Supplementary Table 1: Univariate Logistic Regression Model Showing Risk Factors for Hepatorenal Dysfunction (MELD-XI score)

	β ±SE	p
Age, years	0.14±0.07	<0.001
Male sex	0.23±0.02	<0.001
Prior tricuspid valve surgery	----	----
History of atrial arrhythmia	0.04±0.02	0.07
History of ventricular arrhythmia	----	----
Echocardiography		
RA reservoir strain, %	-0.31±0.09	<0.001
RV global longitudinal strain	-0.03±0.02	0.08
IVC collapsibility,%	-0.12±0.05	0.02
Estimated RA pressure, mmHg	-0.15±0.09	0.006
≥Moderate TR severity	----	----
TR velocity, m/s	----	----
Estimated RVSP, mmHg	----	----
LA reservoir strain, %	----	----
LV end-diastolic volume index, ml/m^2	----	----
LV end-systolic volume index, ml/m^2	0.05±0.03	0.03
LV stroke volume index, ml/m^2	-0.09±0.01	<0.00
LV global longitudinal strain, %	-0.16±0.11	0.07
Lateral mitral E/e'	---	---

RA: Right atrium; RV: Right ventricle; TR: Tricuspid regurgitation; LV: Left ventricle; E/e': ratio of mitral inflow pulsed wave Doppler early velocity to mitral annular tissue Doppler early velocity

Only variables with p <0.1 are listed while variables with p≥0.1 are represented by (---).

Supplementary Table 2: Univariate Cox Regression Model Showing Risk Factors for Death and/or Transplant

	HR (95%CI)	p
MELD score	1.52 (1.21-3.14)	<0.001
Age, years	1.04 (1.02-1.06)	<0.001
Male sex	---	---
Prior tricuspid valve surgery	---	---
History of atrial arrhythmia*		
History of atrial fibrillation	2.29 (1.31-4.11)	0.004
History of ventricular arrhythmia	---	---
Medications		
Loop diuretics	3.71 (2.15-6.54)	<0.001
Beta blockers	2.16 (1.18-3.82)	0.009
ACEI/ARB	3.14 (1.74-5.53)	0.002
Echocardiography		
RA reservoir strain, %	0.82 (0.75-0.88)	<0.001
RV global longitudinal strain	0.90 (0.83-0.98)	0.03
IVC collapsibility,%	0.84 (0.79-0.89)	<0.001
Estimated RA pressure, mmHg	1.15 (1.09-1.22)	<0.001
≥Moderate TR severity	---	---
TR velocity, m/s	---	---
Estimated RVSP, mmHg	---	---
LA reservoir strain, %	0.79 (0.70-0.87)	<0.001
LV global longitudinal strain, %	0.75 (0.64-0.88)	0.005
Lateral mitral E/e'	1.11 (1.02-1.02)	0.02

MELD: Model for end-stage liver disease; RA: Right atrium; RV: Right ventricle; TR: Tricuspid regurgitation; LV: Left ventricle; E/e': ratio of mitral inflow pulsed wave Doppler early velocity to mitral annular tissue Doppler early velocity; HR: Hazard ratio; CI: Confidence interval

Only variables with p <0.1 are listed while variables with p≥0.1 are represented by (---).

History of atrial arrhythmia represents all atrial arrhythmias including atrial flutter, atrial tachycardia, and atrial fibrillation

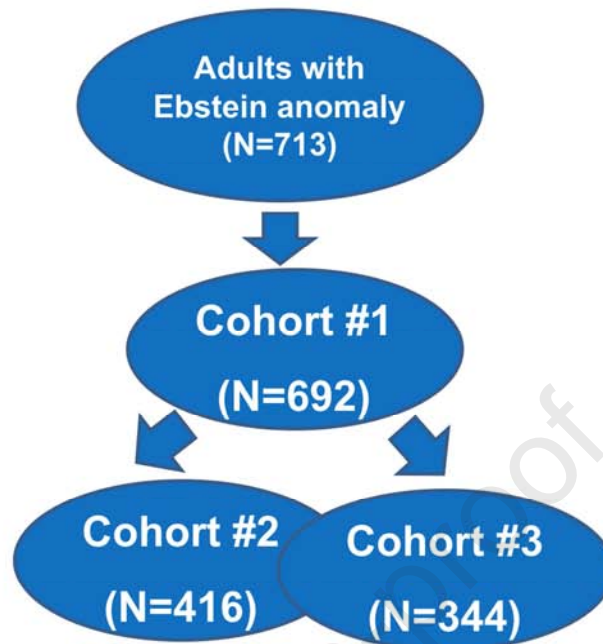**Supplementary Table 3: Baseline Characteristics**

	Patients included in cohort #2 (n=416)	Patients not included in cohort #2 (n=276)	p
Age, years	39±13	40±17	0.6
Male	163 (40%)	118 (42%)	0.1
Comorbidities			
Hypertension	88 (21%)	51 (19%)	0.4
Diabetes	21 (5%)	11 (4%)	0.8
History of atrial arrhythmia	165 (40%)	136 (49%)	0.02
History of ventricular arrhythmia	20 (5%)	12 (4%)	0.8
Medications			
Loop diuretics	81 (19%)	65 (24%)	0.2
Beta blockers	95 (23%)	72 (26%)	0.5
ACEI/ARB	76 (18%)	53 (19%)	0.7
Aldosterone antagonist	22 (5%)	21 (8%)	0.2
Echocardiography			
RA reservoir strain, %	32±10	29±9	0.08
Estimated RA pressure, mmHg	8±4	9±4	0.7
LV stroke volume index, ml/m^2	37±8	33±7	0.1
Hepatorenal function			
MELD-XI score	9.8 (9.4-12.1)	10.6 (9.8-13.8)	0.5

ACEI: Angiotensin converting enzyme inhibitor; ARB: Angiotensin II receptor blockers; RA: Right atrium; LV: Left ventricle; MELD: Model for end-stage liver disease excluding international normalized ratio

Supplementary Table 4:: Baseline Characteristics

	Patients included in cohort #3 (n=344)	Patients not included in cohort #3 (n=348)	p
Age, years	41±16	39±15	0.2
Male	144 (42%)	137 (39%)	0.5
Comorbidities			
Hypertension	71 (22%)	64 (18%)	0.5
Diabetes	17 (5%)	15 (4%)	0.8
History of atrial arrhythmia	165 (40%)	136 (49%)	0.02
History of ventricular arrhythmia	19 (6%)	13 (4%)	0.3
Medications			
Loop diuretics	84 (24%)	62 (18)	0.2
Beta blockers	91 (27%)	76 (22%)	0.3
ACEI/ARB	71 (21%)	58 (17%)	0.5
Aldosterone antagonist	23 (7%)	20 (6%)	0.6
Echocardiography			
RA reservoir strain, %	28±8	23±7	0.008
Estimated RA pressure, mmHg	9±4	7±3	0.2
LV stroke volume index, ml/m^2	32±7	38±10	0.09
Hepatorenal function			
MELD-XI score	10.7 (10.1-14.3)	9.6 (8.9-12.7)	0.1

ACEI: Angiotensin converting enzyme inhibitor; ARB: Angiotensin II receptor blockers; RA: Right atrium; LV: Left ventricle; MELD: Model for end-stage liver disease excluding international normalized ratio

Supplementary Figure 1

There were 713 adult patients with Ebstein anomaly that received care at Mayo Clinic Rochester MN (2000 – 2018)

Cohort #1: Consecutive patients that had at least one comprehensive metabolic panel (CMP) performed in the outpatient clinic and at least one year follow-up.

Cohort #2: Consecutive patients that had 2 CMPs performed at least 24 months apart without any surgical or transcatheter procedures between both tests.

Cohort #3: Consecutive patients that had preoperative CMP (within 3 months prior to surgery) and postoperative CMP (at least 12 months after surgery)