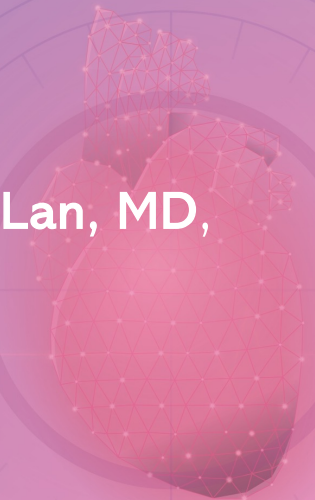




Evaluation of Early Outcome of Minimally Invasive Mitral Valve Replacement with Intraoperative Endoscopy Assistance at Hue Central Hospital

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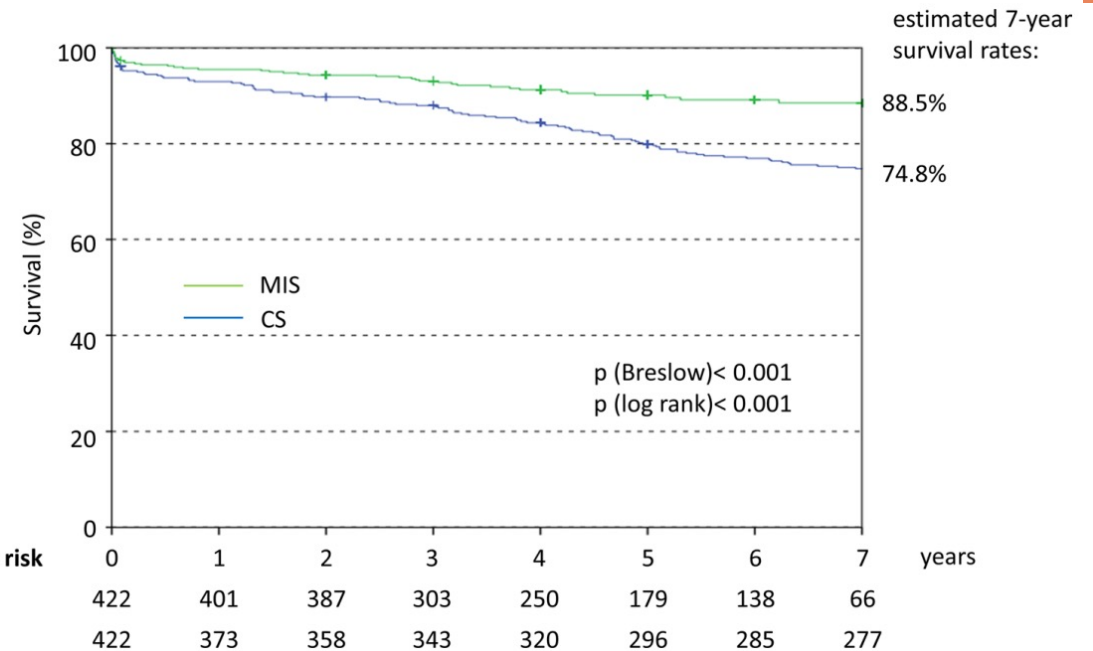
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BACKGROUND

- Minimally invasive surgery of the mitral valve has become the routine approach to mitral valve disease in many high-volume centers, with excellent short- and long-term results
- Many potential benefits vs the potential drawbacks of initially higher complication rate when a new approach is adopted → limit the adoption rate



Cetinkaya, Ayse & Geier, Anna & Bramlage, Karin & Hein, Stefan & Bramlage, Peter & Schoenburg, Markus & Choi, Yeong-Hoon & Richter, Manfred. (2021). Long-term results after mitral valve surgery using minimally invasive versus sternotomy approach: a propensity matched comparison of a large single-center series. BMC Cardiovascular Disorders. 21. 10.1186/s12872-021-02121-3.



Background | Methods | Results | Discussion





Objective

To investigate the early outcomes of minimally invasive mitral valve replacement (MIMVR) using intraoperative endoscopy assistance.





METHODOLOGY

Inclusion criteria

- MS/MR with indication for MVR
- Age < 70 years old
- EF > 50%
- No massive calcification of the valve

Exclusion criteria

- \geq grade I + AR
- Extensive aortic dilation
- Morbidly obese & extremely muscular patients
- MV annulus – chest wall distance > 25 cm
- Extensive abdominal aortic/iliac atherosclerosis or peripheral arterial diameters

< 6 mm

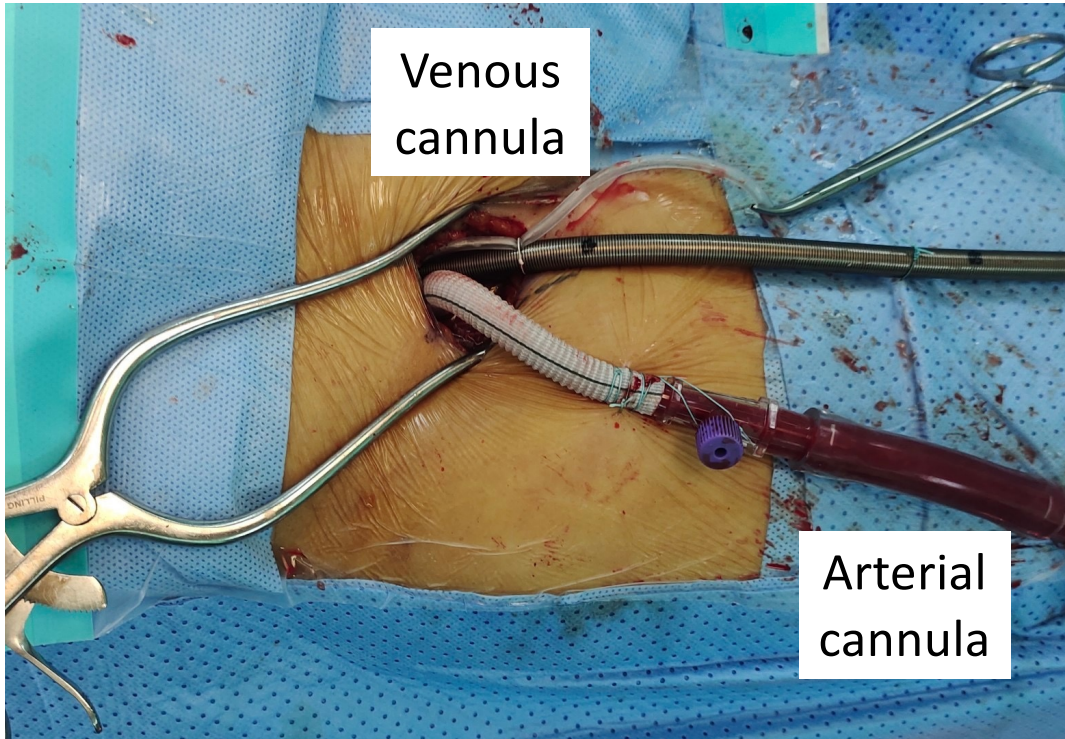
From 12/2019- 01/2023, n = 68
14 Isolated MS
54 MS and MR

MIMVR

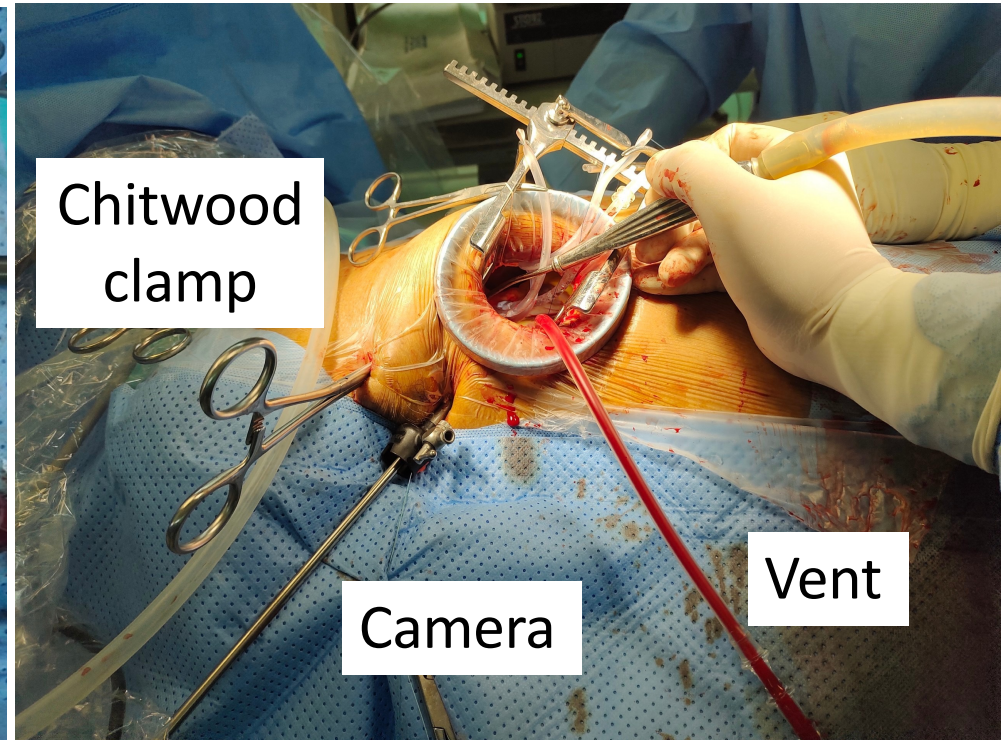
Evaluate early outcomes

Statistical analysis: SPSS 20.0
Test Wilcoxon





Femoral cannulation through 8 mm side graft

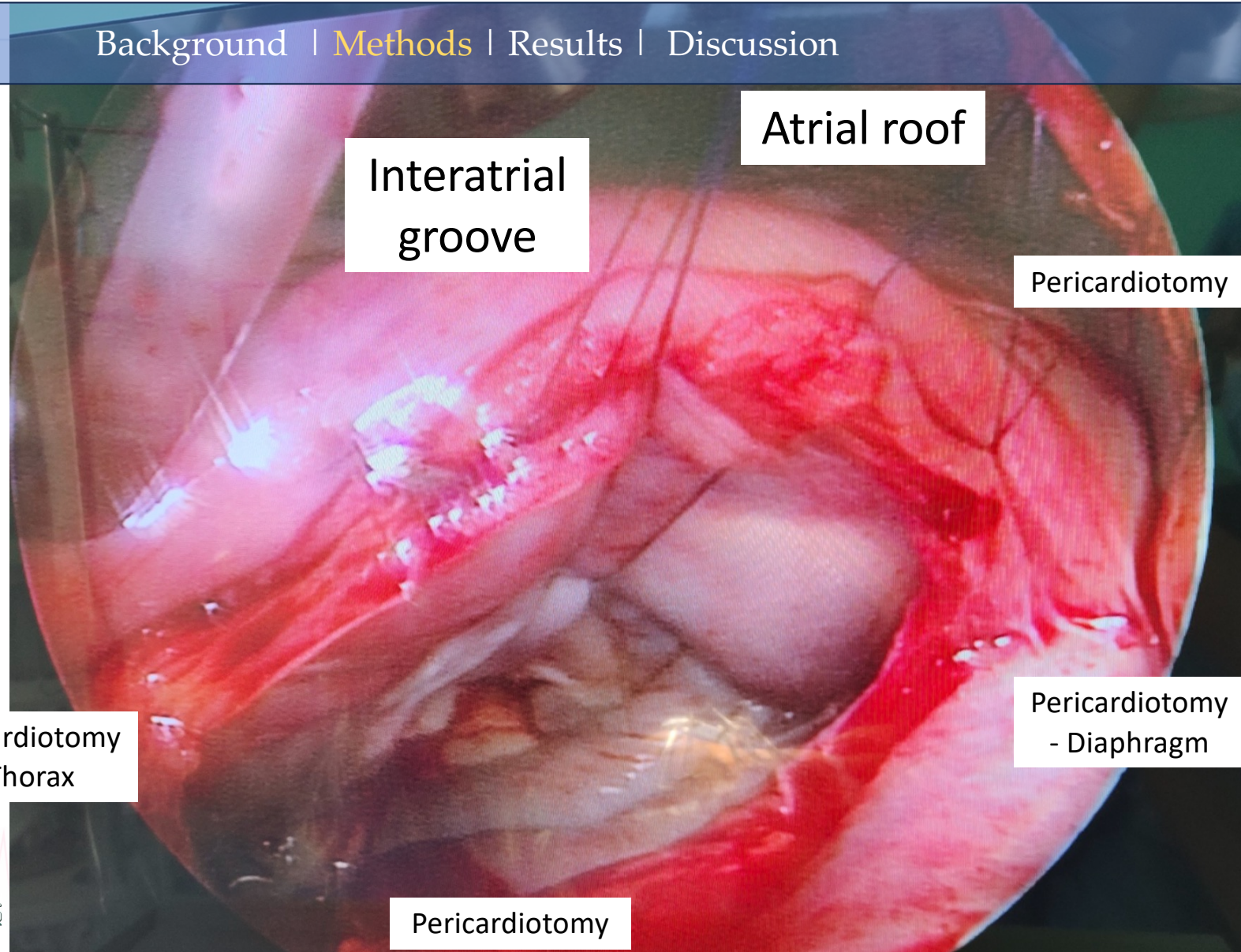


Set up for MIMVR surgery





Hanging suture for mitral valve exposure



Atrial roof

Interatrial groove

Pericardiotomy

Pericardiotomy - Thorax

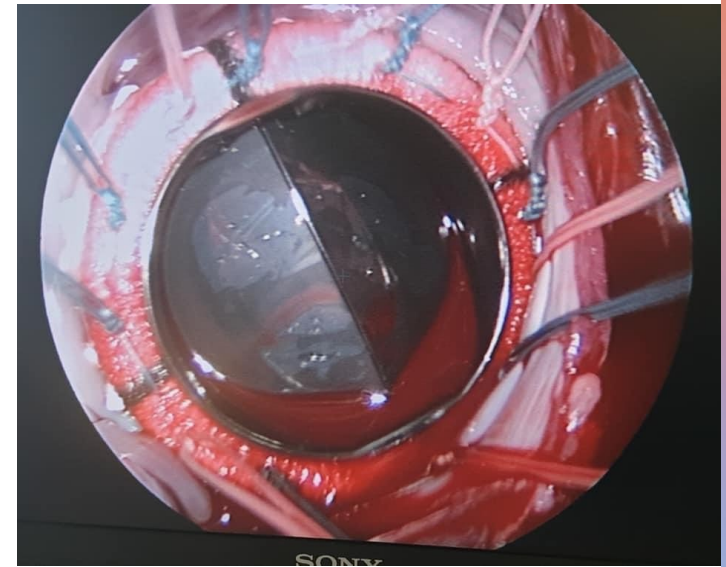
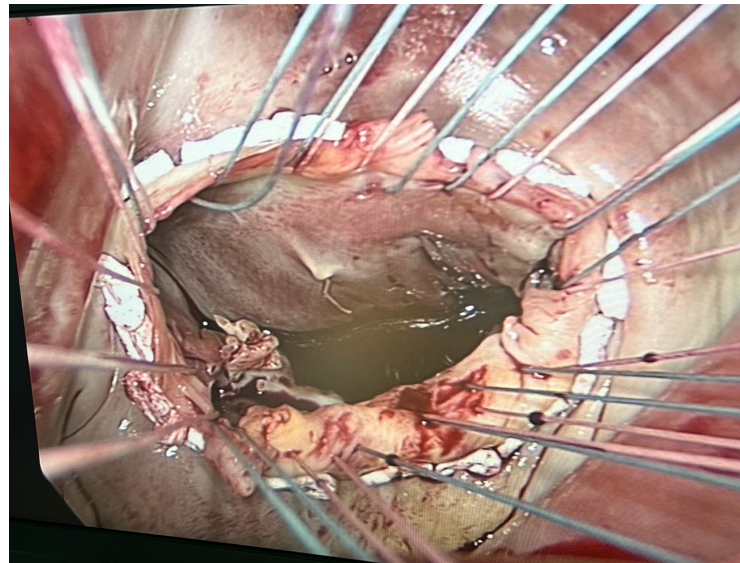
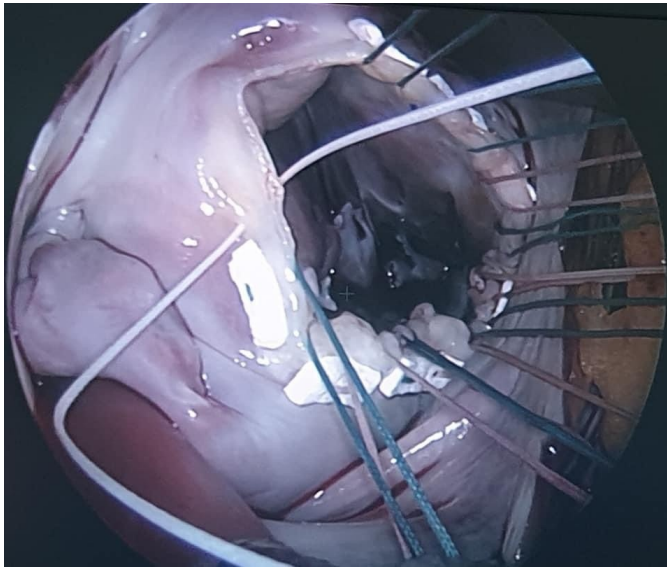
Pericardiotomy - Diaphragm

Pericardiotomy





Intraoperative Images





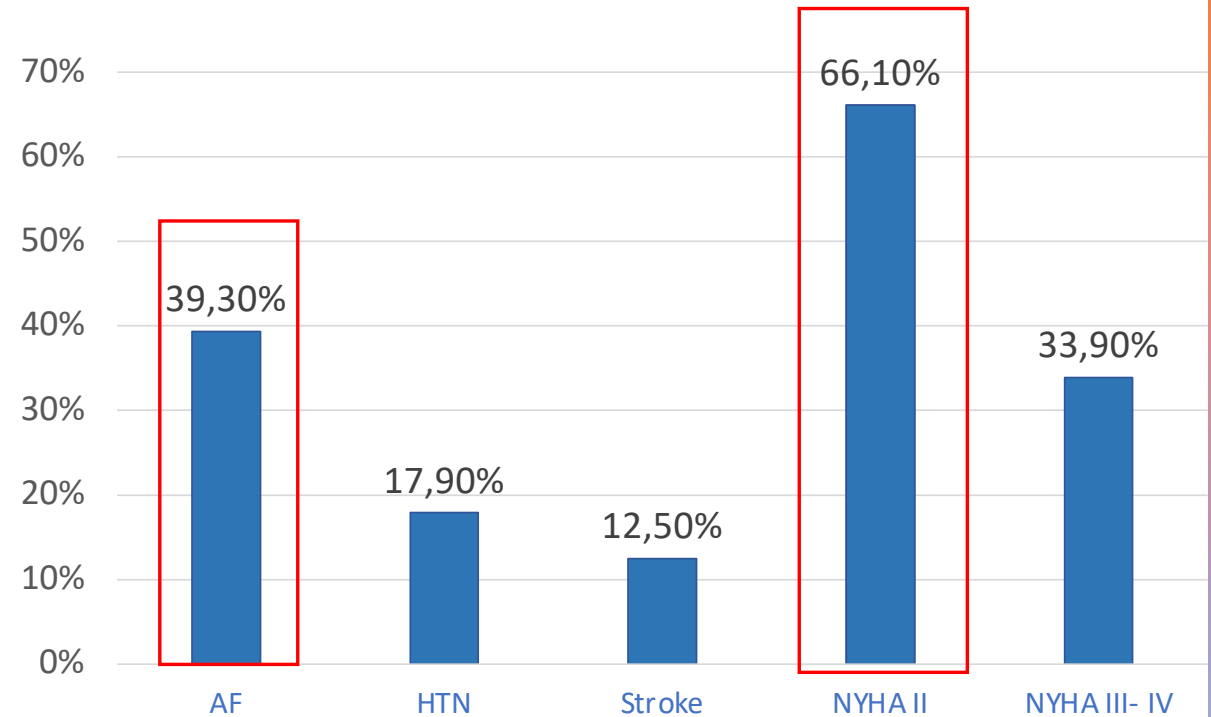
RESULTS

Clinical characteristics

Mean age: $44.5 \pm 12,5$ years(23- 64 years)

Male: female = 1: 2.1

Mean BMI: $22,7 \pm 2,7\text{kg/m}^2$



Graph 1. Clinical characteristic





Echocardiographic parameters

14 Isolated mitral stenosis

54 Mitral stenosis and mitral

regurgitation

Feature	Value (n = 68)	
Left atrial diameter (mm)	55,9 ± 11,1 (31 - 79)	
Mean valvular area (cm ²)	1 ± 0,6 (0,6 - 3,3)	
Left atrial thrombus	18 (28,6%)	
EF (%)	63,2 ± 5,4 (51 - 70)	
PASP (mmHg)	43,3 ± 18,3 (22 - 78)	
Tricuspid regurgitation	< 2/4	44 (64,3%)
	≥ 2/4	24 (35,7%)





Operative data

Feature		Value (n = 68)
Valve type	Biological valve	12 (17,7%)
	Mechanical valve	56 (82,3%)
Cross-clamp time (min)		95,8 ± 16,6 (70 - 127)
Bypass time (min)		130,2 ± 27,9 (90 - 185)
Conversion to sternotomy		0 (0%)
Concomitant Procedure		
Tricuspid valve repair		24 (35,7%)
Thrombus removal and LAA closure		18 (28,6%)





Postoperative data

Feature		Value (n = 68)
Mechanical ventilation time (hour)		3,4 ± 1,3 (2 - 8)
ICU LOS (day)		5,9 ± 1,8 (3 - 12)
Complication	Peripheral vascular complication	0 (0%)
	Mortality	0 (0%)
	Stroke	3 (4,4%)
	Reoperation due to bleeding	2 (3,0%)
	Pleural effusion required drainage	5 (7,4%)
	Surgical site infection	5 (7,4%)





Evaluation at Follow- up

Feature	At discharge n = 68	3 month n = 53	p-value*
NYHA I- II	45 (66,1%)	39 (73,6%)	0,043
NYHA III - IV	23 (33,9%)	14 (26,4%)	0,034
EF (%)	62,4 ± 3,9	62,9 ± 3,7	0,062
PASP (mmHg)	40,6 ± 14,3	31,7 ± 6,2	0,032
Paravalvular leak	0 (0%)	0 (0%)	

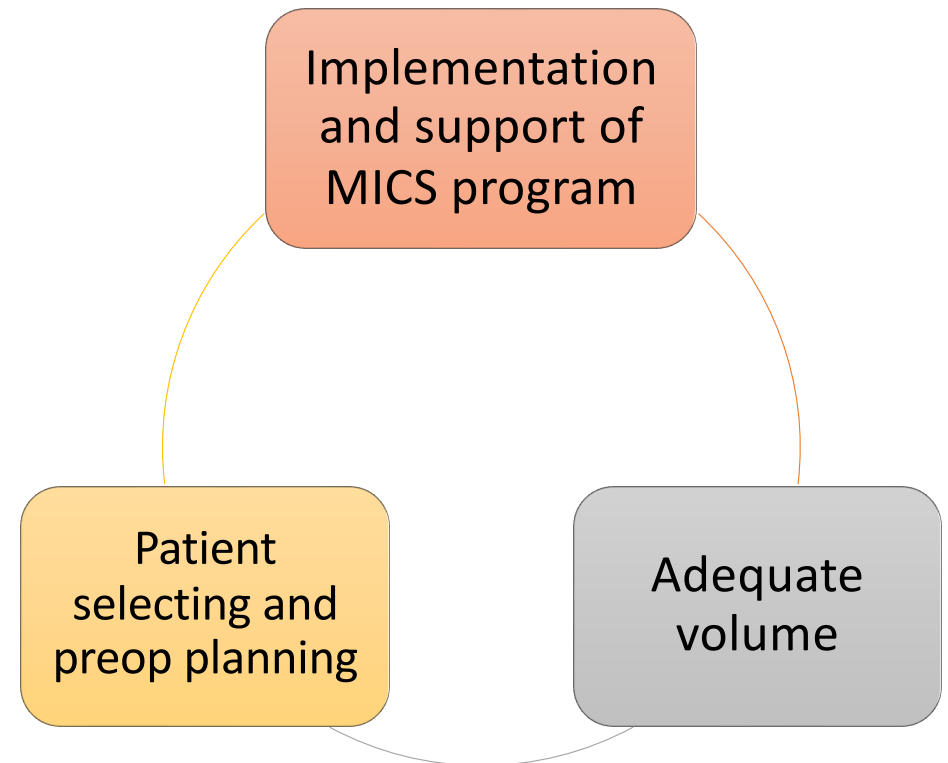
*Test Wilcoxon





DISCUSSION

- Femoral cannulation with side graft is feasible in all cases
- Dilated left atrium makes mitral valve more accessible. Hanging suture is helpful in exposure of the MV.
- Peripheral vascular complication & mortality rate: 0%, stroke: 4,4%
- Improvement in NYHA status and PASP at discharge and at followup ($p < 0,05$)
- No valve-related complication found in early follow-up





CONCLUSION

- Minimally invasive mitral valve replacement (MIMVR) using intraoperative endoscopy assistance is safe and effective
- Hanging suture for MV exposure is easy and reproducible
- Patient selection and pre-operation planning are the keys for success



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SỬ DỤNG: WestColor.SG/WestFlex.E/HytechIncellcoat

**THANK YOU FOR
YOUR LISTENING**

HUE CENTRAL HOSPITAL
CARDIOVASCULAR CENTER

