

Clinical Outcomes After Tricuspid Annuloplasty Prior to Cardiac Transplantation: A Single Center Experience

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Introduction

- Allograft tricuspid regurgitation (TR) occurs frequently after orthotopic heart transplantation (OHT) and is associated with significant morbidity and mortality
- Prophylactic tricuspid repair of the donor heart with DeVega annuloplasty (DVA) improves TR and may decrease the rates of renal failure, tricuspid intervention and death in heart transplant recipients
- After incorporating DVA into our surgical transplantation protocol, increased cardiac conduction abnormalities were observed

Objectives

To determine the electrical and hemodynamic effects of DeVega annuloplasty after heart transplantation

Materials and Methods

- We performed a retrospective chart review of 180 patients who underwent OHT between 2013-2017
- Patients were classified as DVA (76) and no DVA (104)
- Electrocardiographic, echocardiographic and hemodynamic data were collected over one year post-OHT
- Conduction abnormalities were determined by review of all ECGs between OHT and first endomyocardial biopsy
- This retrospective study was approved by the Institutional Review Board of Columbia University, New York, NY

Results

	No DeVega (n=104)	With DeVega (n=76)	P value		No DeVega (n=96)	With DeVega (n=70)	P value
Recipient age (yrs)	52.4 ± 1.2	56.5 ± 1.0	0.017				
Donor age (yrs)	33.2 ± 1.1	35.2 ± 1.4	0.25	PR interval (ms)	146 ± 2.2	158.6 ± 6.0	0.028
Male (%)	70 (68%)	56 (78 %)	0.02	QRS interval (ms)	86.8 ± 1.6	105.9 ± 3.1	<0.001
BSA (m ²)	1.9 ± 0.02	1.9 ± 0.02	0.90	QT _c interval (ms)	457.9 ± 5.8	469.6 ± 6.4	0.18
Ischemic CM (%)	31 (30%)	29 (38%)	0.13	RBBB	9 (9.4%)	26 (37.1%)	<0.001
LVAD (%)	69 (66%)	46 (61%)	0.62	CHB	0 (0%)	3 (4.0%)	0.041
PVR (mmHg-min/L)	2.8 ± 0.2 n=71	2.5 ± 0.2 n=73	0.14	PPM	1 (1%)	4 (5.3%)	NS
Pre-op amiodarone	31 (30%)	24 (32%)	0.82				
D:R mismatch (%)	30 (29%)	20 (27%)	0.85				
Bypass time (min)	174.3 ± 6.0	148.2 ± 5.1	0.002				
Crossclamp (min)	89.8 ± 3.2	82.6 ± 2.5	0.12				
Ischemic time (min)	184.5 ± 6.8	168.9 ± 5.8	0.1				

Table 1. Patient demographics and clinical characteristics. DVA patients were older, more often male and had shorter bypass time.

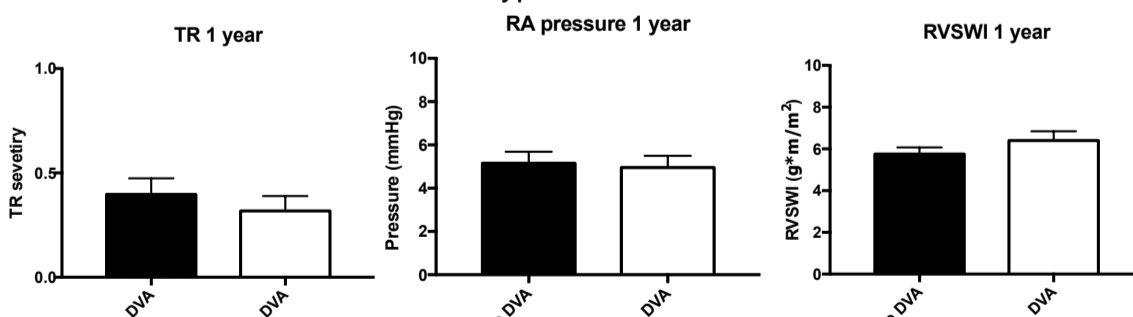


Figure 1. Hemodynamics 1 year after OHT. There was no difference between TR severity, RA pressure or RVSWI in DVA vs. no DVA groups.

Table 2. There were significant increases in PR and QRS duration on post-op day 7 and significant increase in RBBB and CHB rate in patients receiving DVA.

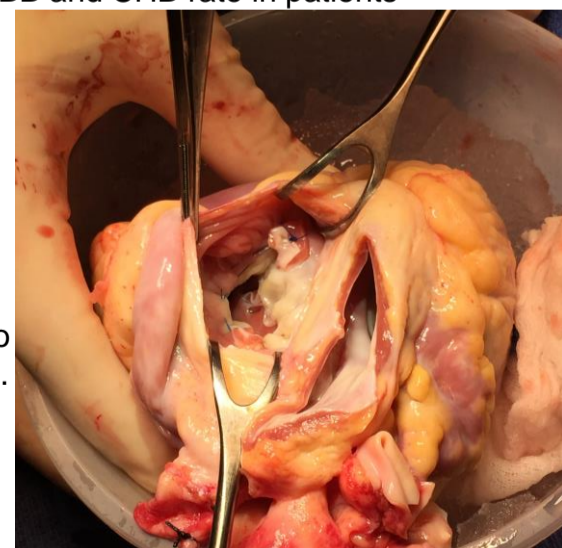


Figure 2. DeVega annuloplasty in a donor heart prior to organ engraftment.

Conclusions

- There are increased conduction abnormalities (RBBB and CHB) early after cardiac transplantation in patients who receive prophylactic DVA
- Right ventricular function and the degree of TR at 12 months are similar between patients with and without DVA
- Our institution discontinued the use of DVA in the transplant surgical protocol after two years due to the equivocal results of our study.

References

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