



Minimally Invasive Ozaki Procedure: Experience With Two and Three Cusps

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Objective

To compare the results of the Ozaki operation from a L-ministernotomy using three and two autopericardial neocusps.

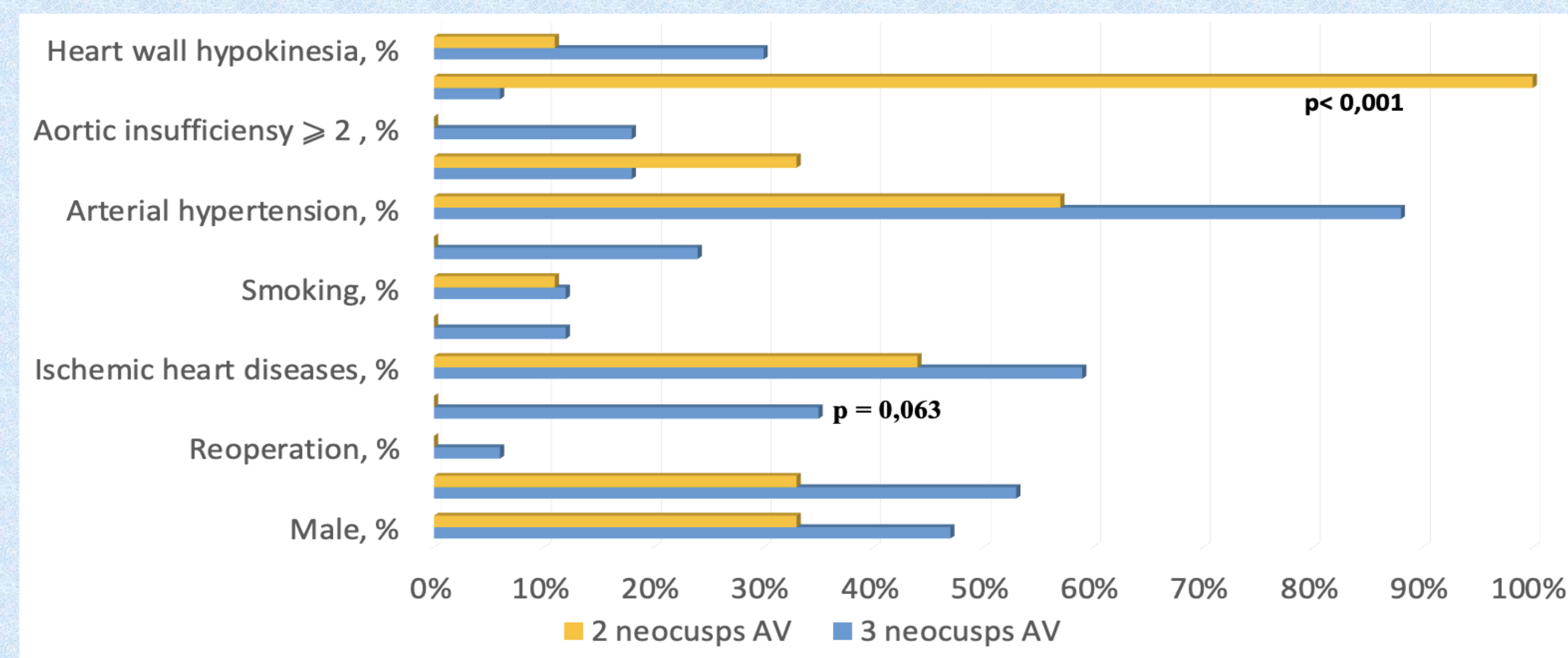
Methods

From June 2020 to June 2024, 178 operations on the aortic root and/or aortic valve were performed in the Department of Cardiac Surgery at the Mariinsky Hospital. Aortic valve replacement using the Ozaki technique was performed in 81 patients, 69 of them from L-ministernotomy. In all cases we used aorta to right atrium cannulation. Autopericardium was taken down from L-ministernotomy access. Hemodynamic parameters were assessed using echocardiography at discharge and on an outpatient basis at 6 month follow-up, then once per year.

Perioperative characteristics in group of patents

	3 neocusps AV (n = 48)		2 neocusps AV (n = 21)		p value
	Me	Q1-Q3	Me	Q1-Q3	
Age, years	68	63-74	59	53-71	0,034
BMI, kg/m ²	28,6	25,1-33,2	26,7	25,2-30,8	0,560
BSA, m ²	1,9	1,8-1,94	1,72	1,7-1,75	0,164
Ascending aorta, mm	36	34-37	36	32-40	0,916
Sinuses of Valsalva, mm	35	34-38	35	34-37	0,458
EF, %	59	52-64	63	59-70	0,367
Aortic ring, mm	23	22-23	22	21-23	0,200
End-diastolic volume LV, ml	100	92,5-110	95	80-101	0,347

Risk factors



Intraoperative data

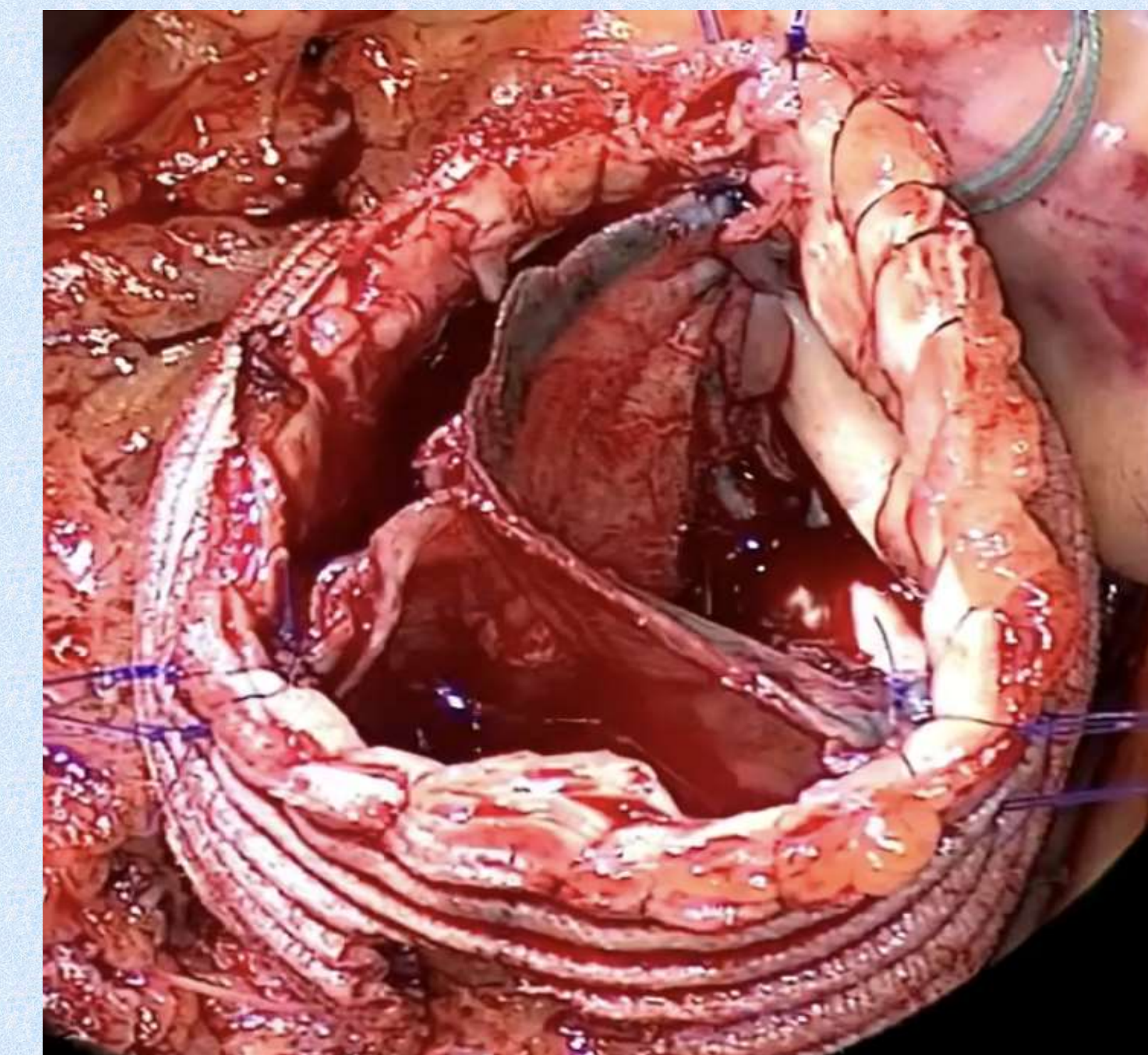
	3 neocusps AV (n = 48)		2 neocusps AV (n = 21)		p value
	Me	Q1-Q3	Me	Q1-Q3	
Operation time, min	245	220-285	210	200-225	0,039
CPB time, min	146	132-165	118	113-131	0,011*
Aortic clamping, min	103	95-112	81	80-97	0,045*
Blood loss, ml	300	200-400	300	300-300	0,874
ICU, days	1	1-3	1	1-1	0,164

Immediate results

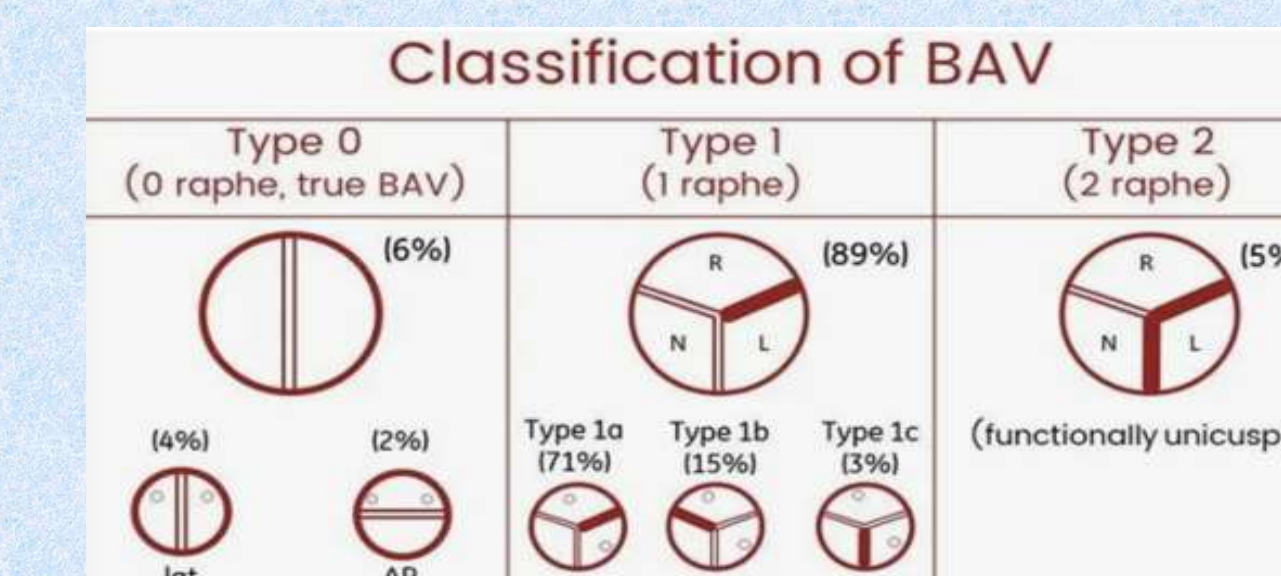
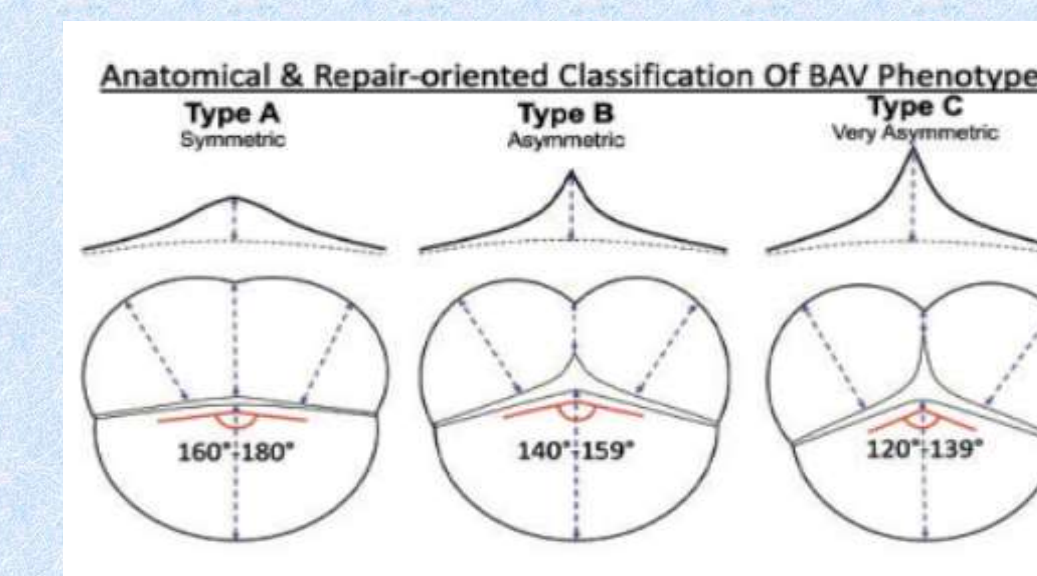
	3 neocusps AV (n = 48)		2 neocusps AV (n = 21)		p value
	Me	Q1-Q3	Me	Q1-Q3	
EF, %	58	53-67	62	60-70	0,339
End-diastolic volume LV, ml	92	76-99	76,5	64-91,5	0,124
Mean gradient AVNeo, mmHg	7,2	6,4-9,0	6,5	6,0-8,4	0,711
Aortic ring, mm	23	23-23	22	21-23	0,169
	n	%	n	%	
AI > 1	0/48	0%	0/21	0%	1,000
NYHA ≥ 2	39/48	82,4	9/21	44,4	0,078
30-day mortality	1/48	2,1%	0/21	0%	0,933

Mid-term results

	3 neocusps AV (n = 47)		2 neocusps AV (n = 21)		p value
	Me	Q1-Q3	Me	Q1-Q3	
Follow up, months	28	20-33	30	23-36	0,542
EF, %	62	54-65	64	62-67	0,396
End-diastolic volume LV, ml	87	78-90	73	63-85,5	0,086
Mean gradient AVNeo, mmHg	7,8	7,1-8,8	7,4	6,5-9,3	0,874
Aortic ring, mm	23	22-23	22,5	22-23,5	0,761
	n	%	n	%	p value
AI > 1	0/47	0%	1/21	4,8%	0,933
NYHA > 2	5/47	10,6	2/21	9,5	0,865
Отдаленная летальность	0/17	0%	0/9	0%	1,000



2 neocusps AVNeo



- Sievers 0 = 5/21 (23,8%)
- Sievers 1 = 14/21 (66,7%)
 - Phenotype R-L 100%
 - Type A (De Kerchove L.) 100%
- Sievers 2 = 2/21 (9,5%)

3 neocusps (M±SD):
LCNC – 26,06 ± 2,93
RCNC – 26,18 ± 3,09
NCNC – 26,25 ± 3,09

2 neocusps (M±SD):
Ant NC – 32,33 ± 2,00
Post NC – 31,67 ± 1,41

Conclusion

The Ozaki procedure from a ministernotomy using 2 and 3 autopericardial neocusps demonstrates comparable early and medium-term results.

No conflict of interest