



Surgical Injuries Occurring During Kidney Procurement Performed by a Renal Transplantation Team

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RENAL surgery injuries, which sometimes occur during organ procurement, may contribute to morbidity and renal function impairment as well as increased hospital stay and cost.¹ In France, renal procurements are customarily performed by urologists directly involved in renal transplantation, who also have to deal with transplant complications. Prevention is the best way to manage renal surgery injuries, but this requires identifying the manner in which they may occur. The purpose of the present study was to clarify the causes of renal injuries during organ harvests over the past 15 years at our institution.

PATIENTS AND METHODS

Between 1985 and 2000 we performed 627 renal procurements (191 female and 436 male donors) including 558 from heart-beating and 69 from non-heart-beating donors. We noted the surgical injuries to the kidneys and the causes cited by physicians for not using organs. Statistical analysis was performed according to initial injury assignments based on our database. The chi-square test was used as appropriate; differences were considered statistically significantly if $P < .05$.

RESULTS

A total of 1239 kidneys were harvested. Fifteen kidneys were not harvested. There were 106 kidneys not transplanted. The presence of surgical lesions was the reason for transplant refusal in four cases (1 renal decapsulation, 1 arterial injury, and 2 venous injuries, which could not be repaired properly). Twenty kidneys were refused for transplantation because they were macroscopically abnormal, namely a renal tumor or renal rupture, or because they displayed microscopic abnormalities, namely nephroangiosclerosis, glomerulosclerosis, or arteriolar injuries. Macroscopic surgical arterial injuries were observed in 2.3% (29 of 1254) of cases (26 polar artery transections and 3 hilar artery transections). Venous lesions were observed in 0.5% (7 of 1254) of cases. Surgical injuries were more frequently observed during single-organ procurements than during

multiorgan procurements: 8.2% vs 3.7%, respectively ($P < .05$). Similarly, injuries were more frequent during non-heart-beating donor procurement: 9.3% vs 4.6% ($P < .01$), or when the surgeon had less training (<30 organ vs >30 procurements): 12% vs 3%, respectively ($P < .01$).

DISCUSSION

Our data, similar to other reports, demonstrate that renal surgery injuries occurring during organ procurement were seldom responsible for failure to transplant the organ. Most of the time surgical injuries can be repaired before transplantation.² Arterial lesions were more frequently observed during single organ procurements in procedures performed by a less experienced surgeon (<30 organ procurements), and under the more hurried conditions of non-heart-beating donors. Even in kidney-only procurements a complete celiomesenteric aortic dissection is mandatory to avoid injury to superior polar arteries. Training and supervision of the surgeon performing the organ procurement is mandatory to increase the quality of the organ procurement and to decrease the number of irreversibly damaged organs.

REFERENCES

1. Wigmore SJ, Seeney FM, Pleass HCC, et al: Lancet 354:1143, 1999
2. Benoit G, Hammoudi Y, Moukarzel M, et al: Clin Transplant 3:190, 1989

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