

Pre-operative Angiotensin Converting Enzyme Inhibitors and Angiotensin Receptor Blockers on the Occurrence of Post Operative Atrial Fibrillation after Cardiac Valve Department of Surgery

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Published In/Presented At

Shariff, N., Martinez, M., Desai, R., Weiss, M., Levin, V., Jacobs, L., Matsumura, M., & Freudenberger, R. (2013, May 9-11). *Pre-operative angiotensin converting enzyme inhibitors and angiotensin receptor blockers on the occurrence of post operative atrial fibrillation after cardiac valve department of surgery*. Poster presented at: The American College of Cardiology (ACC) 2013 Scientific Sessions, San Francisco, CA.

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Background:

- Post operative atrial fibrillation (POAF) occurs in about 50% of patients undergoing cardiac valve surgery.
- AF following cardiac surgery is associated with a two-fold increase in morbidity and mortality.
- Though ACE inhibitors and ARBs reduce the incidence of AF in general population, their role on occurrence of POAF in patients undergoing valve surgery is not clear.

Methods:

- Retrospective clinical and statistical analysis was conducted on 556 consecutive patients who underwent cardiac valve surgery at Lehigh Valley Health Network during 2005-2007.
- 139 with persistent AF before the surgery were excluded.
- Statistical analyses included chi-square test for categorical and the student t-test for continuous variables.
- Multivariate logistic regression was also performed.

Results:

- 417 patients (240 males and 177 females) were studied. POAF occurred in 124 (30%) of the patients.
- Age (72.4 ± 9.9 yrs vs. 67.8 ± 12.5; p <0.001. OR per year of age: 1.029; 95% CI, 1.008-1.052) was significantly associated with occurrence of AF.
- Patients with POAF had a significantly longer hospital stay (9.5 +/- 5.4 days vs. 6.9 +/- 4.3 days, p = 0.001).
- Neither ARBs (OR: .994; 95%CI, .538-1.836, p=.985) nor ACE inhibitors (OR: 1.160, 95%CI, .723-1.860, p=.539) reduced the occurrence of POAF.
- On comparison between the two groups (ACE inhibitors vs ARB), the occurrence of POAF was similar (27.9% vs 31.1%; p=0.646).

Baseline Characteristics of Patients Undergoing Cardiac Valve Surgery (N=417)

	Patients with Neither Persistent or Post op AF (n=293) (%) Mean ± SD	Post op AF (n=124) (%) Mean ± SD	P value
Age, years	67.8 ± 12.5	72.4 ± 9.9	<.01
Female	124 (42.9)	53 (42.7)	.975
Smoker	43 (14.9)	11 (8.8)	.097
History of heart failure	102 (35.3)	37 (29.8)	.282
Left ventricular ejection fraction	53.2 ± 12.0	54.2 ± 12.1	.410
Past Medical History			
Hypertension	200 (69.2)	98 (79.0)	.621
Diabetes Mellitus	77 (26.6)	34 (27.4)	.871
History of tobacco use	158 (54.7)	73 (58.90)	.431
COPD	68 (23.5)	29 (23.4)	.975
Cerebrovascular accident	22 (7.6)	8 (6.5)	.677
Medications			
Beta blockers	126 (43.6)	60 (48.4)	.370
ACE inhibitors	103 (35.6)	39 (31.5)	.411
ARB	47 (16.3)	20 (16.1)	.973
Amiodarone	5 (1.7)	0	.328
Statins	156 (54.0)	72 (58.1)	.444
Echocardiographic Findings			
Left ventricular wall thickness	1.35 ± 0.31	1.38 ± 0.32	.356
Left atrial diameter	4.53 ± 1.0	4.6 ± 0.8	.812
Surgical Details			
Cardiopulmonary bypass duration	138.0 ± 50.9	132.8 ± 50.7	.555
Coronary bypass surgery performed	128 (45.4)	66 (53.2)	.145
Mitral valve surgery	75 (26.0)	28 (22.6)	.468
Aortic valve surgery	225 (77.9)	99 (79.8)	.653

Comparison of Outcomes of the Three Groups

	Patients with Neither Persistent or Post op AF (n=293) (%) Mean ± SD	Post op AF (n=124) (%) Mean ± SD	P value
Prolonged ventilation	13 (4.5)	14 (11.3)	.01
Heart block	19 (6.6)	7 (5.6)	.722
Sternal wound infection	1 (0.3)	0	1.0
Pneumonia	3 (1.0)	3 (2.4)	.371
Septicemia	7 (2.4)	7 (5.6)	.097
Stroke	9 (3.1)	10 (8.1)	.028
In hospital mortality	11 (3.8)	3 (2.4)	.568
Hospital stay duration, days	7.12 ± 4.9	11.3 ± 8.3	<.01

Conclusions:

POAF is directly related to age and is associated with prolonged length of stay after cardiac valve surgery. Administration of ARBs or ACE inhibitors did not reduce the occurrence of POAF.