

2023 대한심장혈관흉부외과학회

# 제55차 추계학술대회 & APELSO 2023

2023. 11. 02 (Thu) - 11. 04 (Sat), 그랜드 인터컨티넨탈 파르나스 서울

Comparative Outcomes after David vs Bentall procedure  
in Patients with a History of Previous Cardiac Surgery



- Redo cardiac surgery with aortic valve-sparing root reimplantation (David) or Bentall procedure is a complex and challenging operation.
- There is paucity of data on outcomes of the Bentall procedure or David procedure in the setting of previous cardiac surgery
- The aim of this study was to analyze and compare the surgical outcomes of patients with a history of previous cardiac surgery undergoing either David or Bentall procedure.

- Single center, retrospective analysis
- Patients who underwent David (n= 20) or Bentall procedure (n=63) with history of previous cardiac surgery from September 1995 to September 2022

## Baseline characteristics

	Bentall op (N=63)	David op (N=20)	P-value
Op age	44.0 ± 15.5	48.9 ± 18.0	0.241
Male	36 (57.1%)	14 (70.0%)	0.446
BSA, m <sup>2</sup>	1.7 [1.6; 1.9]	1.7 [1.5; 1.9]	0.840
DM	2 (3.2%)	0 (0.0%)	1.000
HTN	11 (17.5%)	10 (50.0%)	0.009
Hb, g/dL	12.7 ± 1.8	12.3 ± 2.0	0.372
Cr, mg/dL	0.8 [0.7; 1.0]	1.0 [0.8; 1.2]	0.063
eGFR, mL/min/1.73m <sup>2</sup>	90.8 ± 24.4	75.3 ± 40.5	0.120
CKD	5 (7.9%)	6 (30.0%)	0.020
ESRD	0 (0.0%)	2 (10.0%)	0.056
Atrial fibrillation	2 (3.2%)	4 (20.0%)	0.028
NYHA			0.178
0	10 (15.9%)	1 (5.0%)	
1	28 (44.4%)	12 (60.0%)	
2	14 (22.2%)	5 (25.0%)	
3	11 (17.5%)	1 (5.0%)	
4	0 (0.0%)	1 (5.0%)	
COPD	1 (1.6%)	0 (0.0%)	1.000
CAD	4 (6.3%)	1 (5.0%)	1.000
PAOD	2 (3.2%)	1 (5.0%)	0.568
CVA	1 (1.6%)	2 (10.0%)	0.143
Genetic disorder			1.000
None	36 (57.1%)	12 (60.0%)	
Marfan's disease	24 (38.1%)	8 (40.0%)	
Others	3 (4.8%)	0 (0.0%)	

## Operative details

	Bentall op (N=63)	David op (N=20)	P-value
Concomitant procedure			
CABG	6 (9.5%)	1 (5.0%)	1.000
Total arch replacement	13 (20.6%)	4 (20.0%)	1.000
Maze op	0 (0.0%)	3 (15.0%)	0.012
MVR	3 (4.8%)	2 (10.0%)	0.590
MVP	5 (7.9%)	0 (0.0%)	0.330
TAP	2 (3.2%)	1 (5.0%)	0.568
Approach			
Sternotomy	63 (100.0%)	19 (95.0%)	0.241
Upper-sternotomy	0 (0.0%)	1 (5.0%)	
CPB Time, min	261.0 [198.5;324.0]	150.0 [109.0;188.5]	< 0.001
ACC Time, min	169.0 [127.0;206.5]	104.5 [91.0;149.5]	0.001

## Complications

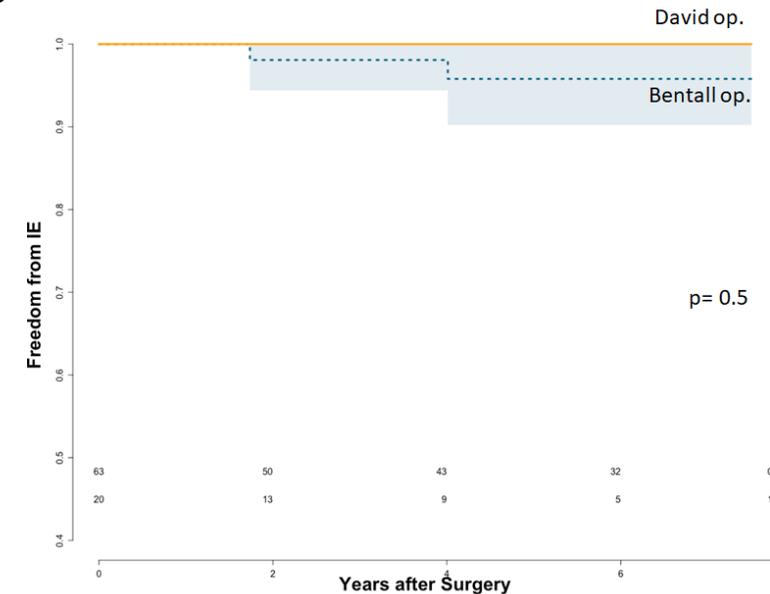
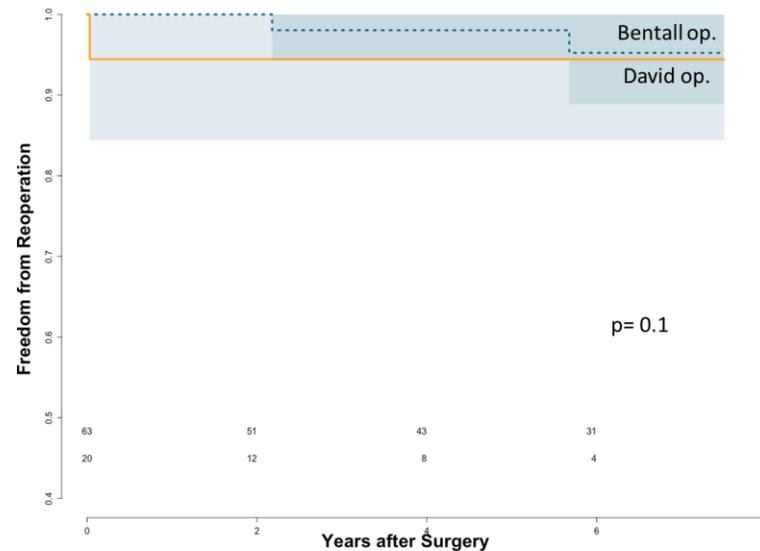
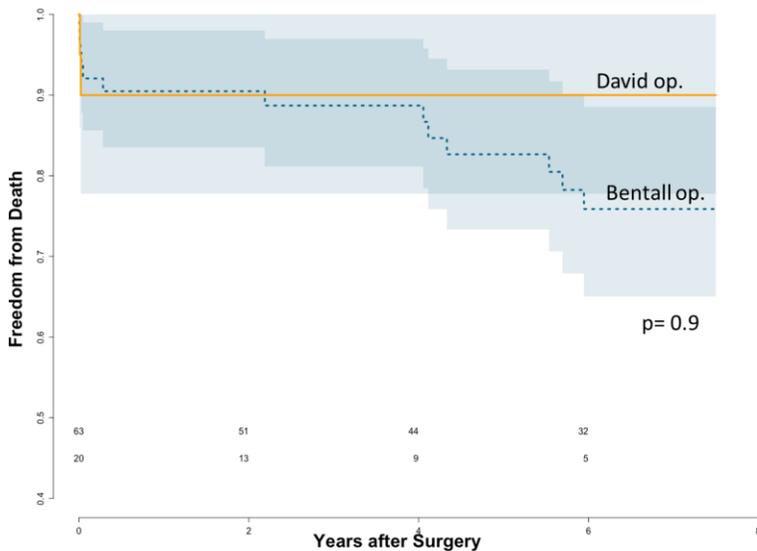
	Bentall op (N=63)	David op (N=20)	P-value
ECMO	6 (9.5%)	3 (15.0%)	0.680
HD	0 (0.0%)	1 (5.0%)	0.241
CRRT	4 (6.3%)	2 (10.0%)	0.628
Bleeding	7 (11.1%)	1 (5.0%)	0.673
Stroke	4 (6.3%)	0 (0.0%)	0.568
IE	2 (3.2%)	0 (0.0%)	1.000
Reoperation	4 (6.3%)	2 (10.0%)	0.628
Death	16 (25.4%)	3 (15.0%)	0.542
Early death	5 (7.9%)	2 (10.0%)	0.673

## Multivariate cox proportional hazards models for mortality

	Univariable			Multivariable		
	Hazard ratio	95% CI	P-value	Hazard ratio	95% CI	P-value
Age (per 1year)	1.02	0.99-1.006	0.13			
CAD	3.74	1.23-11.37	0.02			
CKD	3.35	1.07-10.45	0.04	4.25	1.31-13.81	0.016
Emergent operation	3.43	1.30-9,05	0.01	4.05	1.49-10.99	0.006
David operation	0.92	0.26-3.21	0.89			

CAD, Coronary artery disease; CKD, Chronic kidney disease

## Kaplan-Meier graph for freedom from death, reoperation, infective endocarditis



- For patients undergoing aortic root surgery with a history of previous cardiac surgery, the presence of chronic kidney disease (CKD) and the requirement for an emergent operation revealed as independent risk factors for mortality.
- Despite the complexity of procedure in redo open-heart surgery, David procedure showed non inferior long-term outcomes in terms of survival, freedom from reoperation and infective endocarditis compared to the Bentall procedure.