

Contemporary Outcomes of Heart Transplantation in Adult Patients with Congenital Heart Disease and Prior Intracardiac Repair -Analysis from UNOS Database-

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Relevant Financial Relationship Disclosure Statement

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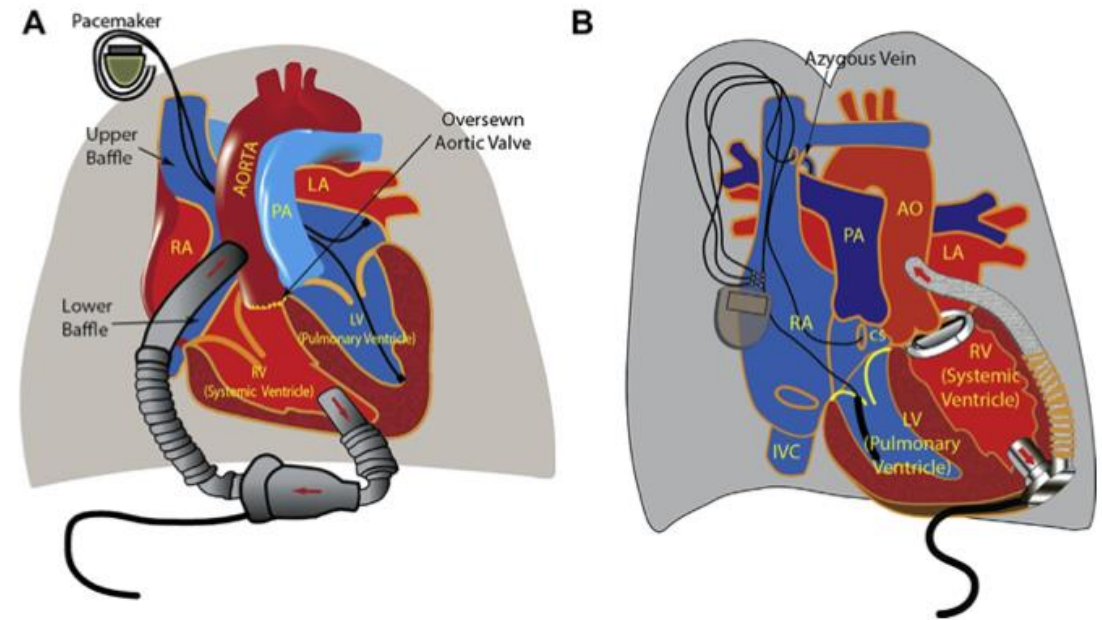
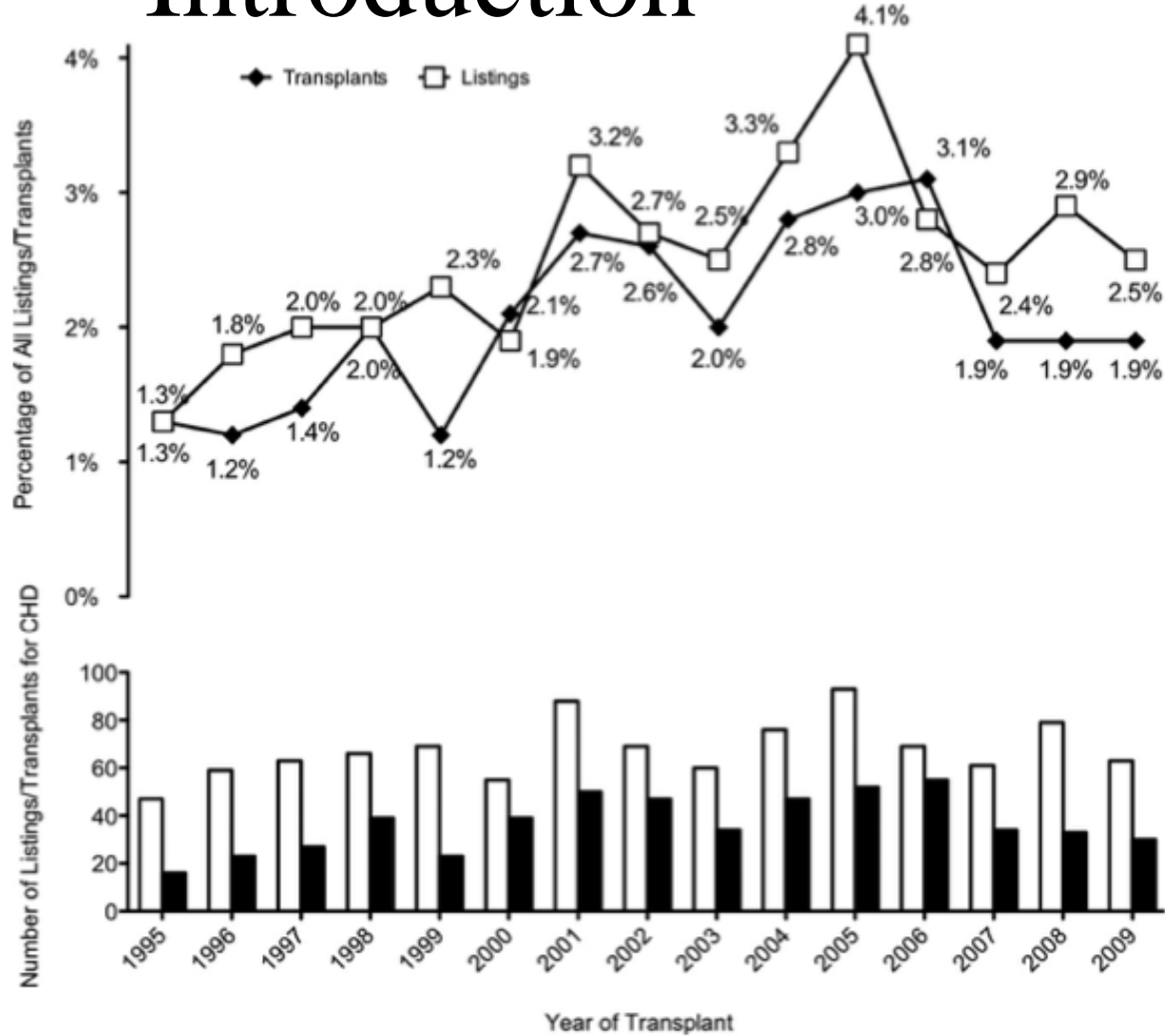
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The following relevant financial relationships exist related to this presentation:

Y.N has received consulting fee from Abbott Incorporated.

The remaining authors have no conflicts of interest to disclose.

Introduction



Introduction

- There is limited information about contemporary outcome focusing on ACHD patients with prior cardiac surgery compare to non-ACHD patients with previous sternotomy.
- In this study, we sought to determine the OHT outcomes of ACHD patients who had prior cardiac surgery using the UNOS database.

Methods

Between January 2008 and March 2019, ACHD patients who had prior cardiac surgery and subsequent OHT were identified from the UNOS database.

As a control group, adult patients without congenital heart disease who had prior sternotomy and subsequent OHT were extracted.

Propensity score matching was then used to compare outcomes between two groups.

Baseline characteristics

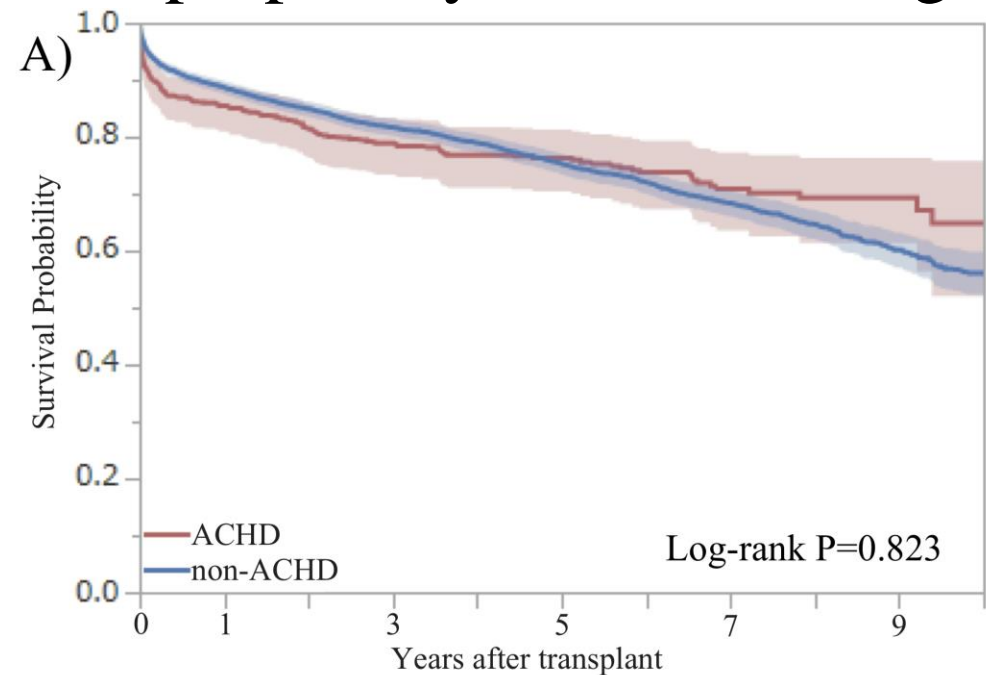
Recipient characteristics	Before propensity score matching					After propensity score matching						
	ACHD		non-ACHD		P value	SMD (%)	ACHD		non-ACHD		P value	SMD (%)
Total	N=793		N=8400				N=486		N=486			
Age at Transplant (years)	39	(28, 50)	59	(51, 65)	<0.001 ^a	140	47	(39, 56)	44	(35, 55)	0.014 ^a	15
Gender Female	305	(38.5)	1602	(19.1)	<0.001 ^a	44	159	(32.7)	181	(37.2)	0.139	10
BMI at Transplant (kg/m ²)	24.7	(21.2, 29.0)	27.6	(24.4, 31.2)	<0.001 ^a	51	25.7	(22.2, 29.5)	25.6	(22, 30)	0.672	3
Diabetes at Listing												
Type 1 or Type 2	79	(10.1)	2769	(33.5)	<0.001 ^a	59	69	(14.4)	93	(19.4)	0.040 ^a	13
Smoking at Listing	185	(23.3)	4688	(55.8)	<0.001 ^a	70	159	(32.7)	166	(34.2)	0.634	3
History of malignancy at Listing	28	(3.5)	705	(8.4)	<0.001 ^a	21	27	(5.6)	39	(8.0)	0.125	10
History of cerebrovascular disease at Listing	43	(5.5)	554	(6.7)	0.207	5	31	(6.4)	24	(5.0)	0.316	12
Creatinine at Transplant, ≥ 2.0 (mg/dl)	63	(8.0)	761	(9.1)	0.294	4	45	(9.3)	49	(10.1)	0.672	3
Dialysis after Listing	38	(4.8)	293	(3.5)	0.060	7	25	(5.2)	27	(5.6)	0.781	7
tBil at Transplant (mg/dl)	0.8	(0.5, 1.2)	0.7	(0.5, 1.1)	<0.001 ^a	12	0.8	(0.5, 1.2)	0.7	(0.5, 1.2)	0.426	3
Need of transfusion after Listing	166	(21.4)	2083	(25.5)	0.011 ^a	10	117	(24.6)	98	(21.0)	0.182	13
ECMO at Transplant	10	(1.3)	64	(0.8)	0.133	5	7	(1.4)	8	(1.7)	0.795	1
IABP at Transplant	35	(4.4)	461	(5.5)	0.201	5	30	(6.2)	41	(8.4)	0.175	9
IABP/ECMO at Transplant	44	(5.5)	513	(6.1)	0.529	2	36	(7.4)	47	(9.7)	0.210	8
LVAD at Transplant	94	(11.9)	4539	(54.0)	<0.001 ^a	100	122	(25.1)	97	(20.0)	0.055	12
Total times on waiting list (days)	122	(38, 321.5)	100	(30, 272)	<0.001 ^a	11	99.5	(34, 290.3)	92	(26, 283.8)	0.190	2
Ventilator dependent at Transplant	130	(16.7)	1685	(20.4)	0.012 ^a	10	97	(20.3)	95	(19.9)	0.885	2
Inotrope dependent at Transplant	397	(50.1)	2441	(29.1)	<0.001 ^a	44	242	(49.8)	237	(48.8)	0.748	2
PCWP at Transplant (mmHg)	16	(11, 22)	16	(10, 23)	0.857	1	18	(12, 24)	17	(11, 23)	0.379	5
Ischemic time (hours)	3.4	(2.7, 4.1)	3.2	(2.4, 3.8)	<0.001 ^a	22	3.3	(2.5, 4.0)	3.3	(2.5, 4.0)	0.994	1
Disabled or worse functional status	415	(54.1)	3961	(48.8)	0.005 ^a	11	278	(59.5)	265	(57.4)	0.502	4
ICU stay at Transplant	275	(34.7)	2053	(24.5)	<0.001 ^a	23	181	(37.2)	190	(39.1)	0.552	4
Donor age (years)	27	(21, 37)	30	(23, 41)	<0.001 ^a	25	30	(22, 40)	29	(22, 40)	0.433	5
Donor Gender female	281	(35.4)	2225	(26.5)	<0.001 ^a	19	163	(33.5)	159	(32.7)	0.785	2

Postoperative complication

	Before propensity score matching					After propensity score matching				
	ACHD		non-ACHD			ACHD		non-ACHD		
Total	N=793		N=8400		P value	N=486		N=486		P value
Stroke	26	(3.3)	300	(3.6)	0.655	16	(3.3)	17	(3.6)	0.836
Need of dialysis	178	(22.6)	1114	(13.4)	<0.001 ^a	110	(22.7)	64	(13.3)	<0.001 ^a
Need of permanent pacemaker	25	(3.2)	272	(3.3)	0.882	22	(4.5)	14	(2.9)	0.178
Airway dehiscence	2	(0.3)	36	(0.4)	0.459	2	(0.4)	1	(0.2)	0.562
Length of stay (days)	19	(12, 33)	16	(11, 25)	<0.001 ^a	18	(12, 32)	15	(11, 23.3)	<0.001 ^a
Acute rejection episode										
Treated with anti-rejection agent at least once	97	(12.3)	919	(11.0)	0.270	58	(11.9)	60	(12.4)	0.844
30-day mortality	63	(8.0)	396	(4.7)	<0.001 ^a	40	(8.2)	19	(3.9)	0.005 ^a

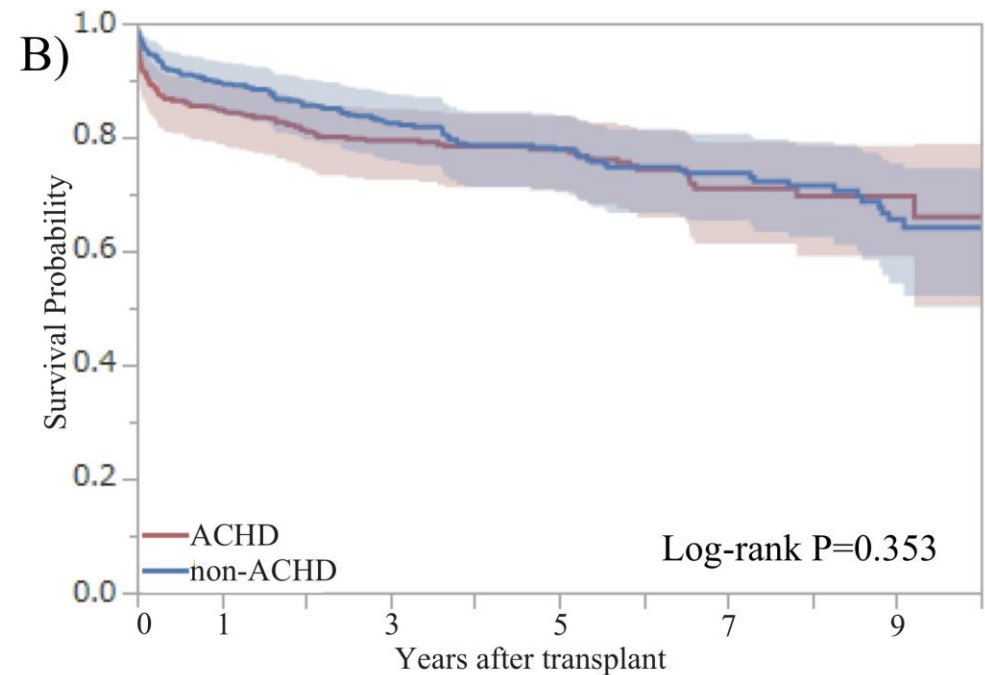
Kaplan-Meier analyses

Before propensity score matching



Time	0-day	30-day	60-day	1-year	3-year	5-year	10-year
ACHD							
No at risk	792	699	674	554	380	244	16
Survival (%)	99.1	91.9	89.8	85.5	78.9	76.3	64.8
SE (%)	0.33	0.98	1.09	1.28	1.58	1.71	3.82
non-ACHD							
No at risk	8385	7786	7573	6297	4254	2670	194
Survival (%)	99.7	95.2	93.8	88.7	81.7	75.2	56.1
SE (%)	0.06	0.23	0.27	0.35	0.46	0.57	1.20

After propensity score matching



Time	0-day	30-day	60-day	1-year	3-year	5-year	10-year
ACHD							
No at risk	486	430	418	348	238	149	12
Survival (%)	99.4	91.6	89.3	84.8	79.4	77.9	66.0
SE (%)	0.36	1.27	1.42	1.66	1.97	2.08	4.62
non-ACHD							
No at risk	486	459	444	386	275	196	22
Survival (%)	99.4	96.1	94.4	89.6	82.5	77.8	64.1
SE (%)	0.36	0.88	1.07	1.41	1.85	2.12	3.60

Conclusion

- ACHD patients with prior intracardiac repair carried higher operative risk, but long-term outcome was equivalent to non-ACHD patients with prior sternotomy.
- Because patients with congenital heart disease are anatomically and physiologically complex, more understanding and analysis about OHT for these patients be required to improve in early outcomes.