นิพนธ์ต้นฉบับ • Original Article

ผลในระยะสั้นของการรักษาลิ้นหัวใจไมทรัลโดยการผ่าตัดเปลี่ยนลิ้นหัวใจในโรงพยาบาลศรีนครินทร์

จิติ จันทร์เมฆา, สมภพ พระธานี, ชูศักดิ์ คุปตานนท์
หน่วยศัลยกรรมหลอดเลือดหัวใจและทรวงอก ภาควิชาศัลยศาสตร์ คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่น

Short Term Surgical outcome of Mitral Valve Replacement at Srinagarind Hospital

Thiti Chanmayka, Sompop Prathanee, Chusak Kuptarnond
Division of Cardiovascular and Thoracic surgery, Department of Surgery, Faculty of Medicine, Khon Kaen University

หลักการและเหตุผล: การผ่าตัดเปลี่ยนลิ้นหัวใจไมทรัลเป็นหนึ่งในการรักษาลิ้นหัวใจไมทรัลที่ตีบและรั่ว ซึ่งพบได้บ่อยมากในผู้ป่วยภาคตะวันออกเฉียงเหนือของประเทศไทย วัตถุประสงค์ของการศึกษานี้คือการศึกษาผลการผ่าตัดระยะแรก โดยศึกษาข้อมูลพื้นฐาน ข้อมูลการผ่าตัด ผลแทรกซ้อน และผลการผ่าตัดในผู้ป่วยดังกล่าวที่มารักษาในโรงพยาบาลศรีนครินทร์

วิธีการศึกษา: เป็นการศึกษาย้อนหลังชนิดพรรณนาจากแฟ้มประวัติผู้ป่วย โดยการเก็บข้อมูลผู้ป่วยที่มาผ่าตัดเปลี่ยนลิ้นหัวใจไมทรัลที่ โรงพยาบาลศรีนครินทร์ ระหว่างเดือนมกราคม 2549 ถึงธันวาคม 2551 ทั้งหมดจำนวน 174 ราย โดยศึกษาลักษณะทั่วไปของผู้ป่วย ผลการตรวจหัวใจด้วยเครื่องสะท้อนคลื่นเสียงความถี่สูง ข้อมูลการผ่าตัด ผลแทรกซ้อน และผลการผ่าตัด

ผลการศึกษา: ผู้ป่วยทั้งหมด 174 ราย อายุเฉลี่ย 46.18± 12.32 ปี (19-74 ปี) สภาพผู้ป่วยแบ่งตาม NYHA (New York heart association) I, II, III, IV 10 ราย (ร้อยละ 5.7) 62 ราย (ร้อยละ 35.2) 84 ราย (ร้อยละ 48.3) และ 18 ราย (ร้อยละ 0.3) ตามลำดับ เป็นลิ้นหัวใจตีบรุนแรง 105 ราย (ร้อยละ 60.34) ลิ้นหัวใจไมทรัลรั่วรุนแรง 43 ราย (ร้อยละ 24.71) น้ำจากท่อระบายน้ำหลังการผ่าตัด ค่าเฉลี่ย 675.71 ± 46.65 มิลลิลิตร เสียชีวิตในโรงพยาบาล 8 ราย (ร้อยละ 4.6) ผู้ป่วยที่มาติดตามผลครั้งแรก สภาพผู้ป่วยร้อยละ 80 อยู่ใน NYHA กลุ่ม I

สรุป: ผลการรักษาโดยการผ่าตัดเปลี่ยนลิ้นหัวใจไมทรัลของโรงพยาบาลศรีนครินทร์อยู่ในเกณฑ์ดี

คำสำคัญ: ลิ้นหัวใจไมทรัล การผ่าตัด

Background and Objective: Mitral valve replacement is one of the treatment of severe mitral valve stenosis and regurgitation which were high incidence in the norhteastern part of Thailand. The purpose of this study was to report geographic data, operative data, complications and surgical outcomes.

Methods: Retrospective descriptive study, chart reviews. From January 2006 to Dcember 2008, there were 174 patients who had mitral valve replacement at Srinagarind hospital. Patients characteristics, echocardiographic records, operative data, complications and sugical outcomes were collected. All information was collected from hospital records.

Result: There were 174 patients, with a mean age 46.18± 12.32 years (range 19-74 years). The NYHA classes I, II, III, IV were 10 (5.7%), 62 (35.2%), 84 (48.3%) and 18 (10.3%), respectively. One hundred-five patients were severe MS (60.34%), 43 patients were severe MR (24.71%). The most common valve pathology was rheumatic heart disease 153 (87.9%). Drains at post operative dat 0, 1 with a mean volume was 675.71±46.65 ml. In-hospital mortalities were 8 (4.6%) patiens. Most of patients with first follow-up were in NYHA class I (80.2%).

Conclusion: Our experience in surgical outcome mitral value replacement revealed satisfactory data as those reported from other studies.

Keywords: mitral valve replacement, surgical outcome

Introduction

One of the treatment of mitral valve disease is mitral valve replacement. Mortality rates range from 1% to 15%.[1,2,3] Morbidity and mortality is a direct consequence of patient variables (e.g., age, degree of coronary arterial disease, follow-up care) may be more responsible for outcomes. Srinagarind hospital had experience with valve replacement, provided promising results. This study report short term surgical outcome after mitral valve replacement at Srinagarind hospital.

Materials and methods

From January 2006 to Dcember 2008, there were 174 patients (52 males, 122 females) who had mitral valve replacement Srinagarind hospital. A retrospective chart review was conducted. All patients were operated by two surgeons. Patients who underwent coronary artery bypass surgery were excluded from this study. The study protocol was approved by the ethics committee of the faculty of medicine Khonkaen university.

The approach to the heart was through a median sternotomy and the mitral valve replacement was performed using cardiopulmonary bypass and mild systemic hypothermia (30-32°C). Myocardial protection was obtained with combined antegrade and retrograde cold blood cardioplegia through the aortic root and the coronary sinus with topical hypothermia. Approach to the mitral valve was standard incision.

Results

One hundred and seventy four patients underwent mitral valve replacement at Srinagarind hospital from January 2006 to December 2008. The pre-operative patient characteristics and perioperative outcome data are shown in Table 1.

Table 1 Preoperative patient's characteristics

	N	%
Patients	174	
Males/Female	52/122	29.9/70.1
Age(years)	19-74	
Mean age (mean SD)	46.18 12.32	
NYHA class I	10	5.7
II	62	35.6
III	84	48.3
IV	18	10.3
DM	10	5.7
Hypertension	11	6.3
Stroke	11	6.3
Renal impairment	6	3.4
Cardiac rythm:sinus rythm	29	16.7
Atrial fibrillation	145	83.3
LVEF 60%	3	1.8
31-59%	99	58.6
<30%	67	39.6

Etiology of the valves were rheumatic heart disease (153/87.9%), endocarditis (7/4%), prosthetic valve complication (4/2.3%). The mean LVEF was 58.11%± 10.35 (range 23% to 86%).

Table 2 Preoperative patient's characteristics(2)

	N	%
Diagnosis		
Severe MS	105	60.34
Severe MR	43	24.71
Severe MSR	21	12.07
Moderate MR	5	2.88
Etiology		
Rheumatic heartdisease	153	87.9
Degenerative valve	10	5.7
Endocarditis	7	4
Prosthetic valve complication	4	2.3

The operative procedures were shown in table 3.

Table 3 Operative procedure

Procedure	N	%
MVR	142	81.6
MVR +TV repair	13	7.5
MVR + ASD closure	15	8.6
Redo MVR	4	2.3

Intraoperative found calcified valve in 123 (70.7%) patients and LA clots in 33 (19%) patients. Mechanical valve were implanted in 161 (92.5%) patients divided to monoleaflet 142 (81.6%), bileaflet 19 (10.9%). Bioprosthetic valves were implanted in 13 (7.5%) patients. Reoperations were done in 8 (4.6%) cases, 7 cases were massive hemopericardium one case was death on table from ruptured LV, another one was valve dysfunction and dead in the first postoperativeday.

The mean operate time was 127.91±34.49 minutes (range 70 to 315) ,the mean of cardiopulmonary bypass time was 51.51 ± 15.03 minutes (range 26 to 115), aortic cross clamp time was 35.97 ± 11.13 minutes (range 18 to 89).

The packed red cell was infused intraoperatively 0.9 ± o.98 units (range 0 to 6), fresh frozen plasma was infused 2.29 ± 1.47 units (range 0 to 8), platelet concentration was infused 0.97 ± 2.45 units (range 0 to 12).The mean postoperative ventilatory support time was 23.46 ± 309.54 hours (range 1 to 3762) as shown in figure 1. The mean ICU lenght of stay was 68.79±89.74 hours (range 1 to 864), also mean of postoperative hospital stay was 10.61 ± 12.74 days (range 0 to 113) (figures 2 and 3). The mean total amount of drain at postoperative day 1 was 675.71 ± 615.31 ml (range 0 to 4,230).

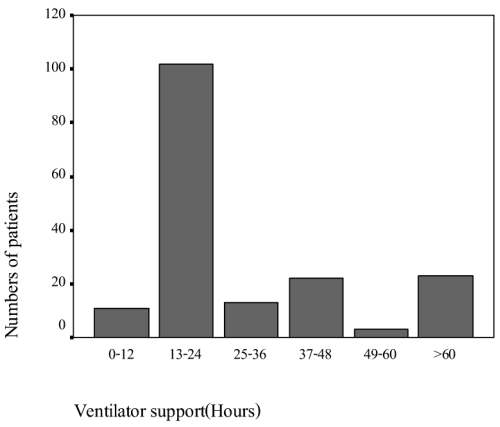

Figure 1 Postoperative ventilatory support

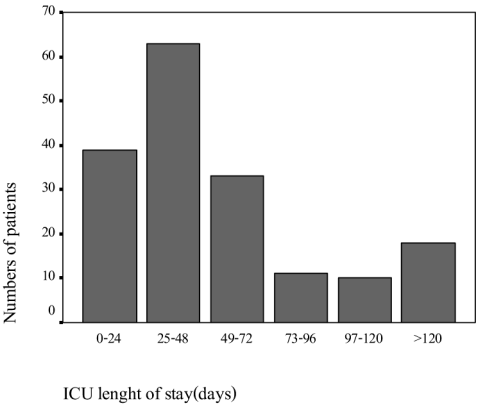

Figure 2 ICU lenght of stay

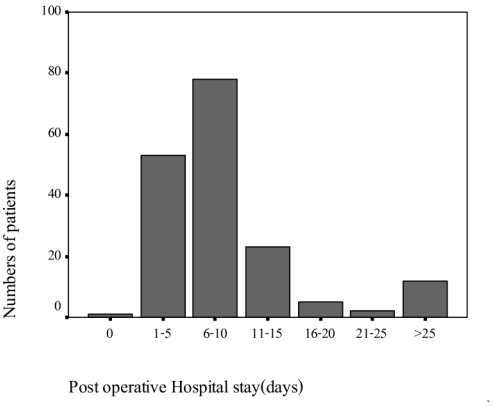

Figure 3 Postoperative hospital stay

Postoperative low cardiac output syndrome was 13 (7.5%) patients. Twelve patients had stroke. Arrythmia requiring treatment occured 10 (5.7%) patients. Postoperative pneumonia was observed in 20 (11.5%) patients, also renal failure was 6 (3.4%) patients. Other complications are shown in Table 4.

Table 4 Postoperative complications

Complications	N	%
Pneumonia	20	11.5
Low cardiac output	13	7.5
Stroke	12	6.9
Arrythmia	10	5.7
Renal failure	6	3.4
Behavioral change	1	0.6
Retained drain	1	0.6
Arterial occlusion	1	0.6

Hospital mortality rate was 7 (4%) patients. Two patients were dead from valvedysfunction, one case with ruptured LV, one case with cardiac tamponade, another three patients with hemothorax, pneumonia, and intracerebral hemorrhage, respectively. All of these patients were rheumatic heart disease.

The mean time of the first follow up was 14.73±9.96 days. The first follow up INR (International ratio) was 2.89±1.86. Most of the survivors were in NYHA class I 134 (77%) and the remainders were in NYHA class II 29 (16.7%), the mean NYHA was 1.22 ± 0.5. No patients needed reoperaion.

Table 5 Hospital mortality

Cause of death	N	%
Valve dysfunction	2	1.15
Ruptured LV	1	0.57
Cardiac tamponade	1	0.57
Hemothorax	1	0.57
Pneumonia	1	0.57
Intracerebral hemorrhage	1	0.57

Discussion

Mitral valve replacement is one of the treatment for mitarl valve disease to improve functional capacity of the heart. The other studies showed declined in incidence of rheumatic heart disease and increased in degenerative vale disease[1]. The mean age of our study was lower than other study (46.18 years and 50 to 70 years)[4]. Rheumatic heart disease was the major cause of our study (153, 87.9%), influenced the mean age and NYHA class lower than other studies. Four patients with prosthetic valve complication caused by valve clot. Reoperations of our study were the same as other studies (4.6% with 3.75% -8.53%)[6].

Operative mortality after mitral valve replacement has decreased over the last 20 years. The 4.2% early mortality rate observed in our study is similar to the mortality rate reported in other studies[5]. The cause of hospital mortality were ruptured LV, valve dysfunction, cardiac tamponade, pneumonia, intracerebral hemorrhage, hemothorax. The incidence of stroke was comparable with other reports (6.9% with 2-8.8%)[7,8].

All the surviviors could visit the first follow up with mean NYHA class 1.22±0.5, showed good functional capacity after mitral valve replacement.

Conclusion

Our experience in surgical outcome after mitral vlave replacement revealed satisfactory data as those report from other studies.

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