

Robotic Totally Endoscopic Mitral Valve Repair: Endo-Aortic Balloon Occlusion versus Ventricular Fibrillatory Arrest

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BACKGROUND

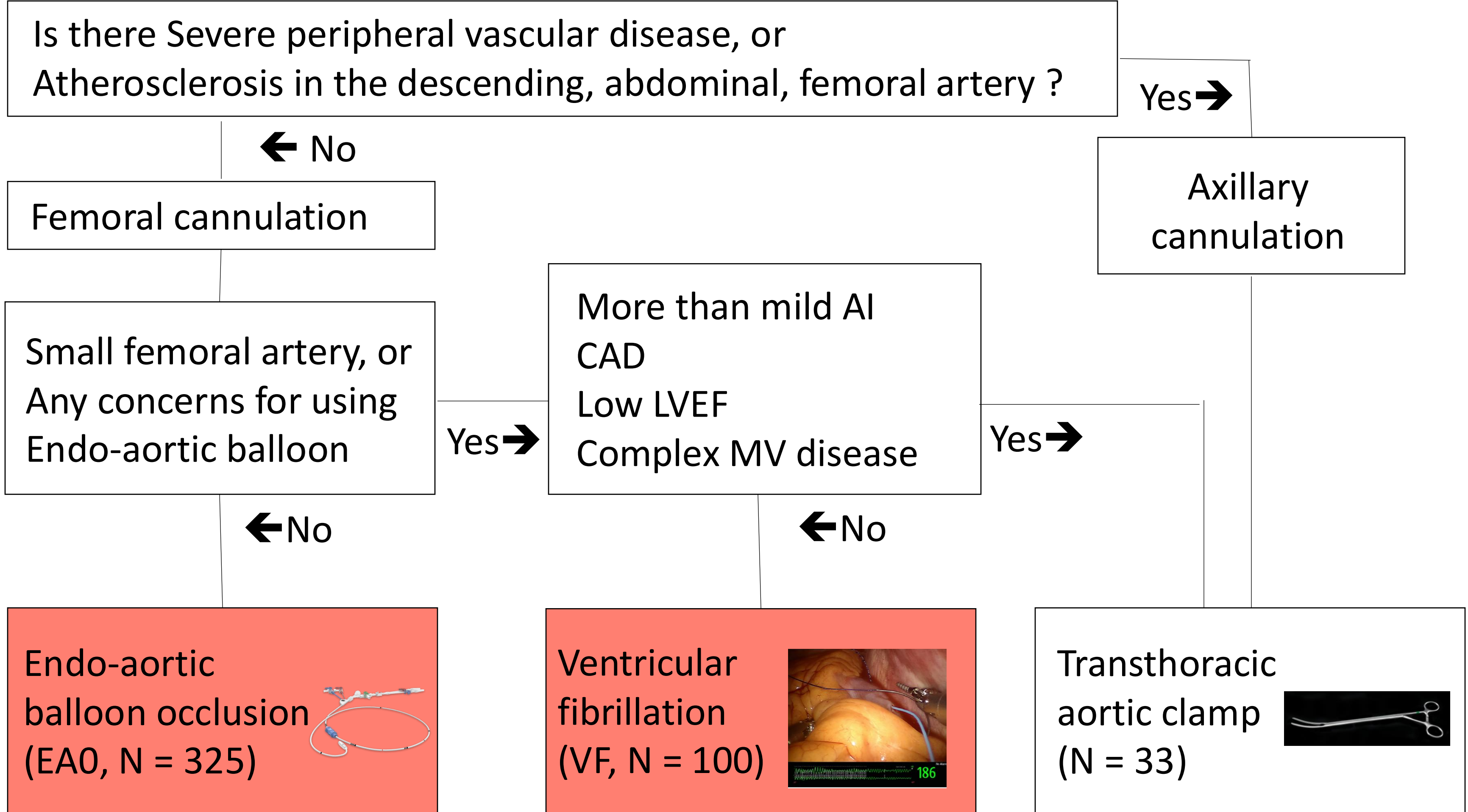
Endo-aortic balloon occlusion (EAO) is effectively used in endoscopic mitral valve surgery, offering the benefits of avoiding trans-thoracic clamping. However, it is less than ideal for specific patients, and in such cases, we have used ventricular fibrillatory arrest (VF) as an alternative strategy. This study compared the outcomes of patients who underwent robotic totally endoscopic mitral valve repair using EAO vs VF.

PATIENTS

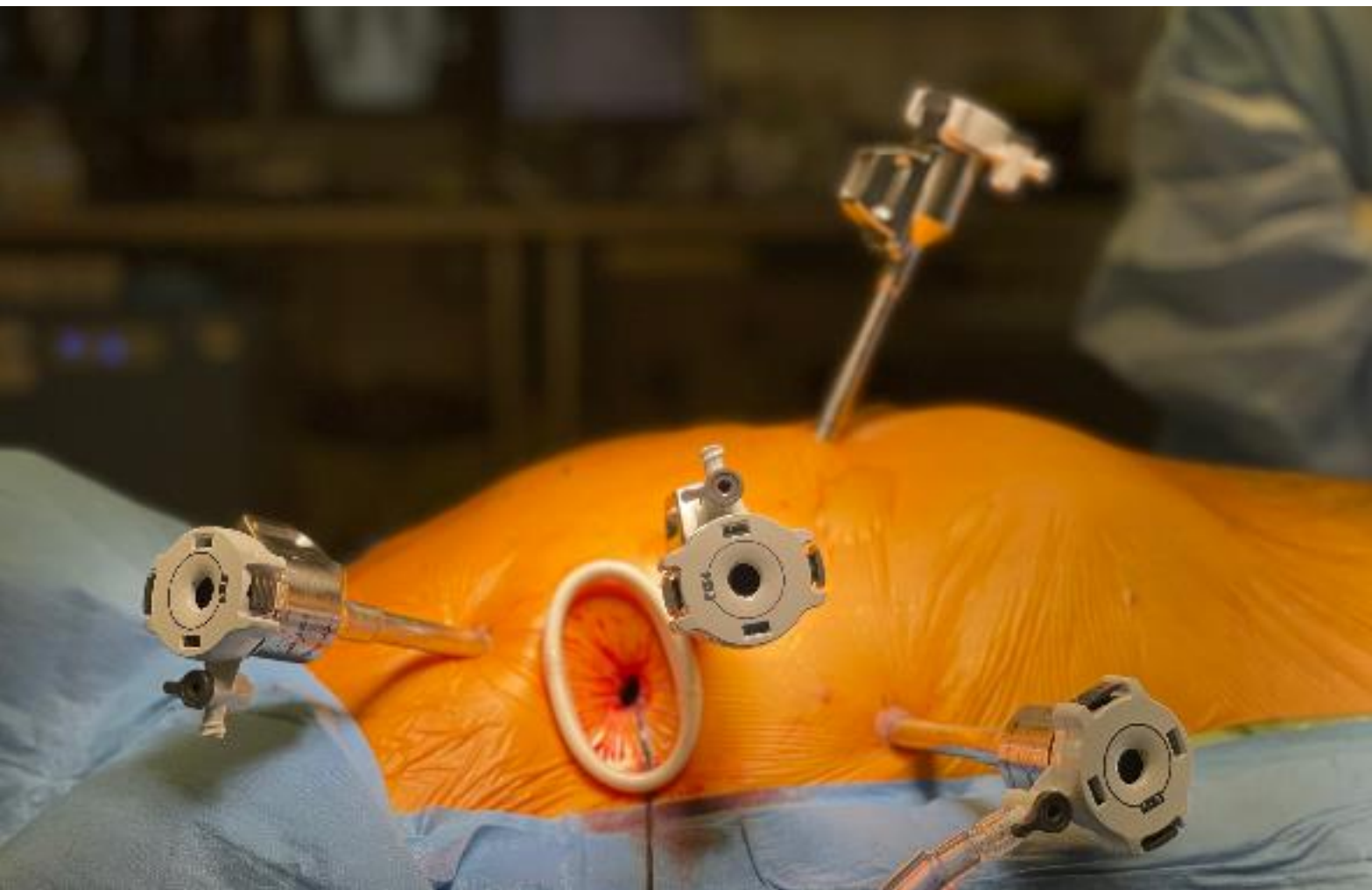
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Robotic totally endoscopic mitral valve surgery (N = 550)

Patients underwent mitral valve replacement, or concomitant procedures other than tricuspid valve surgery or cryo-ablation were excluded (N = 92).

[How we select arrest technique, EAO vs VF]



SURGICAL TECHNIQUES



Robotic Totally endoscopic approach
Da Vinci 5 / xi

Left arm port, 2nd ICS
Camera port, 3rd ICS
8-mm working port, 3rd ICS
Right arm port, 5th ICS
Retractor port, substernal

RESULTS

Baseline characteristics	EAO, N=325	VF, N=100	P value
Age (years), mean ± SD	62 ± 12	67 ± 11	0.001
Female, n (%)	105 (32)	47 (47)	0.009
Hypertension, n (%)	186 (57)	72 (72)	0.010
Diabetes mellitus, n (%)	28 (9)	17 (17)	0.025
Atrial fibrillation, n (%)	84 (26)	41 (41)	0.006
Peripheral vascular disease, n (%)	4 (1)	7 (7)	0.005
EF less than 40, n (%)	21 (7)	9 (9)	0.377
Previous sternotomy, n (%)	17 (5)	10 (10)	0.101
Previous MV surgery, n (%)	12 (4)	0 (0)	0.077
STS score, mean ± SD	1.7 ± 1.8	2.7 ± 2.5	0.001

Intraoperative data	EAO, N=325	VF, N=100	P value
CPB time, mean ± SD	183 ± 51	177 ± 51	0.302
Arrest (VF) time, mean ± SD	113 ± 36	90 ± 29	0.001
Cryo-Maze ablation, n (%)	68 (21)	34 (34)	0.011
Tricuspid valve repair, n (%)	27 (8)	14 (14)	0.119
Leaflet resection, n (%)	94 (29)	10 (10)	0.001
Neo-chord implantation, n (%)	204 (63)	60 (60)	0.638
Annuloplasty repair only, n (%)	33 (10)	28 (28)	0.001
Conversion to sternotomy, n (%)	2 (1)	0 (0)	1.000

Postoperative outcomes	EAO, N=325	VF, N=100	P value
Myocardial infarction, n (%)	0 (0)	0 (0)	-
Stroke, n (%)	1 (0.3)	0 (0)	1.000
ICU length of stay, mean ± SD	1.2 ± 0.6	1.3 ± 0.7	0.454
Hospital length of stay, mean ± SD	2.6 ± 1.4	2.7 ± 1.3	0.556
30-day mortality, n (%)	2 (0.6)	0 (0)	1.000

CONCLUSIONS

Despite that ventricular fibrillatory arrest was used in higher risk patients, the morbidity and mortality were similar. Our strategy to choose arrest technique provided excellent short-term outcomes.

DISCLOSURES

Husam H Balkhy is a proctor for Intuitive Surgical.