

Comparison of Chronic Persistent and Post-Operative Atrial Fibrillation on Long Term Survival in Patients Undergoing Cardiac Valve Surgery

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Background:

Patients with valvular heart disease have a higher incidence of chronic persistent atrial fibrillation (CPAF). Patients in sinus rhythm undergoing valve surgery have a high risk of post-operative AF (POAF). Both CPAF and POAF are associated with significant morbidity and mortality after cardiac surgery. There has been no study comparing long term mortality outcomes among the two groups in patients undergoing valve surgery.

Methods:

556 consecutive patients who underwent cardiac valve surgery at Lehigh Valley Health Network during 2005-2007 were retrospectively reviewed. Patients were divided into three cohorts:

- **Cohort A** - patient in sinus rhythm before and after surgery
- **Cohort B** - patients in AF before undergoing the surgery
- **Cohort C** - patients in sinus rhythm before the surgery and having AF after the surgery.

Results:

The study group included 42% women. 139 with CPAF underwent valve surgery. POAF occurred in 124 (30%) patients. The mean age of patients in cohort A was 67.8 ± 12.5 yrs. Compared to cohort A (67.8 ± 12.5 yrs), patients in cohort B (73.1 ± 9.9 yrs; p<.01) and C (72.4 ± 9.9 yrs; p<.01) were significantly older.

There was similar incidence of diabetes and hypertension in the 3 cohorts. LVEF and bypass time were also similar. LA was significantly dilated in patients with CPAF (p<.01).

Hospital stay was significantly longer in cohort B (10.5 ± 6.1; p<.01) and cohort C (11.3 ± 8.3; p<.01) when compared to cohort A (7.12 ± 4.9). All-cause mortality was significantly higher in both patients with CPAP and POAF over 72 months.

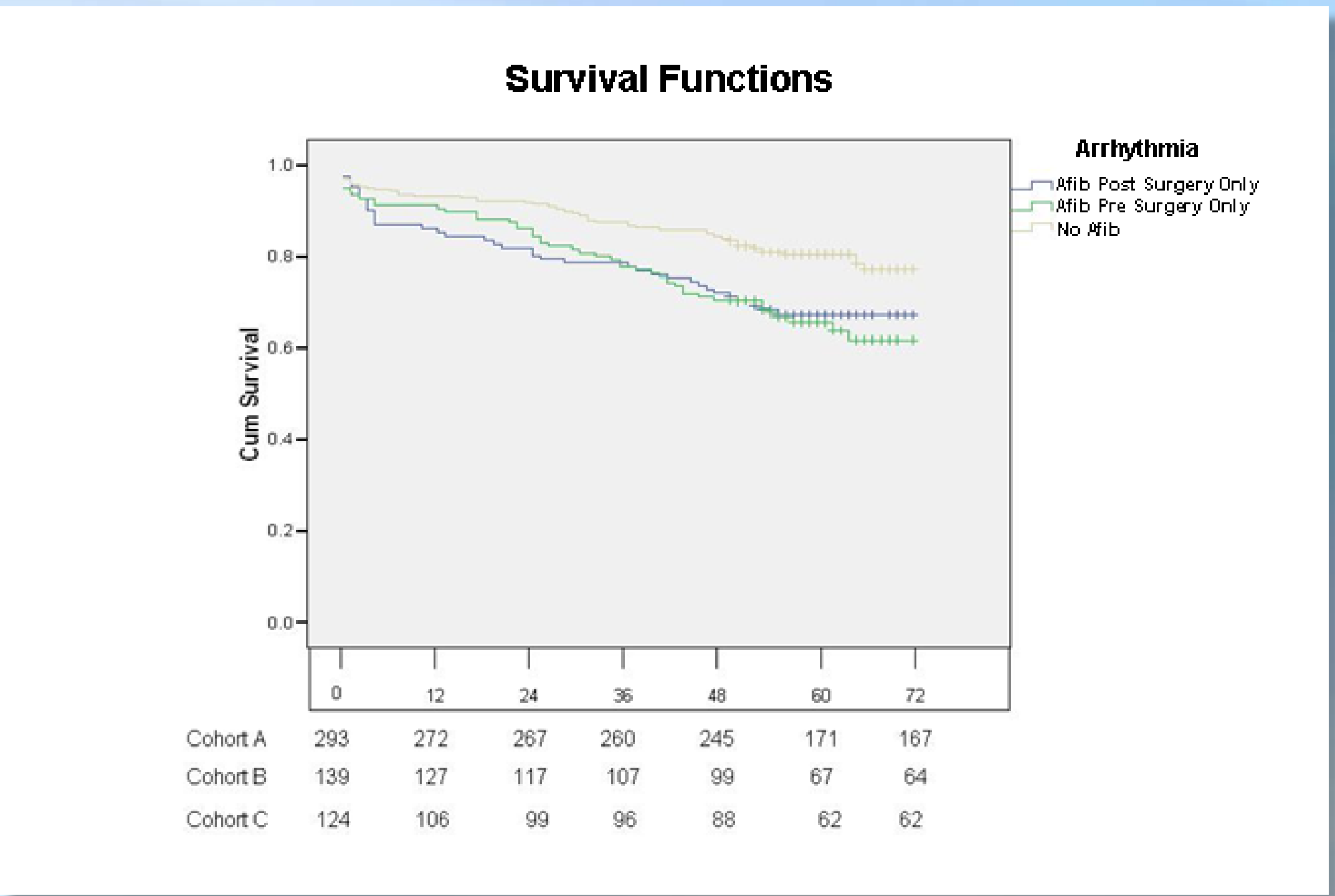
Baseline Characteristics of Patients Undergoing Cardiac Valve Surgery (N=556)

	Patients with Neither Persistent or Post op AF (n=293) (%) Mean ± SD	Post op AF (n=139) (%) Mean ± SD	Post-op AF (n=124) (%) Mean ± SD
Age, years	67.8 ± 12.5	73.1 ± 9.9	72.4 ± 9.9
Female	124 (42.9)	56 (40.3)	53 (42.7)
Smoker (active)	43 (14.9)	11 (7.9)	11 (8.8)
History of heart failure	102 (35.3)	83 (59.7)	37 (29.8)
Left ventricular ejection fraction	53.2 ± 12.0	52.9 ± 11.9	54.2 ± 12.1
Past Medical History			
Hypertension	222 (76.8)	117 (84.2)	98 (79.0)
Diabetes Mellitus	77 (26.6)	41 (29.5)	34 (27.4)
History of tobacco use	158 (54.7)	79 (56.8)	73 (58.9)
COPD	68 (23.5)	51 (36.7)	29 (23.4)
Cerebrovascular accident	22 (7.6)	13 (9.4)	8 (6.5)
Echocardiographic Findings			
Left ventricular wall thickness	1.35 ± 0.31	1.34 ± 0.31	1.38 ± 0.32
Left atrial diameter	4.53 ± 1.0	5.2 ± 1.4	4.6 ± 0.8
Surgical Details			
Cardiopulmonary bypass duration	138.0 ± 50.9	145.6 ± 43.6	132.8 ± 50.7
Coronary bypass surgery performed	128 (45.4)	51 (36.7)	66 (53.2)
Mitral valve surgery	75 (26.0)	62 (44.6)	28 (22.6)
Aortic valve surgery	225 (77.9)	84 (60.4)	99 (79.8)

Comparison of Outcomes of the Three Groups (N=556)

	Patients with Neither Persistent or Post op AF (n=293) (%) Mean ± SD	Post op AF (n=124) (%) Mean ± SD	Postop AF (n=124) (%) Mean ± SD
Prolonged ventilation	13 (4.5)	8 (5.8)	14 (11.3)
Heart block	19 (6.6)	10 (7.2)	7 (5.6)
Pneumonia	3 (1.0)	2 (1.4)	3 (2.4)
Septicemia	7 (2.4)	2 (1.4)	7 (5.6)
Stroke	9 (3.1)	6 (4.3)	10 (8.1)
In hospital mortality	11 (3.8)	7 (5.0)	3 (2.4)
Hospital stay duration, days	7.12 ± 4.9	10.5 ± 6.1	11.3 ± 8.3

Kaplan-Meier Plots for All-Cause Mortality



Conclusions:

Both patients with CPAP and POAF have higher long term mortality rates than patients in normal sinus rhythm. In-hospital and long-term mortality outcome in patients with CPAF and POAF are similar.