAPSE	0.36863 p = 0.0914
RV fac	-0.03302 p = 0.8840
RA area	0.33851 p = 0.1233
RVD volume	-0.12174 p = 0.5894
RV diameters	-0.01615 p = 0.9431
RV diastolic area	-0.26769 p = 0.2284
RV sistolic area	-0.24901 p = 0.2638
RVS volume	-0.31048 p = 0.1596
RA diameters	-0.02990 p = 0.8949





Comparison tissue-Doppler parameters of the patients before and after of the closure

	Pre	Post		p1	p2
		3 ay	6 ay		
TDI S (cm/s)	11.56 ± 1.65	10.94 ± 1.64	10.88 ± 2.52	0.3232	0.9523
TDI E (cm/s)	11.14 ± 1.9	9.50 ± 2.4	9.41 ± 1.47	0.0007	0.9984
TDI A (cm/s)	10.80 ± 2.39	9.91 ± 2.77	10.14 ± 3.90	0.4612	0.9854
E'/A'	1.03	0.95	0.92	0.4565	0.3954
IVRT (msn)	80.45 ± 21.84	77.57 ± 19.70	70.52 ± 18.46	0.2954	0.4343
MPİ	0.49 ± 0.13	0.44 ± 0.10	0.42 ± 0.11	0.1197	0.7258
IVA (m/s²)	2.76 ± 1.14	3.70 ± 1.45	3.94 ± 1.86	0.0018	0.1868

Baseline echocardiographic characteristics of the groups

	group of patients (n=22)	control group (n=22)	P
LV diastolic diameter (mm)	42.15 ± 4.07	40.76 ± 3.17	0.2136
LV sistolic diameter (mm)	23.69±4.57	20.20±4.03	0.0027
LA diameter (mm)	33.17±4.38	30.63±3.45	0.049
RV sistolic volume mm³)	32.75±10.31	15.05±2.92	< 0.001
RV diastolic volüme(mm³)	71.37±23.16	31.72±3.46	< 0.001
RV sistolic area (mm²)	14.80 ± 3.49	8.8 ± 1.22	< 0.001
RV diastolic area (mm²)	23.93 ± 5.14	17.83 ± 1.96	< 0.001
RA area (mm²)	17.53 ± 4.84	11.22 ± 1.406	< 0.001
RA diameters (d1/d2 mm)	48.96 ± 5.57/40.56 ± 6.24	40.81 ± 3.2/37.18 ± 3.51	0.0393 /< 0.001
RV fac (%)	37 ± 8.8	49 ± 8.9	0.0005
TAPSE (mm)	29.68 ± 4.4	23.09 ± 1.71	< 0.001
SPAP (mmHg)	34.27 ± 5.6	22.05 ± 2.96	< 0.001

Global, regional peak right ventricular strain (%) and global right ventricular strain rate (1/s) in atrial septal defect patients before and 3 and 6 months after percutaneous closure.

	Pre	Post	Post		
		3. month	6. month		
Global strain (s -1)	-22.35 ± 5.19	-21.75 ± 3.2	-21. 74 ± 2.92	0.9143	0.1133
Lateral basal (s -1)	-24.05 ± 6.8	-29.63 ± 5.13	-26.78 ± 7.1	0.0039	0.1760
Lateral mid (s -1)	-24.19 ± 6.24	-27.55 ± 4.25	-25.69 ± 5.90	0.0151	0.2600
Lateral apical (s -1)	-22.97 ± 6.65	-20.30 ± 8.67	-19.93 ± 5.73	0.3141	0.9543
Septal apical (s -1)	-20.12 ± 6.9	-15.90 ± 8.42	-16.05 ± 6.48	0.0950	0.9551
Septal mid (s -1)	-20.89 ± 6.79	-19.56 ± 4.49	-19.39 ±4.77	0.5128	0.7700
Septal basal (s -1)	-20.92 ± 6.2	-20.72 ± 3.79	-19.37 ± 4.14	0.9732	0.1550
Global strain rate(s -1)	-1.25 ± 0.20	-1.30 ± 0.23	-1.28 ± 0.28	0.5667	0.5549
Lateral basal SR (s -1)	-1.71 ± 0.63	-2.05 ± 0.47	-2.01 ± 0.59	0.0783	0.7465
Lateral mid SR(s -1)	-1.58 ± 0.51	-1.68 ± 0.40	-1.73 ± 0.46	0.2725	0.9462
Lateral apical SR(s -1)	-1.61 ± 0.42	-1.43 ± 0.61	-1.27 ± 0.38	0.2854	0.2790
Septal apical SR(s -1)	-1.58 ± 0.34	-1.18 ± 0.54	-1.105 ± 0.51	0.0033	0.4519
Septal mid SR(s -1)	-1.48 ± 0.38	-1.29 ± 0.45	-1.19 ± 0.42	0.0090	0.1693
Septal bazal SR(s -1)	-1.62 ± 0.42	-1.42 ± 0.69	-1.01 ± 0.38	0.9143	0.7465

Comparison RV parameters of the patients before and after of the closure

	Pre	Post		P1	P2
		3 month	6 month		
LV diastolic diameter (mm)	42.15 ± 4.07	45.11 ± 4.77	44.57 ± 3.61	< 0.0002	0.5689
LV sistolic diameter(mm)	23.69 ± 4.57	22.86 ± 4.02	22.71 ± 3.84	0.4477	0.7061
LA diameters (mm)	33.17 ± 4.38	33.72 ± 3.13	33.42 ± 3.15	0.2622	0.6605
RV diameter (PLAX, mm)	31.8 ± 4.57	24.14 ± 3.32	23.61 ± 2.67	<0.0001	0.3518
RV sistolic volume (mm³)	32.75 ± 10.31	17.50 ± 5.4	13.95 ± 3.87	<0.0001	0.0006
RV diastolic volume (mm³)	71.37 ± 23.16	41.12 ± 13.43	35.98 ± 8.48	<0.0001	0.0125
RV sistolic area (mm²)	14.8 ± 3.4	9.91 ± 1.56	8.6 ± 1.5	<0.0001	0.0158
RV diastolic area (mm²)	23.93 ± 5.14	18.54 ± 2.79	16.6 ± 3.10	<0.0001	< 0.0047
RA area (mm²)	17.53 ± 4.84	12.45 ± 2.75	12.11 ±2.81	0.0002	0.4112
RA diameters (mm)	40.56 ± 6.24/ 48.96 ± 5.57	35.47 ± 4.5/ 44.36 ± 4.99	33.66 ± 4.36/ 43.61 ± 5.33	0.0001/ <0.001	0.1255/ 0.3485
RV fac (%)	37.6 ± 8.8	45.8 ± 7.4	48.6 ± 7.3	0.0028	0.1762
TAPSE (mm)	29.68 ± 4.41	25.97 ± 2.97	23. 58 ± 2.97	0.0004	0.0017
SPAP (mmHg)	34.27 ± 5.6	24.41 ± 4.71	23.20 ± 3.92	< 0.001	0.2436
TRV (m/sn)	2.59 ± 0.31	2.14 ± 0.34	2.01 ± 0.23	< 0.0001	0.0235
RVSP (mmHg)	34.04 ± 5.9	23.55 ± 5.7	21.91 ± 4.3	< 0.001	0.3467

PP-229

Two-Dimensional Speckle Tracking Echocardiography for Assessment of Early Cardiac Function after Treatment of Patients with Overt Hypothyroidism

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Objectıve: Our aim was to evaluate cardiac function and myocardial contractility in patients with overt hypothyroidism using two-dimensional speckle tracking echocardiography (2D-STE) strain imaging and real-time three-dimensional echocardiography (RT3DE) and compare the changes at one month after starting the treatment.
Methods: Fourty-one patients with overt hypothyroidism and fourty age and body mass index matched healthy subjects underwent conventional echocardiography,

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RT3DE and 2D-STE for assessment of resting LV function. Measurements of RT3DE volumes and ejection fraction (EF) were performed. Global longitudinal strain (GLS) was calculated from 3 standard apical views using 2D-STE.
Results: Patients with overt hypothyroidism had significantly longer isovolumic contraction time (p<0.001), deceleration time (p<0.001) and isovolumic relaxation time (p<0.001). On RT3DE evaluation, none of the patients in both groups had LV systolic dysfunction with comparable LVEF and LV volumes. However, speckle tracking analysis showed that GLS was significantly reduced in the overt hypothyroidism group compared to control group (p<0.001). At one month follow up after the treatment, GLS significantly improved in overt hypothyroidism group (p<0.001).
Conclusıons: Overt hypothyroidism is related to impairment of LV longitudinal myocardial function, and 2D-STE is useful for the detection of early impairment. Successful treatment of overt hypothyroidism has a beneficial effect on cardiac functions.

PP-230

The Association among Neuropathy, Echocardiographic Parameters and Carotid Artery Intima Media Thickness in Maintenance Hemodialysis Patients

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Background: Uremic neuropathy is an underestimated complication among the dialysis patients, even though it represents a huge problem in terms of pain and quality of life. Recently, motor nerve conduction velocity has shown as a significant predictor of mortality in hemodialysis patients. The aim of this study was to test if there was an association between neuropathy, echocardiographic parameters and carotid artery intima media thickness (CIMT) in maintenance hemodialysis patients.
Materıal and Methods: 200 prevalent dialysis patients from a large hemodialysis facility were included. The Michigan Neuropathy Score Instrument (MNSI) was used for the diagnosis of UN. Electroneurographic (ENG) examination was performed in these patients to confirm UN. Patients underwent echocardiographic studies (M-mode and Doppler imaging) and B-mode ultrasonography to assess CIMT.
Results: 39 patients (19,5%) were identified as being affected by UN. Remaining 161 patients were considered free of neuropathic signs and symptoms. Patients with neuropathic involvement had higher mean values of left atrial diameter (4.80±0.66 vs 3.50±0.67 cm, p=0.04), mass indexed left atrial volume (LAVI; 51±10 vs 42±7 ml/m^2, p=0,012) and lesser left atrial ejection fraction (LAEF; 41±10 vs 50±7%, p=0,049). Examination of left ventricular functions revealed reduced left ventricular stroke volume (62±6.6 vs 67.8±6.5 ml, p=0.011) and ejection fraction (58.6±6.3 vs 63.9±4.0%, p=0.007), increased left ventricular end diastolic diameter (5.18±0.32 vs 4.54±0.32 cm, p=0.001) and pulmonary artery pressures (51±18 vs 24.1±10.7mm Hg, p=0.0001) when compared to patients free of neuropathic signs and symptoms. Higher CIMT values were observed in patients with UN than without UN (1.01±0.11 vs 0.84±0.20 cm, p=0.019).
Conclusıon: The present work links neuropathy to cardiac and vascular abnormalities in patients on hemodialysis that should be further studied.

PP-231

The Relationship between Fragmented QRS and Diastolic Parameters in Coronary Artery Disease Patients with Noncritical Lesions

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Aim: In previous studies, fragmented QRS (f-QRS) in electrocardiography (ECG) has been shown to be associated with regional myocardial scar. Excluding most risk factors for cardiac diastolic dysfunction, in this study, we sought to evaluate the effect of fragmented QRS on diastolic parameters using the methods of conventional Doppler and tissue Doppler in patients with normal systolic function who have noncritical stenosis demonstrated in the coronary angiography.
Method: This study includes 60 patients with f-QRS in the surface ECG and 40 control patients with similar demographic characteristics without f-QRS in the surface ECG. Demographic characteristics were: prediagnosis of coronary artery disease; several indications, such as ischemic signs in treadmill test / myocardial perfusion scintigraphy with angina symptoms or noncoronary causes (before aortic aneurysm, peripheral arterial disease surgery) for coronary angiography to be performed; normal systolic function; noncritical stenosis, with the ratio of lesion diameter to vessel diameter <50%, and lesion area to vessel area <70%. Diastolic parameters were compared between the two groups using the methods of conventional Doppler and tissue Doppler. Fragmented QRS was defined as the presence of a second R (R') wave, the notching of R or S wave, or the fragmentation of R wave (more than one R') in at least two consecutive leads compatible with epicardial coronary arteries. Patients with a history of myocardial infarction, pathological Q waves, typical bundle branch block, incomplete right bundle branch block, or pacemaker rhythm in the ECG were excluded from the study.
Result: Compared with conventional echocardiography, regional tissue Doppler parameters revealed significant differences in patients with f-QRS. Em (tissue Doppler early diastolic velocity) and Em/Am (the ratio of early and late diastolic velocities) from tissue Doppler echocardiography parameters were found to be lower in patients with f-QRS compared with the control group (p<0.05).
Conclusıon: According to the results of our study, the presence of f-QRS in the surface ECG is associated with the deterioration of left ventricular diastolic function, both regionally and globally, and this deterioration is more evident at tissue level. In conclusion, fragmented QRS in the surface ECG can be an early predictor of diastolic dysfunction.

PP-232

Simplified Bernoulli Equation May Lead Us To Incorrect Estimation of Interventricular Gradient in Patients with Tunnel Like Ventricular Septal Defects

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Purpose: Although very high gradient levels were measured during the evaluation of ventricular septal defect (VSD) in daily practice, these measurements are generally interpreted as irrational and thus neglected. Our aim was to show that Doppler may overestimate interventricular pressure gradient in tunnel-like VSD.
Method: A forty two patients were enrolled in the study during the 24 months period. The patients with greater Doopler derived interventricular gradient than brachial blood prressure were compared of patients with lower pressure gradient [group 1 (n:24), group 2 (n:18), respectively] in terms of VSD echocardiographic characteristics. Cardiac catheterisation was performed for shunt quantification or pulmonary vascular resistance assesment when non invasive evaluation leaves uncertanity (4 patients in group 1, 6 patients in group 2).
Results: No significant relation was observed in systolic and diastolic blood pressure, systolic pulmonary artery pressure and interventricular syncronicity between two groups (112±6.4 vs 109±4.8 mmHg p:0.09, 74.7±4.3 vs 73.2±4.9 mmHg p: 0.32, 32.5±3 vs 34.2±7.5 mmHg p:0.32, 31,2±5,5 vs 33,2 ± 4,9 msn, p:0.29 respectively). Left ventricular end diastolic and end systolic diameters were greater in group 2 (46.6±3.5 vs 49.5±4.3 p:0.02, 30.3±2.5 vs 32.9±3.2 p:0.004, respectively). Interventricular pressure gradients were significantly higher in group 1 (144,4±13,6 mmHg vs 75,7±5 mmHg, p<0.001, respectively). Defect width was significantly lower (3.24±0.46 vs 4.72±1.23 mm, respectively, p<0.05) and length was greater in group 1 patients (5.75±0.99 vs 2.77±0.80 mm, respectively p<0.05) there was significant positive correlation between pressure gradient and defect lenght (r:0,84 p<0.001) and negative between pressure gradient and defect width (r: -0.66 p<0.001). Doppler-derived pressure gradients were found to be higher (mean 45 %) than catheter-derived peak instantaneous gradients in all patients being considered for catheterisation. Doppler and catheter-derived gradients were correlated well in group 2.
Conclusıon: Continuous wave Doopler may overestimate interventricular pressure gradients in patients with tunnel like ventricular septal defect. It is important to remember that Bernoulli's principle does not apply in flow through long VSD.

PP-233

Subclinical Left Ventricular Dysfunction in Women with Polycystic Ovary Syndrome

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Aims: Cardiac involvement has been increasingly recognized in patients with polycystic ovary syndrome (PCOS). Identification of the earliest asymptomatic impairment of left ventricular (LV) performance may be important in preventing progression to overt heart failure. Our aim was to investigate LV function with different echocardiographical techniques in patients with PCOS.
Methods: Thirty patients with PCOS and 30 age and body mass index matched healthy subjects were enrolled to this cross-sectional observational study. All subjects underwent echocardiography for assessment of resting LV function. Global longitudinal strain (GLS) was calculated from 3 standard apical views using two-dimensional speckle tracking echocardiography (2D-STE).
Results: The early mitral inflow deceleration time (DT), isovolumetric relaxation time (IVRT) and E/Em ratio was increased in the PCOS group. Waist-to-hip ratio, fasting insulin, HOMA-IR and LDL levels were higher in PCOS group. Significant correlation was observed between DT, IVRT and insulin value, HOMA-IR. On real time three-dimensional echocardiography (3D-RTE) evaluation, none of the patients in both groups had LV systolic dysfunction with comparable LVEF and LV volumes. 2D-STE showed that GLS was significantly reduced in the PCOS group compared to control group (-16.78±0.56% vs. -18.36±1.04%, p<0.001). The GLS was found to be negatively correlated with waist-to-hip ratio and LDL values.
Conclusıon: These results indicate that PCOS may be related to impaired LV systolic function detected by 2D-STE. In addition, PCOS may lead to diastolic dysfunction. Reduced GLS might be an early indicator of cardiac involvement in this patient population.

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