Table 2: Pre-Procedural Echocardiographic Parameters Characterized by Risk of Cardiac Decompensation				
	Cardiac Admitting Reason			
	No (N=220)	Yes (N=16)	Total (N=236)	P-value
Sex, n (%)				0.3886[1]
Female	73 (33.2%)	7 (43.8%)	80 (33.9%)	
Male	147 (66.8%)	9 (56.3%)	156 (66.1%)	
Age				0.8764[2]
Mean (SD)	59.0 (10.59)	58.4 (12.64)	58.9 (10.71)	
Median (IQR)	59.5 (52.0, 66.0)	58.5 (47.5, 68.5)	59.5 (52.0, 66.0)	
Range	19.0, 83.0	34.0, 79.0	19.0, 83.0	
BMI				0.7217[2]
Mean (SD)	30.4 (7.28)	31.9 (9.03)	30.5 (7.40)	
Median (IQR)	29.6 (25.0, 34.9)	29.4 (25.5, 35.5)	29.6 (25.0, 34.9)	
Range	16.8, 56.6	19.6, 50.0	16.8, 56.6	
Number of Medical Readmissions within 1 Year				0.0674[2]
Mean (SD)	2.2 (1.89)	3.3 (2.92)	2.3 (2.02)	
Median (IQR)	1.0 (1.0, 3.0)	2.0 (1.0, 4.0)	1.0 (1.0, 3.0)	
Range	0.0, 10.0	1.0, 11.0	0.0, 11.0	
Diastolic Dysfunction, n (%)				0.5710[1]
No	109 (54.2%)	7 (46.7%)	116 (53.7%)	
Yes	92 (45.8%)	8 (53.3%)	100 (46.3%)	
Left Atrial Enlargement, n (%)				0.3456[1]
No	147 (67.7%)	9 (56.3%)	156 (67.0%)	
Yes	70 (32.3%)	7 (43.8%)	77 (33.0%)	
Right Atrial Enlargement, n (%)				0.2203[1]
No	196 (90.7%)	13 (81.3%)	209 (90.1%)	
Yes	20 (9.3%)	3 (18.8%)	23 (9.9%)	
Right Ventricular Dilation, n (%)				0.1044[1]
No	115 (52.3%)	5 (31.3%)	120 (50.8%)	
Yes	105 (47.7%)	11 (68.8%)	116 (49.2%)	
Mitral Valve Dysfunction, n (%)				0.0981[1]
No	176 (80.0%)	10 (62.5%)	186 (78.8%)	
Yes	44 (20.0%)	6 (37.5%)	50 (21.2%)	
Aortic Valve Dysfunction, n (%)				0.0099[1]
No	205 (93.2%)	12 (75.0%)	217 (91.9%)	
Yes	15 (6.8%)	4 (25.0%)	19 (8.1%)	
Tricuspid Valve Dysfunction, n (%)				0.4705[1]
No	168 (76.7%)	11 (68.8%)	179 (76.2%)	
Yes	51 (23.3%)	5 (31.3%)	56 (23.8%)	
Wall Motion Abnormalities, n (%)				0.0893[1]
No	212 (96.4%)	14 (87.5%)	226 (95.8%)	
Yes	8 (3.6%)	2 (12.5%)	10 (4.2%)	
Liver cirrhosis etiology - Hepatitis C, n (%)				0.8859[1]
No	142 (64.8%)	10 (66.7%)	152 (65.0%)	
Yes	77 (35.2%)	5 (33.3%)	82 (35.0%)	
Liver cirrhosis etiology - NASH, n (%)				0.8535[1]
No	151 (68.9%)	10 (66.7%)	161 (68.8%)	
Yes	68 (31.1%)	5 (33.3%)	73 (31.2%)	
Liver cirrhosis etiology - Alcohol, n (%)				0.8160[1]
No	110 (50.2%)	8 (53.3%)	118 (50.4%)	
Yes	109 (49.8%)	7 (46.7%)	116 (49.6%)	
Liver cirrhosis etiology - Miscellaneous, n (%)				0.1010[1]
No	202 (92.2%)	12 (80.0%)	214 (91.5%)	
Yes	17 (7.8%)	3 (20.0%)	20 (8.5%)	

[1]Chi-Square p-value; [2]Kruskal-Wallis p-value;

P7-10 - Oral

Impact of Abnormal Right Ventricular Free Wall Motion Pattern on Tricuspid Annular Plane Systolic Excursion in Repaired Tetralogy of Fallot

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Background: Patients with repaired tetralogy of Fallot (rTOF) sometimes show decreased tricuspid annular plane systolic excursion (TAPSE), although right ventricular ejection fraction (RVEF) is well preserved. In addition, there are some cases in which right ventricular free wall (RVFW) contracts abnormally showing contraction movement converges on the point on RVFW instead of apex seen in normally. This study aimed to identify the effect of the contraction pattern of RVFW on TAPSE in rTOF. **Methods:** The subjects who performed cardiac magnetic resonance imaging (CMR) between March 2018 to July 2022 were included in this retrospective study; group T: 53 rTOF patients (median age: 17.2 y) and group A: 64 unrepaired atrial septal defect (ASD) patients (12.5 y). 1. The Point of convergence of RVFW contraction was defined as null point (NP), and NP ratio (NPR) was defined as the ratio of the distance from the tricuspid valve annulus to the NP to the total length of the RVFW. The NPs were identified by CMR feature tracking analysis (Cvi42, Circle), and NPR was calculated. Two-dimensional speckle tracking (Auto strain RV, Tom Tec) was used to analyze the strain that divided the RVFW into three segments (Apex, Mid, Base). NPR and segmental strain patterns were compared in the two groups. 2. To clarify the hemodynamic indices related to NPR, the correlation between NPR and RV functional indices: RV end-diastolic volume index (RVEDVI: ml/m^2), RV ejection fraction (RVEF: %), RVFW longitudinal strain (RVFWSL: %) measured by CMR, and TAPSE/body surface area(TAPSE/BSA: mm/m^2), fractional area change (FAC: %), RVFWSL and RV four chamber longitudinal strain (RV4CSL: %) measured by echocardiography and 2D-STE were analyzed. Multiple regression analysis was performed for factors associated with the Z-score of TAPSE/BSA. **Results:** 1. NPR was significantly smaller in group T (T: 0.53; A: 0.85. p<0.001). In group A, the basal strain was the largest in 88% of the patients, while in the T group, the apical strain was the largest in 52% (p<0.001).2. In group T, NPR was positively correlated with TAPSE/BSA (r=0.64, p<0.001) but not with EF, FAC, RVEDVI, or strain, and the only index that correlated with EF was FAC (r=0.36, p=0.006). Multiple regression analysis showed that postoperative years (B;0.21, 95% CI;0.10-0.32, p<0.001) and NPR (B;7.95, 95%CI;4.15-11.7, p<0.001) were the factors deter-

mining TAPSE/BSA. **Conclusion:** In rTOF RVFW contracts differently from ASD patients, and if NP is close to the TV annulus, TAPSE becomes disproportionally smaller and unreliable to measure RV systolic function.

P7-11 - Oral

Comparison of Global Longitudinal Strain Among College Athletes Diagnosed with Mild to Moderate SARS-CoV-2 Infection

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Background: Left ventricular global longitudinal strain (GLS), is a marker of longitudinal shortening and can precede left ventricular systolic dysfunction. GLS can independently predict future cardiovascular events and structural heart disease. However, there is a paucity of GLS data across various populations such as college athletes. We sought to characterize GLS among elite college athletes following a diagnosis of mild to moderate SARS-CoV-2 (COVID-19). **Methods:** A total of 197 student athletes testing positive for COVID-19 at the University of Wisconsin from 9/1/2020 until 3/31/2020 underwent a comprehensive echocardiogram using a (GE Vivid E95) collecting data on 4D left ventricular ejection fraction (LVEF) and automated bi-plane EF, GLS, tricuspid annular plane systolic excursion (TAPSE) and left atrial volume. Serum measures of troponin, B-type natriuretic peptide) and C-reactive protein were collected at the time of diagnosis. Cardiac magnetic resonance imaging (MRI) performed a median (interquartile range, [IQR]) 17.8 (8.0) days following diagnosis defined possible/probable myocarditis and within 7 days of echocardiogram. Groups were compared using t-tests. Linear regression models analyzed the association of sport and GLS adjusting for age, LVEF, serum troponin and MRI confirmed myocarditis. 4 athletes had MRI confirmed myocarditis. **Results:** The 182 participants with complete data were a mean (SD) 20.0 (2.0) years old (32% female). Serum troponin and B-type natriuretic peptide levels were above the assay 99th percentile in 3.8% and 36% of participants. An echocardiogram was performed a median (IQR) 23.6 (16.0) days following COVID-19 diagnosis. Participants had a mean (SD) visual LVEF of 58.0 (4.6) %, GLS -18.5 (4.6) and CRP 0.15 (0.46) (units). Men had a lower mean LVEF and less negative GLS compared to women (57.5% vs 59.2%, p< 0.0001) and (-17.8 vs -20.1, p < 0.0001), TAPSE did not differ by sex (p =0.31). Compared to participants of other sports, football participants lower GLS (-16.8 vs -19.5, p = 0.002) and lower LVEF (57.1% vs 58.6%, p = 0.03) In models adjusted for LVEF, age, serum troponin and MRI-detected possible/probable myocarditis football participants had less negative adjusted GLS values (-16.9% vs -19.4%, p=0.001). **Conclusions:** In a unique cohort of elite college athletes with mild-moderate COVID-19, GLS associations varied by sex and sport. These findings remained unchanged after multivariable adjustment. Male football players had lower GLS compared to other sports. These findings are hypothesis generating and need to be confirmed in larger populations.

P7-12

Evaluation of Segmental Myocardial Work Heterogeneity is Superior to Conventional Echocardiographic Parameters in Predicting the Response to Cardiac Resynchronization Therapy

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Background: Dyssynchrony heart failure (HF) patients have a pronounced heterogeneous distribution of segmental myocardial work (MW). Non-invasive left ventricular (LV) pressure-strain loops based on speckle tracking echocardiography combing with brachial artery blood pressure, provide an effective and rapid method to quantify global and segmental MW indices. The aim was to explore the value of MW indices differences between LV lateral wall and septum (L-S) at baseline in the prediction of cardiac resynchronization therapy (CRT) response and compare their predictive performance with conventional echocardiographic parameters. **Methods:** We enrolled one hundred and six HF patients scheduled for CRT and analyzed segmental (septal and lateral at the midventricular level) MW indices. Response to CRT was defined as LV end-systolic volume reduction ≥ 15% at 6-month follow-up compared with baseline value. **Results:** CRT response was present in seventy-eight (74%) patients. The L-S differences in all MW indices including MW index (MWI), MW efficiency (MWE), constructive work (CW) and wasted work (WW), were significant higher in CRT responders than in non-responders at baseline (all P < 0.01). Compared with baseline, responders exhibited a significant reduction in the L-S differences of MWI, MWE, CW and WW at follow-up (all P < 0.01). In multivariate regression analysis, baseline LV end-diastolic volume (LVEDV) (OR 0.993, 95% CI 0.987-0.999, P = 0.02), interventricular mechanical delay (IVMD) (OR 1.025, 95% CI 1.001-1.050, P = 0.04) and L-S MWI difference (OR 1.002, 95% CI 1.001-1.003, P = 0.001) were identified as independent predictors of CRT response. ROC analysis demonstrated that L-S MWI difference (AUC = 0.830, P < 0.001) was the most powerful predictor of CRT response and was superior to LVEDV (AUC = 0.718, P < 0.001) and IVMD (AUC = 0.704, P = 0.001). L-S MWI difference > 884 mm Hg% was recommended to predict CRT response with the optimal sensitivity of 76% and specificity of 86%. **Conclusions:** The noninvasive evaluation of MW heterogeneity between LV lateral wall and septum is more valuable than conventional parameters in guiding patient selection before CRT and should help to further improve CRT response rate.

P7-13

Right Ventricular Response to Exercise in Children with Pulmonary Arterial Hypertension - A Comparison to Elite Athletes Using Tissue Doppler Imaging

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