Cardiac Surgery in Patients with Systemic Lupus Erythematosus: A Medical Center's Experience in Taiwan

全身性紅斑性狼瘡病患接受心臟手術分析

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Original Article

Cardiac surgery in patients with systemic lupus erythematosus: a medical center's experience in Taiwan

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Objective: To analyze the clinical outcomes of systemic lupus erythematosus (SLE) patients who underwent cardiac surgery and to investigate the appropriateness of cardiac valve surgery in SLE patients with lupus nephropathy-related chronic kidney disease (CKD) and valvular heart disease (VHD). **Methods:** It was a retrospective review to evaluate SLE patients who underwent cardiac surgery because of VHD or coronary artery disease (CAD) between January 2000 and January 2010. Clinical outcome measurements included in-hospital mortality rate and postoperative complications such as vascular events and infections. The outcomes of SLE patients with VHD who did not undergo cardiac valve surgery were analyzed simultaneously. **Results:** Seven patients who underwent cardiac surgery were identified: five women and two men. The median duration of SLE from diagnosis to the surgery was 7.3 years (range 1-20 years). The median age was 58 years (range 28-72 years). Five patients received cardiac valve surgery; all five demonstrated stage III, IV, or V CKD and New York Heart Association class III or IV heart failure. Three patients underwent coronary artery bypass grafting (CABG) for double-vessel CAD, one of whom received concurrent mitral annuloplasty. Twenty-six patients presenting with VHD who did not undergo cardiac valve surgery were also evaluated as control cases. Two of the seven SLE patients who underwent cardiac surgery died, giving a mortality rate of 28.6%. Two of the five SLE patients who underwent cardiac valve surgery died while hospitalized, giving a mortality rate of 40%. One of the three patients who underwent CABG who also received cardiac valve surgery at the same time died. Two of the SLE patients with VHD who did not have surgery died (p=0.02 compared with SLE patients with VHD who received an operation). Both the one-year and five-year survival rates were 92.3% among SLE patients with VHD without surgery and 60% in those who underwent cardiac valve surgery. **Conclusions:** Cardiac surgery is performed rarely in SLE patients. The poor outcomes of cardiac surgery probably reflect the older age, poor heart function, severe renal insufficiency, and more frequent hemolytic anemia. SLE patients often demonstrate lupus nephropathy-related CKD concomitantly with VHD with symptomatic heart failure, both of which share similar clinical manifestations, including fluid overloading and limited daily performance status. Before cardiac surgery, we should optimize medical treatment and cardiac rehabilitation for SLE patients with VHD and symptomatic heart failure.

Key words: Cardiac surgery, valvular heart disease, systemic lupus erythematosus

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Introduction

Systemic lupus erythematosus (SLE) usually causes dysfunction of multiple organs including the kidney and heart. The cardiac manifestations of SLE can involve every component of the heart, including the pericardium, myocardium, valves, coronary arteries, and conduction

systems [1]. Cardiovascular disease is the major cause of mortality in SLE patients without lupus nephritis [2]. Fatigue, exertional dyspnea, and general anasarca can develop in lupus nephropathy-related advanced chronic kidney disease (CKD) or cardiac valvular abnormalities such as mitral regurgitation (MR) with severe heart failure.

Valvular heart disease (VHD) and coronary artery disease (CAD) originating from Libman–Sacks endocarditis [3], infective endocarditis (IE) [4], atherosclerosis [5,6], antiphospholipid antibodies (aPL) [7,8], lupus-related arteritis [9], or steroid therapy [5,9,10] develop in many SLE patients. The prevalence of VHD was 46% and the involvement of both the mitral valve (MV) and aortic valve (AV) was 34%. Vegetation and valve thickening comprised the most common valvular abnormalities, whereas regurgitation developed in 26% of SLE patients [11]. MR with fluid overloading is responsible for most of the hemodynamic instability in SLE patients with heart failure. CAD occurs in 7.4% to 8.3% of SLE patients [12,13]. Young women with SLE have nearly 50 times the risk of developing CAD and 2.3 times the likelihood of being admitted to hospital because of acute myocardial infarction (AMI) compared with those without SLE [13,14].

Renal insufficiency, endocarditis, and pericarditis have been shown to confer greater risk during surgery. Analysis of cardiac surgery performed in a small series of SLE patients showed acceptable therapeutic outcomes for those undergoing coronary artery bypass grafting (CABG) and mitral valve replacement (MVR) with a mechanical prosthetic valve [15-19]. However, valve replacement may provoke early and late morbidity and mortality in SLE patients demonstrating antiphospholipid syndrome (APS) [20].

We reviewed the outcomes of seven SLE patients who underwent cardiac surgery, including MVR or MV repair and CABG in a medical center in Taiwan. We also compared the clinical outcomes between SLE patients who received an operation and those who did not but who exhibited both symptomatic VHD and lupus nephritis-related CKD.

Materials and methods

Participants

Between January 2000 and January 2010, seven patients (two men and five women) with a median age of 58 years (range 28-72 years) and a diagnosis of SLE were treated with cardiac surgery because of VHD or CAD in the rheumatology division of Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan. All patients were Taiwanese and met the American College of Rheumatology criteria for SLE [21]. The outcomes of 26 SLE patients manifesting VHD but who did not undergo surgery were analyzed simultaneously.

We collected case notes and laboratory records including blood cell count and biochemical measurements such as daily urinary protein excretion, level of serum complement C3 and C4, variation in autoantibodies such as antinuclear antibodies, anti-double-stranded DNA, anti-extractable nuclear antigens, aPL including immunoglobulin G (IgG) and IgM isotypes of anticardiolipin (aCL), and lupus anticoagulant (LA).

Imaging examinations included chest X-ray films, computed tomography or magnetic resonance imaging of the heart before and after cardiac surgery. All patients underwent initial and follow-up echocardiography with a color Doppler imaging system. Multiple two-dimensional echocardiographic views were obtained from the parasternal, apical, and subcostal positions to evaluate valve abnormalities. The valve leaflets were measured with M-mode echocardiography from the longitudinal view, basal short-axis view, and four-chamber view. A thickness of more than 3 mm (for the mitral and tricuspid valves) or 2 mm (for the AV) was considered as abnormal valvular thickening. Valvular vegetation was defined as an abnormal localized echodensity with well-defined borders. Pericardial effusion was determined as described previously [22]. MR, aortic regurgitation (AR) or tricuspid regurgitation (TR) were graded and classified according to the color Doppler jet-area method and recommendations [23,24].

Cardiac surgery

All the cardiac valve surgical procedures were performed as recommended [26], including MV repair or MVR with mechanical valves or bioprosthetic valves, and surgery was performed through a median sternotomy. One patient who developed acute MR because of de novo IE underwent urgent MV repair. Cardiopulmonary bypass was instituted with an ascending aortic and separate vena cava cannulation. One patient exhibiting severe MR and AMI simultaneously underwent mitral valve annuloplasty, urgent on-pump beating-heart CABG, and extracorporeal membrane oxygenation (ECMO). Another two patients with CAD received elective off-pump CABG. CABG was performed without aortic cross-clamping and cardioplegic cardiac

arrest. Postoperative management in the intensive care unit was the same as for other patients receiving cardiac surgery. All patients were treated intravenously with 40 mg methylprednisolone both preoperatively and postoperatively.

Outcome measurement

The therapeutic outcomes were evaluated retrospectively from laboratory examinations, imaging features, and SLE disease activity index (SLEDAI) scores before and after cardiac surgery. We recorded surgical complications such as infectious disease (postoperative pneumonia, urinary tract infection, surgical wound infection, and septicemia), new onset of deteriorated renal function (acute renal failure or new dialysis), de novo arrhythmia or cardiovascular events (CVEs) (deep venous thrombosis, arterial thromboembolism such as CAD, pulmonary vascular embolism or stroke), and the time of additional heart surgery within one year.

Statistical analyses

All statistical analyses were performed using SPSS version 14 (SPSS, Chicago, IL, USA). Differences between the groups were analyzed using Wilcoxon tests for paired data. A p value of less than 0.05 was considered significant.

Results

Clinical features

Seven SLE patients who underwent cardiac surgery were identified. The median duration of SLE disease from diagnosis to surgery was 7.3 years (range 1-20 years). Two patients manifested type 2 diabetes mellitus and all patients had hypertension. Only one patient was an ex-smoker. One patient developed hypertriglyceridemia and two patients had high serum low-density lipoprotein concentration. Six (92.3%) of all operated SLE patients, four (80%) operated SLE patients with VHD, and 16 (61.5%) nonoperated SLE patients with VHD had undergone pulse methylprednisolone therapy for active lupus status (p value nonsignificant). The patients' demographics and medications are listed in Tables 1 and 2, and the features of echocardiography are summarized in Table 3. All SLE patients were taking one or more immunosuppressive agent, including prednisolone, hydroxychloroquine, disease-modifying antirheumatic drugs, and cytotoxic agents such as azathioprine or cyclophosphamide.

Surgical procedures

Table 4 lists the cardiac surgical procedures and clinical outcomes. Five patients received cardiac valve surgery: one patient underwent MVR only with a bioprosthetic valve because of MR and mitral stenosis; one patient received AV replacement because of AR; one patient underwent MV repair with mitral annuloplasty because of de novo IE and acute MR; one patient received MV repair, CABG, and supplemental ECMO because of severe MR and AMI with cardiogenic shock; and one patient underwent MVR with a mechanical valve and tricuspid valve repair for MR and TR. Another two patients underwent CABG only for double-vessel CAD. All patients who received valvular surgery matched the updated American College of Cardiology/American Heart Association (ACC/AHA) guidelines for the management of patients with VHD [25]. All three patients who underwent CABG had saphenous vein grafts, and two had an additional left internal mammary

Table 1. Summary of seven cases with SLE

No.	Age (years)	Clinical diagnosis	Duration of SLE	Smoking	BMI	HCVD	DM	Lupus nephritis	AIHA	Arterial occlusion disease
1	72	MR, TR	1	N	23	Y	N	N	N	UA
2	71	Infective endocarditis	12	N	27	Y	Y	N	N	CAD, stroke (NPSLE)
3	71	MR, AMI	3	N	28	Y	N	Y	N	CAD
4	66	MR, MS	5	N	19	Y	Y	Y	N	CAD
5	28	AR	8	N	28	Y	N	Y	Y	UA
6[a]	58	AMI	2	Y	29	Y	N	Y	N	CAD
7[a]	40	CAD	20	N	22	Y	N	Y	N	CAD

Abbreviations: SLE = systemic lupus erythematosus; BMI = body mass index; HCVD = hypertensive cardiovascular disease; DM = diabetes Mellitus; MR = mitral regurgitation; TR = tricuspid regurgitation; CAD = coronary artery disease; AMI = acute myocardial infarction; MS = mitral stenosis; AR = aortic regurgitation; NPSLE = neuropsychiatric SLE; Y = yes; UA = unavailable, AIHA = autoimmune hemolytic anemia

[a]SLE patients undergoing coronary artery bypass graft

Table 2. Clinical and laboratory manifestations

No.	Clinical and laboratory features						Medications			
	APS	APA	TG	LDL	SLEDAI on surgery	SLEDAI post- surgery	HCQ (mg /day)	AZA (mg/ day)	Steroid (mg/ day)	CY
1	N	N	h	n	4	4	400	100	N	N
2	Y	LA	n	h	10	UA	N	N	N	N
3	Y	LA	n	h	6	UA	200	N	7.5	N
4	Y	LA	n	n	8	6	N	50	2.5	Y
5	Y	LA, IgG aCL	n	n	3	3	200	N	10	Y
6	N	N	n	n	2	2	200	50	N	N
7	N	LA	n	n	4	4	N	100	N	N

Abbreviations: APA = antiphospholipid antibodies; APS = anti-phospholipid syndrome; LA = lupus anticoagulant; IgG aCL = immunoglobulin G isotype of anticardiolipin antibody; AIHA = autoimmune hemolytic anemia; TG = triglyceride; LDL = low density lipoprotein; HCQ = hydroxychloroquine; AZA = azathioprine; CY = cyclophosphamide; Y = yes; N = none; h = high; n = normal; UA = unavailable

artery graft to the left anterior descending artery. The characteristics of patients exhibiting VHD who did not have cardiac surgery are listed in Table 5. The prevalence of symptomatic MR and TR was 76.9% for both procedures, and seven patients (30.4%) exhibited AR. None received valvular surgery for symptomatic TR.

Clinical outcomes

The postsurgical overall in-hospital mortality within one year was 28.6% among the SLE patients who underwent cardiac surgery. The mortality was 40% in SLE patients who received cardiac valve surgery and 7.7% in SLE patients with VHD without surgery (p=0.02). Among the SLE patients who underwent surgery, one patient who received urgent CABG and mitral annuloplasty died from AMI with cardiogenic shock three days after surgery, and another who received mitral annuloplasty for IE died of pneumonia with septicemia two months after surgery. Two SLE patients with VHD without surgery died of nosocomial septicemia. Both the one-year and five-year survival rates were 92.3% for SLE patients with VHD without surgery and 60% in SLE patients receiving cardiac valve surgery.

Two patients (28.6%) developed hospital-acquired septicemia after cardiac surgery; one was caused by Staphylococcus aureus and the other by Escherichia coli. A 72-year-old woman without aPL and APS who was diagnosed with MR and TR manifested atrial fibrillation, pulmonary arterial embolism, and acute cerebral infarction eight months after the cardiac valve surgery and received a pacemaker. Another 66-year-old woman exhibited TR with severe heart failure, serum

Table 3. Echocardiographic manifestations

No.	NYHA class HF	LVEF (%)	PAP	Thickness	Stenosis	LVH	Dilated LA	Pericardial effusion	Valvular disease	Carotid artery stenosis
1	4	40	59	N	N	Y	Y (45)	N	MR(+++), AR(+), TR(++), PR(+)	N (mild atherosclerosis)
2	4	60	35	N	N	N	Y (43)	N	MR(+++), TR(++), PR(+)	N
3	4	20	42	N	N	Y	Y (46)	N	MR(+++), TR(+++), PR(+++)	N (moderate atherosclerosis)
4	3	69	99	Y	Y	N	Y (59)	N	MR(++), AR(+), TR(+++)	N
5	4	30	40	N	N	Y	Y (43)	Y	MR(+), AR(+++), TR(++) PR(+)	N
6	1	40	36	N	N	N	Y (43)	N	TR(+), PR(+)	N
7	4	15	16	N	N	N	N (35)	N	N	N

Abbreviations: PAP = pulmonary artery pressure; LVEF = left ventricle ejection fraction; LVH = left ventricle hypertrophy; LVEDD = left ventricle end diastolic diameter; LA = left atrium; MR = mitral regurgitation; AR = aortic regurgitation; TR = tricuspid regurgitation; PR = pulmonary regurgitation; N = none

Table 4. Cardiovascular surgical reports and clinical outcome

No.	Procedure	Postoperative complications	Cardiac management follow-up	6 months survival	1 year survival	5 years survival
1	MVR, Tricuspid valve repair	Acute stroke, pulmonary embolism, Af	Pacemaker (8 months)	A	A	A
2	Mitral annuloplasty	ARF, infection related mortality	Tracheostomy (1 months)	M	M	M
3	Mitral annuloplasty, CABG, ECMO	Mortality	—	M	M	M
4	MVR	Infection, pulmonary embolism	TR related HF and Af,Stroke (2 years), CAD and CABG (8 years)	A	A	A
5	AVR	—	—	A	A	A
6	CABG (double vessels)	N	N	A	UA	UA
7	CABG (double vessels)	N	N	A	UA	UA

Abbreviations: MVR = mitral valve replacement; CABG = coronary artery bypass graft; AVR = aortic valve replacement; Af = atrial fibrillation; ARF = acute renal failure; TR = tricuspid regurgitation; HF = heart failure; A = alive; M = mortality; U = undetectable; N = none; UA = unavailable

Table 5. Characteristics in SLE patients with valvular heart disease

	SLE with VHD without operation (n = 26)	SLE with VHD and operation (controls) (n = 5)
Sex (Female)	23 (88.5)	4 (80)
Age (Mean ± SD (years))	46.3 ± 21.3	61.6 ± 17.1
Duration of SLE (years)	6.1	5.8
Post-surgery mortality	2 (7.7)	2 (40)[a] (p=0.02)
6 months survival rate	24 (92.3)	3 (60)
1 year survival rate	24 (92.3)	3 (60)
5 year survival rate	24 (92.3)	3 (60)
Diabetes	2 (7.7)	2 (40)
Hypertension	20 (76.9)	5 (100)
Hyper TG (%)	9 (34.6)	0
High LDL (%)	9 (34.6)	2 (40)
Smoking	2 (7.7)	0 (0)
Lupus nephritis	13 (50)	3 (60)
CKD stage III, IV, and V (%)	46	100[a] (p=0.03)
CCr	58	30[b] (p=0.004)
AIHA	9 (34.6)	1 (20)
NYHF Classification		
I and II	24 (92.3)	0[b] (p<0.001)
III and IV	2 (7.7)	5 (100)[b] (p<0.001)
LVEF (%)	64.4	43.8 (0.086)
PH (moderate and severe)	9 (34.6)	2 (40)
MR	16 (61.5)	5 (100)
AR	7 (30.4)	3 (60)
TR	20 (76.9)	5 (100)
APA (%)	17 (65.4)	4 (80)
APS (%)	7 (30.4)	2 (40)
Pulse methylprednisolone	16 (61.5)	4 (80)

Abbreviations: SLE = systemic lupus erythematosus; VHD = valvular heart disease; CKD = chronic kidney disease; CCr = Creatinine Clearance Rate; AIHA = autoimmune hemolytic anemia; NYHF = NYHA = New York Heart Association; LVEF = left ventricle ejection fraction; PH = pulmonary hypertension; MR = mitral regurgitation; AR = aortic regurgitation; TR = tricuspid regurgitation; APA = anti-phospholipid antibodies; APS = anti-phospholipid syndrome; AZA = azathioprine; HCQ = hydroxychloroquine

[a]p value <0.05 vs. control

[b]p value <0.01 vs. control

LA, pulmonary arterial embolism, and acute cerebral infarction two years after cardiac valve surgery. Her lupus nephritis deteriorated three years after the cardiac surgery and hemodialysis was begun. She underwent percutaneous transluminal coronary angioplasty with stenting because of triple-vessel CAD eight years after the surgery. No cardiac reoperation or coronary angioplasty was performed within one year after the initial cardiac surgery. Her SLEDAI scores were 5.3 before and 3.8 after the cardiac surgery, but this change was not significant.

Among the SLE patients manifesting VHD (Table 5), all patients who received valvular surgery displayed New York Heart Association class III or IV heart failure, as did 7.7% of the patients who did not have surgery ($p<0.001$). The mean left ventricle ejection fraction was 43.8% among the operated patients and 64.4% among the nonoperated patients ($p=0.086$). Two (40%) operated patients and nine (34.6%) nonoperated patients had at least moderate pulmonary hypertension (defined as >45 mmHg) according to echocardiography (p value nonsignificant). Four operated (80%) SLE patients with VHD and 61.5% of nonoperated patients showed MR (p value nonsignificant). Sixty percent of the operated group and 50% of the nonoperated group demonstrated lupus nephritis (p value nonsignificant). All operated patients and 46% of nonoperated patients had stage III or IV CKD caused by lupus nephritis ($p=0.048$). Three of five (60%) operated patients had aPL including aCL (IgG or IgM) or LA, and one patient (20%) manifested definite APS [26]. Seventeen of 26 (65.5%) patients who did not undergo surgery exhibited aPL and seven patients (30.4%) demonstrated APS.

Discussion

The prevalence of cardiac manifestations in SLE can be as high as 50% [27]. Pericarditis is the most common cardiac abnormality, but valvular abnormalities and CAD may occur. Valvular defects characteristic of SLE were documented in up to 60% of patients, 22% of whom required surgical intervention because of morbidities such as vascular events, IE, or symptomatic heart failure [4]. According to published reviews, valve thickening and vegetation comprise most of the valvular abnormalities in SLE patients, but regurgitation was the most common valvular manifestation in our patients. Patients with a low degree of valvular thickening and vegetation rarely developed clinical symptoms and did not require regular diagnostic echocardiography.

Other studies claimed that 10% of SLE patients show relevant valvular regurgitation with severe heart failure, with or without left ventricular dysfunction, and need surgery [4,28]. Most of the valvular dysfunction exists at the MV and AV [11]. In SLE patients, IgG aCL is associated with severe valvular regurgitation, a high incidence of thromboembolic events, and the need for cardiac valve surgery. The presence of aPL with or without APS might activate and interact with endothelial cells and cause platelet aggregation, infiltration of inflammatory cells, and thrombus formation [7]. The prevalence of valvulopathy among SLE patients increases with time, suggesting a relationship between SLE and VHD [8]. Echocardiography is a sensitive and specific technique for detecting valvular abnormalities and myocardial dysfunction, and can be performed regularly in SLE patients [8,29].

Reports of cardiac valve surgery in SLE patients are sparse. The common cardiac valve surgeries include valve repair and replacement with a mechanical valve or bioprosthetic porcine graft. Valve repair does not need anticoagulation but may lead to the need for repeated surgery and later valve replacement. Patients with symptomatic chronic MR can manifest fluid overloading and symptomatic heart failure, and may ultimately need surgery. Our group of five patients who underwent valvular surgery is the same size as that reported in the largest previous series [8,15]. MVR with a mechanical prosthesis has been applied more frequently and has been reported to be effective [15]. Nevertheless, the presence of aPL increases the risk of thromboembolic events after cardiac valve surgery [30,31]. One of our patients without aPL who received MVR with a bioprosthetic valve experienced acute cerebral infarction and pulmonary embolism eight months after the surgery. Another patient who underwent MVR with a mechanical valve showed aPL before the operation and developed a CVE two years after surgery. Combination treatment with antithrombotic and antiplatelet agents is indicated in these types of patients [25].

The literature reveals an average mortality of 5.2% and 1.2% in the general population receiving MVR and MV repair, respectively. Our study showed an in-hospital mortality rate of 40% in SLE patients who underwent these operations, which was significantly higher than in SLE patients who did not undergo surgery ($p=0.02$), although the one-year and five-year survival rates did not differ significantly between the two groups. However, the operated group exhibited more severe heart failure ($p<0.001$) and more advanced CKD ($p=0.048$) compared with the nonoperated group. The two patients who died

also underwent urgent surgery, which would lead to high surgical risks. Both VHD, especially MR, with heart failure and advanced CKD can cause fluid overloading, which is of concern to clinicians when advising patients whether to undergo cardiac valve surgery or to receive conservative treatment in addition to that for managing renal failure. Renal insufficiency may also lead to more surgical complications, which could explain the high in-hospital mortality rate in the operated SLE patients with VHD. In addition, a recent study showed that MV repair has lower mortality and costs than urgent surgery within the general population [32]; this was also true in our study. Two SLE patients who underwent urgent MV repair died from pneumonia or concurrent AMI with cardiogenic shock. Clinicians should evaluate carefully before deciding to operate for critical MR, especially in patients with advanced CKD.

Recent reports suggested a CVE prevalence of 6.2% to 13% in SLE patients [33,34]. Vasculitis related to CAD occurs more frequently in young SLE patients with active disease, whereas atherosclerosis is more common among older SLE patients with a longer history of lupus and steroid treatment [35,36]. High-dose steroid therapy is recommended for vasculitis-induced CAD, and anticoagulation and/or antiplatelet agents are suggested for patients showing aPL [37]. Several analyses of CABG in SLE patients have been published [16,17]. CABG in SLE patients is a surgical challenge because of multiple-organ dysfunction and the tendency to develop more surgical complications, although previous reports suggested that the morbidity and mortality rates are acceptable. Published reviews suggested that the in-hospital mortality rate is 12.5% and early graft patency rate is 87.5% [17]. Our study showed an in-hospital mortality rate of 33%. One patient who underwent urgent CABG and mitral annuloplasty died because of AMI with cardiogenic shock. None needed reoperation or coronary angioplasty within one or five years after the CABG, outcomes that are better than those of previous reports. Neither flares of lupus nor increased SLEDAI scores developed after cardiac valve surgery. Careful monitoring of lupus activity and adjustment of immunosuppressive therapy are indicated to avoid opportunistic infections or surgical complications and to promote desirable outcomes.

Our study has some limitations. It would have been better to compare the outcomes of cardiac surgery in lupus patients with age- and sex-matched people without SLE or patients exhibiting other medical diseases such as diabetic nephropathy to determine whether the rates of mortality and postoperative complications are higher in lupus patients. Cardiac surgery is used rarely in SLE patients, and a long-term, prospective study is needed to monitor lupus patients undergoing cardiac surgery including valve surgery or CABG.

In conclusion, patients with SLE often manifest multiple-organ dysfunction such as lupus nephropathy-related advanced-stage CKD and symptomatic VHD, and exhibit impaired daily performance status, which make it more difficult for clinicians to make precise treatment decisions. Cardiac valve surgery may cause a higher in-hospital mortality rate among SLE patients with VHD compared with the general population without SLE. The poor outcomes of cardiac surgery probably reflect the older age, poor heart function, severe renal insufficiency, and more frequent hemolytic anemia. Optimization of conservative treatments, such as lowering cardiac afterload, use of antiplatelet and antithrombotic agents, lifestyle modifications, cardiac rehabilitation, preventing fluid overloading, and avoiding deterioration of nephropathy should be considered for SLE patients with VHD before the operation.

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全身性紅斑性狼瘡病患接受心臟手術分析

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目的：分析全身性紅斑性狼瘡病患接受心臟手術之預後。**方法：**回溯分析自2000年1月至2010年1月某醫學中心全身性紅斑性狼瘡病患因瓣膜性心臟病或冠狀動脈疾病接受心臟手術者之住院內死亡率及術後併發症。**結果：**7位全身性紅斑性狼瘡病患接受心臟手術，包括5位女性及2位男性。5位病患接受心臟瓣膜手術，3位病患接受冠狀動脈繞道手術。2位全身性紅斑性狼瘡病患接受心臟手術者死亡，住院內死亡率為28.6%，2位死亡患者皆接受心臟瓣膜手術，故全身性紅斑性狼瘡病患接受心臟瓣膜手術者住院內死亡率為40%，術後1年存活率及5年存活率皆為60%。同時分析另外26位全身性紅斑性狼瘡病患合併瓣膜性心臟病卻未接受手術者作為對照組。全身性紅斑性狼瘡病患合併瓣膜性心臟病卻未接受手術者計有2位死亡，死亡率為7.7%（p=0.02），1年存活率及5年存活率皆為92.3%。**結論：**全身性紅斑性狼瘡病患接受心臟手術者為少數。全身性紅斑性狼瘡病患可因年紀、腎功能不佳、心臟衰竭、及溶血性貧血等影響心臟手術預後。嚴重狼瘡腎炎引起之腎衰竭及狼瘡併發之瓣膜性心臟病併嚴重心臟衰竭皆會導致類似臨床症狀如全身水腫及端坐呼吸等，全身性紅斑性狼瘡病患手術前應先接受最佳的內科治療諸如減低心臟後負擔及心臟復健等。

關鍵詞：心臟手術、瓣膜性心臟病、全身性紅斑性狼瘡