

A Case Report on Concomitant Coronary Artery Bypass Operation and Renal Transplantation

Yucel Ozen,¹ Sabit Sarikaya,¹ O. Atlas,² D. Cekmecelioglu,¹ Kann Kirali,¹ Ömer Bayezid³

¹Kosuyolu Kartal Heart Training and Research Hospital, Istanbul, Turkey; ²Dr. Lutfi Kirdar Kartal Training and Research Hospital, Istanbul, Turkey; ³Medical Park Hospital, Antalya, Turkey

ABSTRACT

Renal transplantation is successfully implemented in patients undergoing coronary bypass surgery. We performed concomitant coronary bypass surgery and renal transplantation in a patient found to have a left main coronary artery lesion after coronary angiography, which was performed in our clinic during preoperative evaluation of renal transplantation. We suggest the application of coronary-artery bypass grafting (CABG) or stent implantation 2 months after renal transplantation in asymptomatic patients with coronary artery disease. But, if severe coronary artery disease is detected in symptomatic patients, we suggest the concurrent application CABG and renal transplantation.

INTRODUCTION

Renal failure is an important cause of morbidity and mortality for coronary artery bypass surgery [Burton 1971; Lindner 1974]. Renal transplantation prolongs survival and improves quality of life in patients with end-stage renal failure. To date, renal transplantation is successfully implemented in patients undergoing coronary bypass surgery [Bayezid 1994; Tezcaner 1996]. We performed concomitant coronary bypass surgery and renal transplantation in a patient found to have a left main coronary artery (LMCA) lesion after coronary angiography after coronary angiography, which was performed in our clinic during preoperative evaluation of renal transplantation.

CASE REPORT

A 62-year-old male patient, who was on dialysis for 6 years, was hospitalized for renal transplantation. Upon physical examination, this patient's blood pressure was 130/85 mmHg and pulse was 85 beats/min. His routine biochemical results, urea/creatinine and K⁺ levels, were 98/4.3 and 5.6, respectively. Due to chronic renal failure, there was no urine output. Other systems were found within normal limits. Coronary angiography was performed for angina pectoris prompted by physical exertion. Eventually, 90% in LMCA and 70% in the

body of right coronary artery stenosis was detected. On echocardiography, left ventricular ejection fraction (LVEF) was 60%; apical and anterior wall was found to be hypokinetic. As a result, it was decided the patient would undergo a simultaneous CABG and renal transplantation.

Full-arterial monitoring was provided under general anesthesia. Pump prime solution was prepared at 2500 cc. Median sternotomy was performed and the left internal mammary artery (LIMA) was prepared. The patient underwent standard aortic arterial and two-stage venous cannulation. Cardiopulmonary bypass was achieved at systemic hypothermia of 30 degrees, and cardiac arrest achieved with blood cardioplegia after aortic cross-clamping. Topical cooling was performed with ice serum. Triple coronary bypass grafting was performed with anastomosis as LIMA to the left anterior descending artery; saphenous vein graft to the right coronary artery and obtuse marginal artery separately. The patient's heart started to pump spontaneously with the removal of the cross clamp.

Proximal anastomoses also were performed with side clamp. Heparin neutralization with protamine was carried out. The aortic cross-clamp time was 36 minutes; total perfusion time was 65 minutes. During the operation, the mean arterial pressure was maintained at 70 mmHg. Hemofiltration was utilized during cardiopulmonary bypass (CPB) in the management of volume. The patient's sternum was closed with wires after controlling the bleeding, and subcutaneous tissue and skin closed, in accordance with procedures. Renal transplantation was performed from a living donor to a hemodynamically stable patient by a heterotopic renal transplantation team.

During the early postoperative period, the patient's amount of urine was 50-100 mL/hour. Intravenous 5 microgram/kg of dopamine and 30 mg/day of furosemide was administered. He was extubated in the postoperative seventh hour. Total drainage was 1200 cc. The patient was discharged 2 weeks after surgery. All routine biochemistry tests were normal in the first month.

DISCUSSION

Renal failure is an important cause of morbidity and mortality for coronary artery bypass surgery. Concurrent operations can be applied in patients with critical coronary artery disease who are waiting for renal transplantation. Heart disease constitutes a major problem in terms of mortality and morbidity in patients with renal failure whether transplantation

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Correspondence: Yucel Ozen, MD, Kosuyolu Kartal Heart Training and Research Hospital, Denizler Caddesi, Cevizli Kavşagi, No: 2, Istanbul, 34865, Kartal/Istanbul, Turkey (e-mail: yucelozen74@yahoo.com).

has been made or not [Beauchamp 1976]. The first renal transplant patient, in whom coronary bypass surgery was performed, was reported by Nakhjavani et al. Afterward, several groups reported similar studies that coronary artery bypass surgery can be performed safely in patients undergoing renal transplantation [Bayezid 1994; Tezcaner 1996; Shayan 2011].

There are some published studies reporting simultaneous operations can be done in critical symptomatic coronary artery stenosis patients with end-stage renal failure. Kashu et al reported a patient having off-pump CABG and renal transplantation at the same time [Kashu 2002]. In our case, we agreed to perform simultaneous surgery, due to the critical LMCA disease. Postoperative infections, fluid, and electrolyte imbalance due to renal graft dysfunction and bleeding are the problems that may occur in patients who undergo renal transplantation in conjunction with CABG. Postoperative standard treatment protocols were followed for this patient. Immunosuppressive therapy was started on postoperative day one. Intravenous antibiotics were given on the first 2 postoperative days, and oral therapy was administered for follow-up treatment. No infection was found until the discharge of the patient. Routine biochemistry and hemogram was found to be normal. The patient did not require dialysis.

In conclusion, renal transplantation and CABG surgery can be practiced together in many advanced centers. Almost 300 renal transplants are performed in our clinic each year. We find that CABG to stent procedures can be applied

2 months after renal transplantation in asymptomatic patients who detected coronary artery disease during their preoperative assessment. But if severe coronary artery disease is detected in symptomatic patients, we suggest to the concurrent application of CABG and renal transplantation.

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