Non-invasive biomarkers of fontan-associated liver disease

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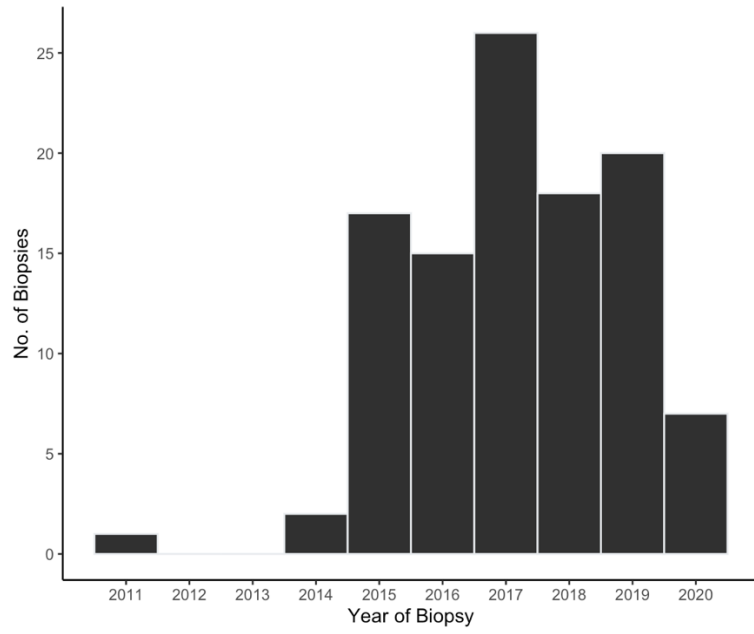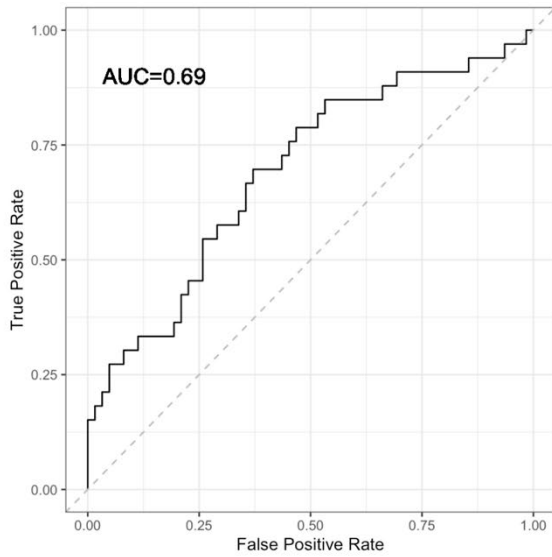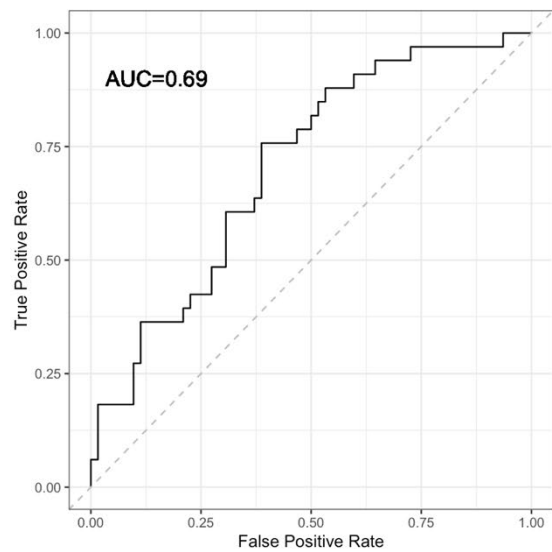**Fig. S1**. **Temporal distribution of liver biopsies**.

Fig. S2: Receiver Operating Characteristic (ROC) curve generated from the predicted probabilities of a logistic regression model using APRI Score (A) and FIB-4 Score (B) to predict CHFS group. The grey line represents a null predictor. For both scores, the observed Area Under the Curve (AUC) is 0.69, demonstrating moderate predictive ability.

Biopsy and catheterization indications	n (%)
Routine surveillance	76 (71.7%)
Pre-heart transplant	9 (8.5%)
Possible PA intervention	8 (7.5%)
PLE	5 (4.7%)
Assess PVR	3 (2.8%)
Decreased exercise tolerance/desaturations	2 (1.9%)
Valve stenosis	2 (1.9%)
Autopsy	1 (0.9%)

Table S1. **Indications for liver biopsy and cardiac catherization (All patients).**

Variable, N (%)	Total N=106	CHFS 0-2B N=69	CHFS 3-4 N=37	P-value
Cardiac Assessment				
Decreased ventricular function, N (%)				
Mild	13 (12.3)	9 (13)	4 (10.8)	0.09
Moderate/Severe	7 (6.6)	2 (2.9)	5 (13.5)	
Atrioventricular valve insufficiency, N (%)				
Mild	34 (32.1)	24 (34.8)	10 (27)	0.89
≥Moderate	29 (27.4)	19 (27.5)	10 (27)	
Aortic insufficiency, N (%)				
Mild	30 (28.3)	17 (24.6)	13 (35.1)	0.32
≥ Moderate	3 (2.8)	2 (2.9)	1 (2.7)	
Cardiac catheterization				
Fontan pressure, mmHg, mean ± SD	12.9 ± 3.2	12.4 ± 2.2	13.9 ± 4.3	0.23
Cardiac Index, L/min/m^2, mean ± SD	3.2 ± 1.4	3.2 ± 0.7	3.4 ± 2.2	0.37
Pulmonary Vascular Resistance, Woods Units/sq.m., mean ± SD	1.7 ± 0.7	1.8 ± 0.7	1.7 ± 0.8	0.35
End Diastolic Pressure, mmHg, mean ± SD	7.0 ± 2.6	6.6 ± 1.9	7.8 ± 3.5	0.28
Transhepatic Gradient, mmHg, mean ± SD	1.1 ± 0.5	1.1 ± 0.6	1.2 ± 0.4	0.25
Liver Assessment				
Steatosis on Liver Biopsy, N (%)				
Presence of steatosis	11 (10.4)	5 (7.2)	6 (16.2)	0.19
Steatosis and Hispanic (% of population with steatosis)	7 (63.6)	4 (80.0)	3 (50.0)	0.55
Percent if yes, mean [Range]	11.4 [1-50]	9.9 [1-50]	12.9 [5-40]	0.27
1-5%	5 (45.5)	3 (6)	2 (33.3)	0.99
6-10%	3 (27.3)	1 (20)	2 (33.3)	
>11%	3 (27.3)	1 (20)	2 (33.3)	
Abdominal Ultrasound, N (%)*				
Normal study	16 (61.5)	12 (70.6)	4 (44.4)	0.23
Hepatomegaly/Hepatosplenomegaly	10 (38.5)	5 (29.4)	5 (55.6)	
Medications, N (%)				
ACE inhibitors	58 (54.7)	41 (59.4)	17 (45.9)	0.31
Aspirin	86 (81.1)	61 (88.4)	25 (67.6)	0.05

Beta blockers	6 (5.7)	3 (4.3)	3 (8.1)	0.41
Digoxin	11 (10.4)	9 (13)	2 (5.4)	0.33
Diuretics	26 (24.5)	16 (23.2)	10 (27)	0.63
PDE5 inhibitors	16 (15.1)	10 (14.5)	6 (16.2)	0.78
Spironolactone	14 (13.2)	9 (13)	5 (13.5)	0.99
Warfarin	9 (8.5)	4 (5.8)	5 (13.5)	0.27

*Only available in 17 patients, within 3 months prior to or 1-year post-biopsy.

Table S2. Cardiac function, liver assessment, and medications at the time of biopsy. Additional clinical statistics of the overall cohort and stratified by CHFS group. Means and standard deviations reported for continuous variables and tested using a T-test. For highly non-normal distributions, medians and interquartile ranges reported and tested using Mann-Whitney U-test. Counts and percentages reported for categorical variables and tested with a Chi-Square test.