Long-term outcome in patients undergoing aortic root replacement: The Bentall procedure in Latin-American

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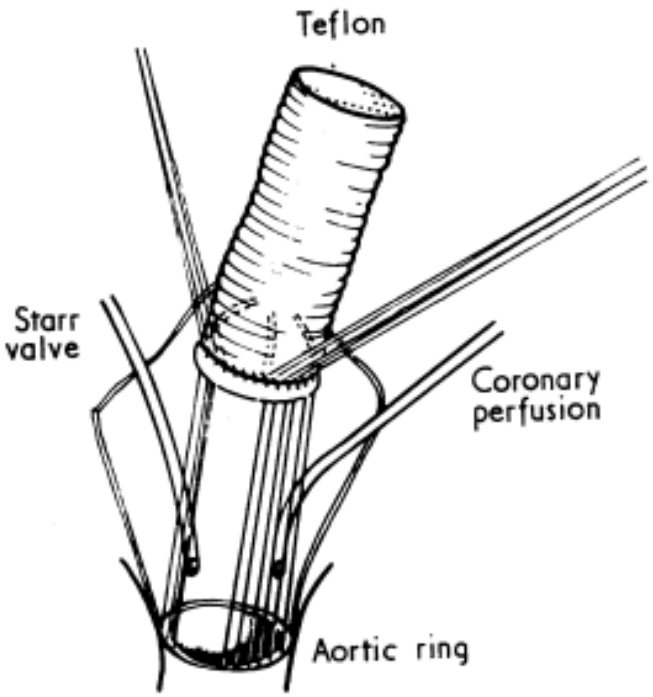
Conflicts of interest

- **No disclosures**

Objective



- The surgical reconstruction of the aortic root with a conduit valve/composite graft (CG) was firstly described by Bentall and DeBono
- Aortic root replacement (ARR) surgery using a valved conduit, whether mechanical or biological, is still the most commonly used technique for the correction of diseases affecting this aortic segment
- There are limited long-term outcomes published in Latin America, especially regarding survival.
- The aim of this study: to evaluate the early and long-term outcome in patients undergoing aortic root replacement according to the Bentall technique

1. Bentall H, De Bono A. A technique for complete replacement of the ascending aorta. Thorax 1968;23:338–339
2. Svensson LG, Crawford ES, Hess KR, Coselli JS, Safi HJ. Composite valve graft replacement of the proximal aorta: comparison of techniques in 348 patients. Ann Thorac Surg. 1992;54(3):427–37. discussion 38–9 .

Methods

- A retrospective cohort based on a prospective collected data base from January of 2008 to January 2023 at cardiac surgical center in Bogotá, Colombia
- Perioperative mortality, reoperation rate, aortic valve function, long-term survival were evaluated
- The results were examined by univariate, multivariate and a Kaplan Meier analysis

Results

1. SOCIO-DEMOGRAPHIC CHARACTERISTICS	
	n= 110
Age median (RIQ) - años	64(60 – 68)
Gender (%)	
• Male	88 (80)
• Female	22 (20)
Euroscore II median (IQR)	6 (4,0 – 10,7)
Arterial Hypertension (%)	73 (66,3)
Hypothyroidism (%)	23 (20,9)
Median Body Mass Index (IQR)– kg/m2	25,4 (23,5 – 27,6)
Chronic Kidney Disease (%)	4 (3,6)
Aortic prosthesis size (%) – mm	
• 21	10 (9,1)
• 23	12 (10,9)
• 25	29 (26,4)
• 27	34 (30,1)
• 29	25 (22,7)
Type of Prosthesis (%)	
• Biological	74 (67,3)
• Mechanical	36 (32,7)

2. OPERATIVE CHARACTERISTICS	
Type of surgery (%)	
• Elective	91 (82,7)
• Emergency	19 (17,3)
Cannulation Method (%)	
• Central	108 (98,2)
• Peripheral	2 (1,8)

Results

3. POSTOPERATIVE COMPLICATIONS	
Superficial Infection (%)	7 (6,4)
Neurologic (Stroke > 24 hours) (%)	2 (1,8)
Reoperation due to bleeding (%)	10 (9,1)
AV Block (%)	33 (27,2)
Atrial Fibrillation (%)	26 (23,6)
UTI (%)	3 (2,7)
Acute kidney injury (%)	6 (5,5)
Pneumonia (%)	4 (3,6)
Cross clamp time median (IQR) - minutes	94 (86 – 112)
Cardiopulmonary bypass time median (IQR) - minutes	111,5 (100,0 – 130,7)

4. FOLLOW-UP	
Mortality 30 days (%)	10 (9,1)
NYHA Functional Class at 10 years (%)	
• 1	77 (70)
• 2	29 (26,4)
• 3	3 (2,7)
• 4	1 (0,9)
Survival >12 years (%)	95,5

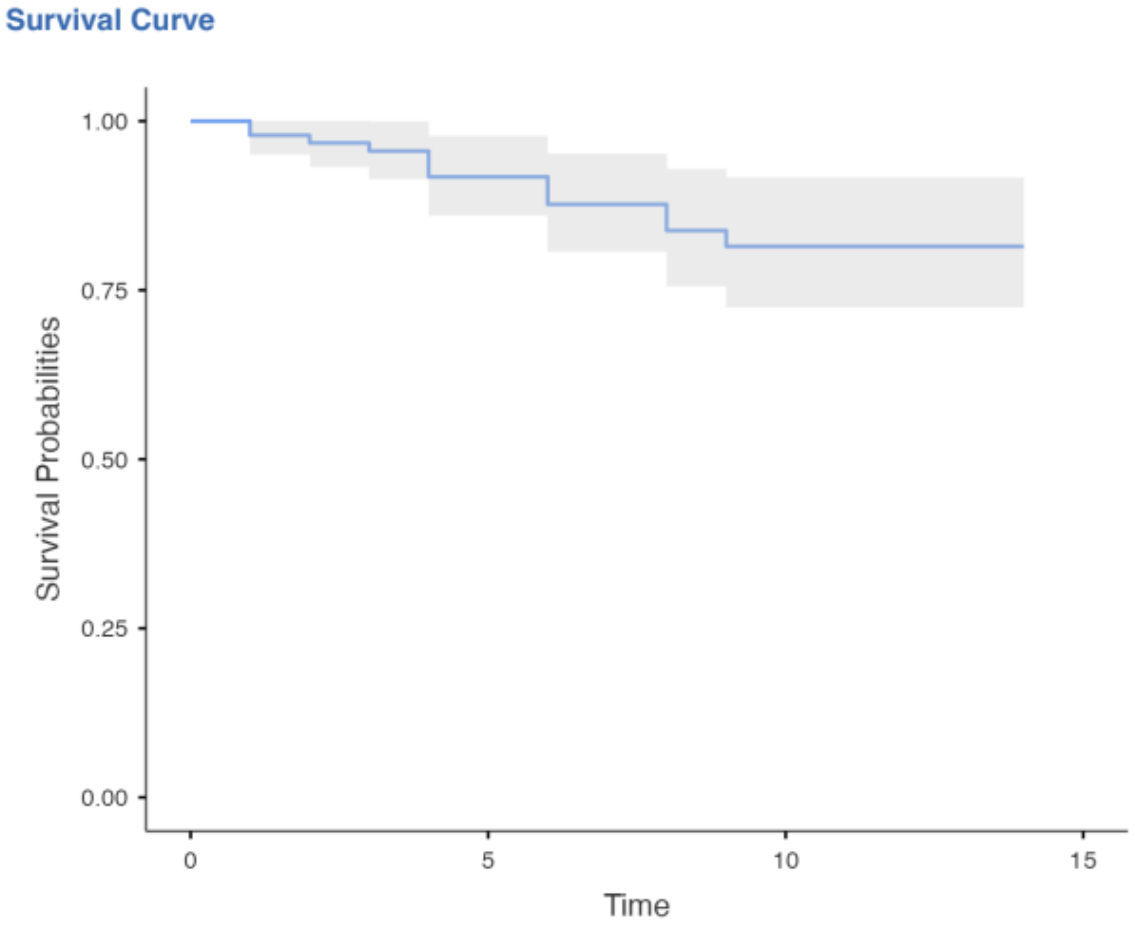
Results

Bivariate analysis based on valve type

Variables	Bioprosthesis	Mechanical	P Value
n	74	36	
Neurologic (Stroke > 24 hours) (%)	1 (1.4)	1 (2.7)	0.54
Reoperation due to bleeding (%)	6 (8.1)	4 (11.1)	0.72
AV Block (%)	2 (2.7)	1 (2.7)	0,20
Atrial Fibrillation (%)	21 (28.4)	5 (13.9)	0,20
UTI (%)	3 (4.1)	0	0,20
Acute kidney injury (%)	4 (5.4)	2 (5.6)	1.0
Survival >12 years (%)	20 (90.9)	9 (100)	1.0

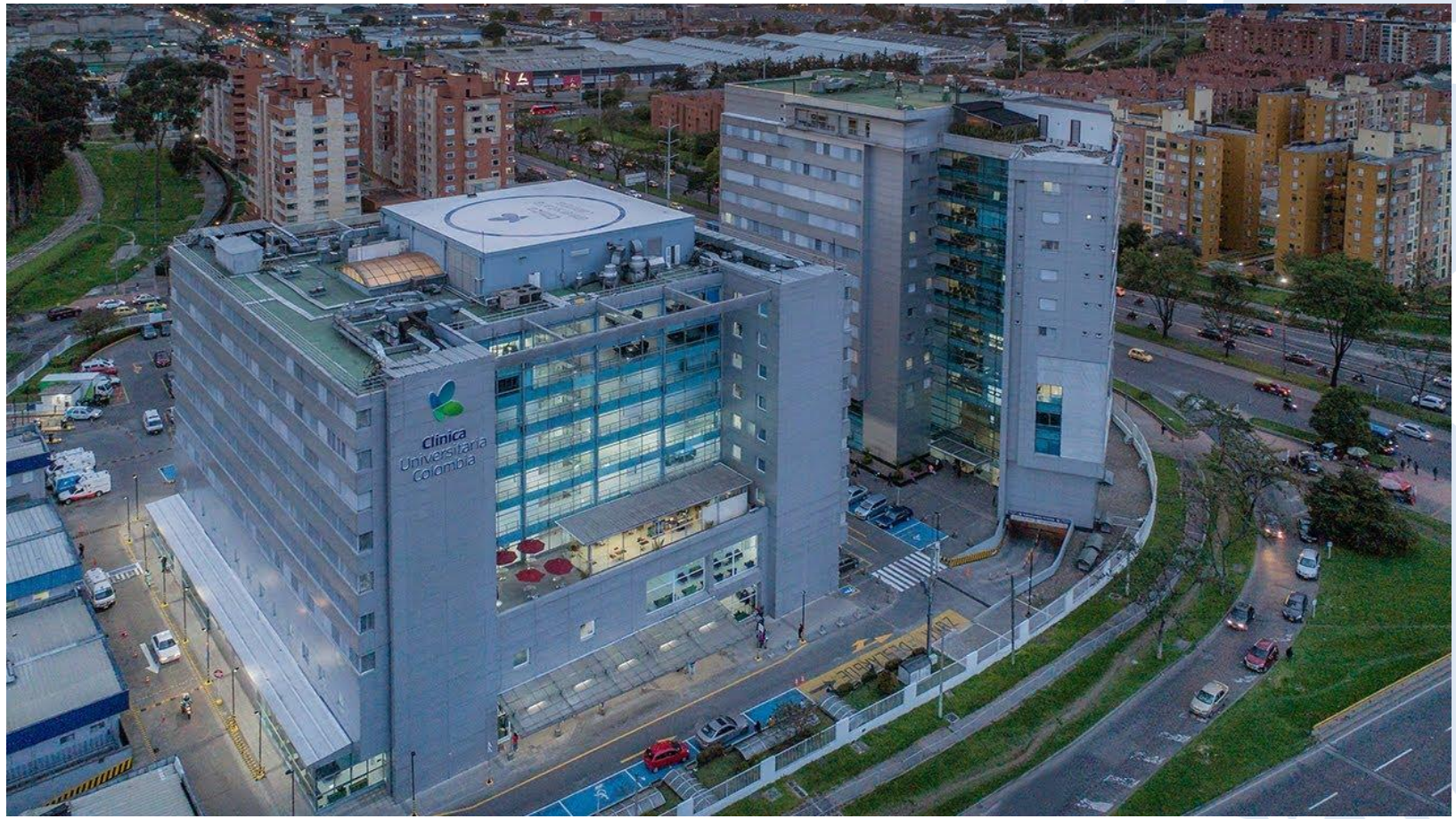
P-values calculated using Fisher and Wilcox tests (a) indicate non-significant differences between groups for most variables analyzed in relation to the type of valve used in the Bentall procedure

Results


Survival Curve
1.00
0.75
0.50
0.25
0.00
Survival Probabilities
0
5
10
15
Time

Conclusions

- **The Bentall procedure is an appropriate and safe surgical approach in our population and institution.**
- **It is also a very durable procedure with an excellent valve performance, low-rate of long-term reoperation.**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