Indian Journal of Basic and Applied Medical Research- Surgical Specialty Issue; September 2019: Vol.-8, Issue- 4, P. 67 – 71

Original article:

Study of assessment of impact of postoperative AF on outcome in patients undergoing mitral valve Surgery

[1]Dr Dnyaneshwar Borade, [2]Dr Naresh Trehan*, [3]Dr. Rameshkumar Bapna

[1,3]Medanta Heart Institute,Medanta The Medicity,Gurugram,Haryana

[2]Chief and Managing Director, Medanta The Medicity Hospital, Gurugram,Haryana

Corresponding author*

Abstract:

Introduction: The incidence and determinants of AF after mitral valve surgery are poorly defined or several reasons. First postoperative AF has mainly evaluated after coronary artery bypass surgery(CABG), and few patients undergoing mitral valve surgery (for mitral stenosis or MR) were included.

Methodology: This study was carried out in Medanta Heart Institute of Medanta – The Medicity hospital in Icu 2.

Medanta -The Medicity is total 1500 bedded tertiary care center in Gurgaon catering to patients from North and Eastern India in addition to international patients. The Cardiac surgery unit has 44 bedded ICU and post-operative wards. The hospital is NABH and JCI accredited and has standard protocols in place of patient flow.

Results: Surgical variables that may advance atrial ischemia, such as the duration of aortic cross-clamping have been shown to be independently related to the risk of POAF. In our study the average aortic cross clamp time was 87.3±31.6, the maximum being 190 min.

Conclusion: Left atrial enlargement is a major predictor of post operative atrial fibrillation and it should be integrated into the decision-making process of patients with mitral regurgitation and that surgery may be considered earlier in the course of the disease.

Introduction:

The incidence and determinants of AF after mitral valve surgery are poorly defined or several reasons. First postoperative AF has mainly evaluated after coronary artery bypass surgery(CABG), and few patients undergoing mitral valve surgery (for mitral stenosis or MR) were included. [1] Second, these studies included mostly post-valve replacement patients, and in an era of mitral valve repair dominance, the incidence of postoperative AF remains undefined. Third, early postoperative AF after mitral valve surgery is seldom reported. Consequently, the relation between early postoperative AF and late recurrence is unknown, and the impact of postoperative AF on outcomes is not defined. The lack of data on the incidence, predictors, and long term clinical implications of AF after MR surgery hinders management of preventive strategies.

Atrial fibrillation is frequent complication after cardiac surgery, with reported incidence as high as 65%. Postoperative AF is associated with, longer hospital stay[7] and increased mortality and morbidity, increased hospitalization cost[2]

Methodology:

This study was carried out in Medanta Heart Institute of Medanta – The Medicity hospital in ICU 2.

Medanta -The Medicity is total 1500 bedded tertiary care center in Gurgaon catering to patients from North and Eastern India in addition to international patients. The Cardiac surgery unit has 44 bedded ICU and post-operative wards. The hospital is NABH and JCI accredited and has standard protocols in place of patient flow.

Patients with mitral valve complaints were admitted for a preoperative work up 2 days prior to surgery. The preoperative work up includes dental clearance, basic laboratory investigations, all cultures, 2-D Echocardiography and preanesthetic checkup (PAC). After getting PAC clearance patients were posted in one of the seven operating room. After successful surgery patients were shifted to ICU-2 in which patients physiological parameters observed for 48 hours and after removal of Endotracheal (ET) tube and ICD tubes they were shifted in ICU-1 for one day observation. If all parameters would be stable then all these patients were shifted to wards for three to four more days. The epicardial pacing wires were removed on fifth post-operative day if patients do not have arrhythmias.

Patients:

INCLUSION CRITERIA

1. Patients with mitral valve diseased (Severe-moderate mitral stenosis, severe-moderate mitral regurgitation) undergoing clinically indicated open heart surgery.
2. Patients with mitral valve diseased with preoperative baseline normal sinus rhythm and postoperative Atrial Fibrillation as:

Sustained AF:

The incidence of new onset, recurrent, or self-reverting episode of sustained atrial fibrillation needing intervention in the form of drugs ,DC shock etc.

EXCLUSION CRITERIA

1. Patients undergoing balloon mitral valvotomy (BMV).
2. Patients with history of any preoperative arrhythmia or if not in normal sinus rhythm.
3. Patients having an episode of intra-operative arrhythmia.

www.ijbamr.com P ISSN: 2250-284X , E ISSN : 2250-2858

Results

Table 1)

POSTOPERATIVE_PROFILE (System)	Number (N)	Percentage (%)
Inotropic_Support_Requirement		
Mild	38	40.9
Moderate	36	38.7
Nil	12	12.9
Severe	7	7.5
ICU_complications		
Back abscess	1	1.1
Gangrene RT Foot	1	1.1
ICD bleeding	1	1.1
Nil	86	92.5
Pulmonary Hemorrhage, Open chest	1	1.1
Rt BK Amputation	1	1.1
SDH	1	1.1
Sepsis	1	1.1
Beta_Blockers		
No	32	34.4
Yes	61	65.6
Calcium_Chanels_Blockers		
No	77	82.8
Yes	16	17.2
Amiodarone		
No	39	41.9
Yes	54	58.1
Digoxin		
No	59	63.4
Yes	34	36.6
Cardioversion		
No	88	94.6
Yes	5	5.4
Permanent_Pacemaker_Implantation		
No	91	97.8
Yes	2	2.2

www.ijbamr.com P ISSN: 2250-284X , E ISSN : 2250-2858

Discussion:

Surgical variables that may advance atrial ischemia, such as the duration of aortic cross-clamping have been shown to be independently related to the risk of POAF. In our study the average aortic cross clamp time was 87.3±31.6, the maximum being 190 min.

An increased left atrial diameter and a lower LVEF were significantly associated with an increased risk of POAF as suggested previously[3]. In our study minimum LVEF was 25% and LA size was 4. Chronic atrial dilation caused by valvular disease or left ventricular dysfunction is associated with anatomic changes, mainly foci of thrombosis, which may lead to "electric remodeling". Almassi et al[4] showed that the use of inotropic agents for more than 30 minutes after the termination of CPB was associated with a higher incidence of arrhythmia; the risk of POAF exceeded 50% in patients with cardiogenic shock undergoing surgical revascularization. In our study duration of maximum inotropic support was 22 days and CPB time was 240 min. Aranky et al[2] reported a duration of hospitalization in patients with POAF an average of 3 to 4 days longer. In our study mean ICU day was 7.3 days, and in hospital 14.3 days.[5]

Several investigations evaluated the effectiveness of pharmacologic and non pharmacologic interventions for the prevention of AF, with the main purpose of decreasing the length of hospital stay and the risk of POAF-related strokes[6] .Beta-blocker withdrawal before surgery was associated with a higher risk of POAF; conversely, continuation of treatment decreased the incidence of arrhythmic complications[5]. In our study we used 65.6% (61 cases) beta -blockers and prior stroke was 12.9 Left atrial enlargement is a major predictor of post operative atrial fibrillation and it should be integrated into the decision-making process of patients with mitral regurgitation and that surgery may be considered earlier in the course of the disease.

Conclusion:

Left atrial enlargement is a major predictor of post operative atrial fibrillation and it should be integrated into the decision-making process of patients with mitral regurgitation and that surgery may be considered earlier in the course of the disease.

References:

1. Almassi GH, Schowalter T, Nicolosi AC, et al. Atrial fibrilation after cardiac surgery: a major morbid event? Ann surg. 1997;226:501-511;discussion 511-513.
2. Aranki SF, Shaw DP, Adams DH, et al. Predictors of atrial fibrillation after coronary artery surgery. Current trends and impact on hospital resources. Circulation 1996;94:390-397.
3. Banach M, Goch A , Misztal M et al. Predictors of paroxysmal atrial fibrillation in patients undergoing aortic valve replacement. J Thorac Cardiovasc Surg 2007;134:1569-1576.
4. Creswell LL, Alexander JC, Ferguson B et al. Inraoperative interventions. American College of Chest Physicians Guidelines for the Prevention and Management of Postoperative Atrial Fibrillation After Cardiac Suegery. Chest 2005;

128:28S-35S.

5. Lim E, Barlow CW, Hosseinpour AR, Wisbey C, Wilson K, Pidgeon W, Charman S et al. Influence of atrial fibrillation on outcome following mitral valve repair. Circulation 2001;104:159-163.
6. Kannel WB, Wolf PA, Benjamin EJ, Levy D. Prevalence, incidence,prognosis, and predisposing conditions for atrial fibrillation: Population-based estimates. Am J Cardiol 1998; 82:2N-9N.