

# Should We Favour Rapid-deployment Valves Over Conventional Bioprosthetic Valves in Aortic valve replacement

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**Objectives:** Rapid deployment valves are being used widely. We wanted to compare outcomes for rapid-deployment valves and conventional bioprosthetic aortic valve replacements in order to assess if their use is justifiable.

**Methods :** Outcomes of the last 120 patients who received a rapid-deployment AVR (RDAVR) between Sept 2014-Sept 2019 were compared to the last 120 patients who had conventional bioprosthetic aortic valve replacement (Conv AVR). Patients' data are presented as median (interquartile range) or as percentages.

Post-op Results	RDAVR (N=120)	Conv AVR(N=120)	P value
CVA	1 (0.8%)	1(0.8%)	P=0.92
Reoperation for bleeding	4(3.3%)	1(0.8%)	P=0.85
Sternal wound infection	1(0.8%)	3(2.5%)	P=0.87
New onset AF	8(6.7%)	6 (5%)	P=0.31
Post-op PPM	9(7.5%)	5 (4.2%)	P=0.54
AKI	6(5%)	3(2.5%)	P=0.69
Critical care LOS (days)	1(0-67)	1(1-72)	P=0.65
Intubation time (hours)	6(1-40)	5(0-37)	P=0.32
LOS (days)	9.5(1-67)	8(4-87)	P=0.84

Baseline Characteristics	RDAVR (n =120)	Conv AVR (n=120)	P value
Age at operation (years)	79(63-86)	71(17-83)	P=0.44
Age >80	40 (33.3%)	11(9.1%)	P<0.05
BMI>30	50(41.7%)	45(37.5%)	P=0.39
BSA	1.77(1.34-2.44)	1.89(1.39-2.81)	P=0.67
Female:Male	83(69%):37(31%)	36(30%):84(70%)	P<0.05
CCS III-IV	21(17.5%)	12(0.1%)	P=0.93
NYHA class ≥ III	55(45.8%)	38(31.6%)	P=0.33
Previous MI	14(11.7%)	16(13.3%)	P= 0.84
Previous cardiac operation	5(4.2%)	6(5%)	P=0.64
DM	24(20%)	21(17.5%)	P >0.99
HTN	98(81.7%)	92(76.7%)	P=0.34
Current smoker	6(5%)	12(10%)	P=0.58
Creatinine ≥ 200	3(2.5%)	1(0.8%)	P=0.83
On Dialysis	1(0.8%)	1(0.8%)	P=0.92
COPD	20(16.7%)	14(11.7%)	P=0.35
PHT	5(4.2%)	1(0.8%)	P=0.83
Pre-op ventilation	1 (0.8%)	0	p>0.99
Previous CVA/TIA	7(5.8%)	11(9.2%)	P=0.39
PVD	12(10%)	3(2.5%)	P=0.17
Pre-op AF	14(11.7%)	15(12.5%)	P=0.74
Pre-op PPM	4(3.3%)	1(0.8%)	P=0.85
LV EF <30%	4(3.3%)	5(4.2%)	P=0.67
Pre op IABP	3(2.5%)	1(0.8%)	P=0.85

Logistic Euroscore			
Combined AVR	8.97(2.94-33.62)	4.73(1.51-43.75)	P=0.72
Isolated AVR	8.44(3.29-27.34)	4.4(1.51-43.75)	P=0.90

Intra-op Results	RDAVR (N=120)	Conv AVR (N=120)	P value
Elective	92(76.7%)	81(67.5%)	P=0.79
Mini sternotomy	19(15.8%)	21(17.5%)	P=0.38
30-day mortality	2 (1.7%)	2(1.7%)	P=0.85
Isolated AVR	58(48.3%)	67(55.8%)	P=0.39
Cardiopulmonary bypass time (mins)			
Combined AVR	101.5(40-336)	125(56-373)	P=0.12
Isolated AVR	97(46-263)	110(63-373)	P<0.05
Aortic cross clamp time (mins)			
Combined AVR	71(29-251)	101(51-239)	P=0.16
Isolated AVR	68(30-208)	89(47-280)	P<0.05

ECHO FINDINGS	RDAVR (N=120)	Conv AVR (N=120)	P value
Mean pressure Gradient	10(3-26)	10.5(4-25)	P=0.53
Peak pressure Gradient	19(6-51)	20(7-46)	P=0.13
Peak pressure gradient (mmHg)			
S vs 19&21	22(19-35)	25(15-45)	P=0.24
M vs 23	25(11-51)	18(10-46)	P=0.39
L vs 25	19.5(6-37)	19.5(7-41)	P=0.98
XL vs 27&29	18(14-24)	21(12-26)	P=0.71
Mean pressure gradient (mmHg)			
S vs 21&19	11(8-17)	13(8-24)	P=0.46
M vs 23	13(6-26)	9(5-5)	P=0.74
L vs 25	10(3-22)	10(4-22)	P=0.87
XL vs 27&29	9(8-13)	10.5(6-13)	P=0.81

**Conclusion:** RDAVR had similar haemodynamic outcomes and survival . Where shorter cross clamp and pump times may be desirable RDAVR may be preferred in older high risk patients.