

Postoperative Atrial Fibrillation in Aortic Valve Disease: A Comprehensive Analysis of Incidence and Risk Factors

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Introduction:

- Postoperative atrial fibrillation (POAF) is a common postoperative complication with a high incidence after cardiac surgery (30 – 40 %) ¹
- Evidence suggest that POAF is associated with an increased risk of postoperative stroke and acute renal failure ², prolonged hospital stay and increased mortality ³
- Previous historical studies have identified rheumatic and degenerative aortic valve disease as independent predictors of POAF ⁴
- Therefore we performed a comprehensive examination of the incidence and risk factors of POAF in the context of aortic valve disease

1 - Mathew JP, et al; JAMA. 2004;291:1720-9.
2 - Thorén E, et al; Clin Res Cardiol 109:1232–1242
3 - Echahidi N, et al. J AmColl Cardiol 51:793–801
4 - Dandale R, et al; Future Cardiol. 2014 Nov;10(6):707-15

Table 1: Patient characteristics

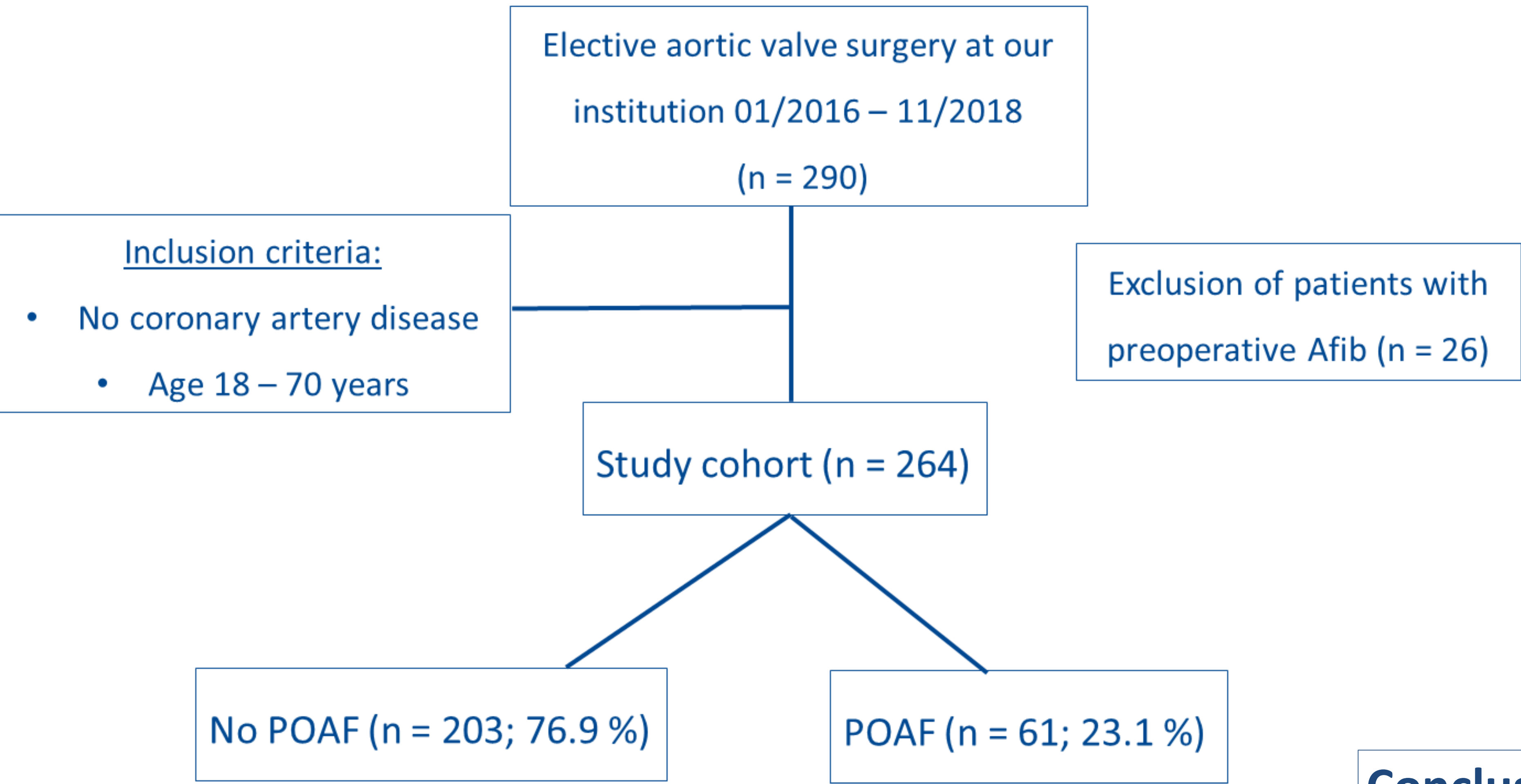
	No POAF (n = 203)	POAF (n = 61)	p - value
Age (years)	51.0 ± 16.8	58.7 ± 14.6	0.002
Female gender	51 (25%)	24 (39 %)	0.028
Body Mass Index (kg/m ²)	26.7 ± 5.0	26.7 ± 6.0	0.998
Arterial hypertension	110 (54 %)	44 (73 %)	0.009
Diabetes mellitus	16 (8 %)	6 (10 %)	0.819
Dyslipidemia	59 (29 %)	29 (48 %)	0.007
Concentration of LDL (mg/dL)	112.3 ± 39.8	103.8 ± 40.5	0.153
Concentration of cholesterol (mg/dL)	194.5 ± 43.1	185.0 ± 45.1	0.139
Preoperative LV Ejection fraction (%)	56.6 ± 9.3	58.5 ± 8.4	0.161
Aortic valve stenosis	103 (50.8 %)	46 (75 %)	0.001

Table 2: Postoperative data

	No POAF (n = 203)	POAF (n = 61)	p - value
Postoperative Pacemaker implantation	7 (3.4 %)	3 (4.9 %)	0.598
Pericardial effusion with rethoractomy	7 (3.4 %)	4 (6.5 %)	0.287
Postoperative Stroke	4 (1.9 %)	0 (0 %)	0.269
Acute renal failure	1 (0.5 %)	1 (1.6 %)	0.365
Postoperative LV Ejection fraction (%)	56.6 ± 9.3	58.5 ± 8.4	0.161
Duration of Intensive Care Unit stay (days)	1.9 ± 1.8	2.7 ± 2.1	0.012
Duration of Hospital stay (days)	7.4 ± 2.7	9.7 ± 4.2	< 0.001

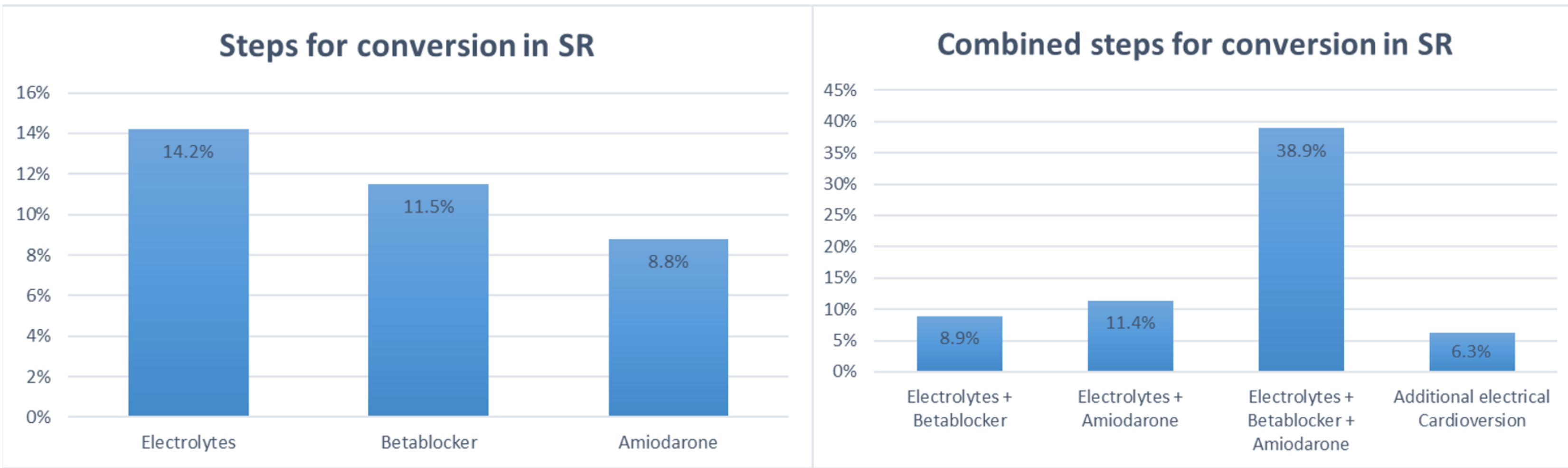
Table 3: Independent predictors of POAF

	OR	95%-CI		p-value
Age (years)	1.01	0.99	1.04	0.242
Female gender	2.01	1.03	3.96	0.041
Arterial hypertension	2.61	1.27	5.40	0.009
Dyslipidemia	1.95	1.01	3.75	0.046
Aortic stenosis	3.59	1.74	7.42	0.001
Preoperative ejection fraction	1.03	0.99	1.07	0.124



Postoperative atrial fibrillation (POAF)

➤ Conversion in sinus rhythm (SR): 46/61 patients (75.4 %) of the patients with POAF



Conclusion

- Incidence of POAF after aortic valve surgery is frequent and results in increased duration of ICU and in-hospital stay
- Independent risk factors for POAF are
 - ✓ Female gender
 - ✓ Arterial hypertension
 - ✓ Dyslipidemia
 - ✓ Aortic valve stenosis

➤ Future research needs to focus on the effective prevention of POAF after aortic valve surgery