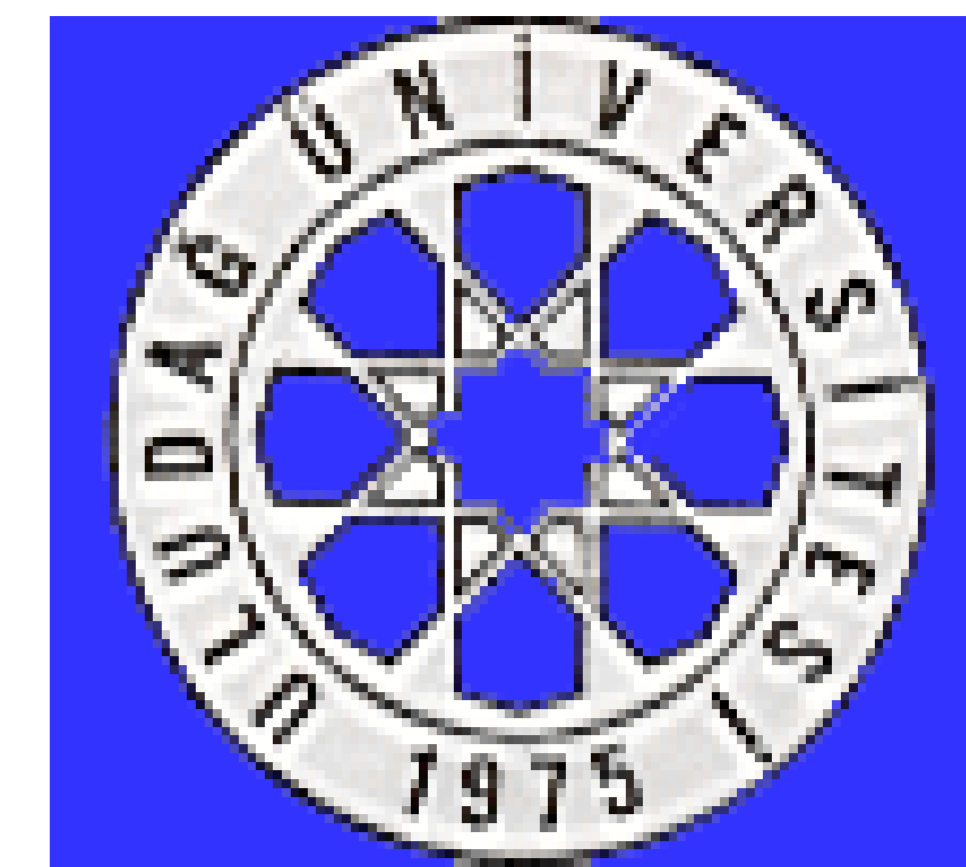


# THE EFFECT OF RENAL ARTERIAL ANASTOMOSIS TECHNIQUES ON THE DEVELOPMENT OF COMPLICATIONS AND GRAFT DYSFUNCTION IN RECIPIENTS AFTER KIDNEY TRANSPLANTATION

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## Introduction

The success of kidney transplantation has increased during the past 3 decades due to refinements in surgical instruments, new immunosuppressive regimens, improved kidney preservation and advances in antimicrobial therapy. However, some doubts persist about the best technique for arterial anastomosis. The end-to-side anastomosis to the external iliac artery is the preferred technique in a kidney from deceased donor, while the usual option is the end-to-end anastomosis to the internal iliac artery in a kidney from living donor at many centers. There are a few studies comparing the results of arterial anastomosis techniques after kidney transplantation from living and deceased donors. We aimed to compare the short-term outcomes of kidney transplants using three different techniques of arterial anastomosis to the internal, the external iliac artery or the common iliac artery.

## Materials and Methods

In this retrospective study, 336 consecutive patients who had undergone first kidney transplantation in 5-year period in our center. Patients were divided into three groups according to renal artery anastomosis type: Three arterial anastomosis techniques used in kidney transplantation: end-to-end anastomosis to the internal iliac artery (Group 1, n=89, 40 female), end-to-side anastomosis to the external iliac artery (Group 2, n=51, 15 female) and end-to-side anastomosis to the common iliac artery (Group 3, n=12, 5 female).

## Results

The demographical features of the groups were similar. Complications of all groups were given in table 1. In transplants from living donors, the mean hot ischemia time of Group 1 were longer than that of group 2 (125 vs. 105 s, p<0.05). The time of Group 2 was 120 sec. Serum creatinine levels at 1<sup>st</sup> day of Group 3 were lower than that of Group 1 (1.95 vs. 3.45 mg/dL, p=0.02). Three patients in Group 1 and 1 patient in Group 2 underwent graft nephrectomy due to vascular complications. In transplants from deceased donors, the mean operation time of Group 3 (300 min) were longer than those of group 1 (240 min) and Group 2 (255 min) (p=0.014). Eight patients in Group 1, 6 patients in Group 2 and 2 patients in Group 3 underwent graft nephrectomy due to complications. There was no significant difference in vascular and urological complication ratios between three groups after transplantation from living and deceased donors. Also we observed no significant difference in serum creatinine levels, creatinine normalization times, acute rejection episodes and graft survival rates between three groups (p>0.05).

**Table 1.** The complication distributions of living and deceased donor transplant in three groups

Variables, n(%)	Group 1		Group 2		Group 3	
	Living (n:89)	Deceased (n:102)	Living (n:51)	Deceased (n:57)	Living (n:12)	Deceased (n:25)
<b>Vascular complication</b>	4(4.4)	7(6.9)	1(1.9)	3(5.3)	-	-
Renal artery stenosis	2	4	-	1		
Renal artery thrombosis	-	1	1	-		
Renal ven thrombosis	2	2	-	2		
Vascular anastomosis sheath hemorrhage	-	-	-	-		
<b>Urological complication</b>	7(7.9)	11(10.7)	3(5.9)	5(8.7)	-	-
Ureterovesical stenosis	-	1	1	-		
Ureterovesical leak	4(5.7)	10	2	5		
Veicoureteral reflux	3(4.3)	-	-	-		
<b>Vascular anastomosis nonlinear hemorrhage</b>	7(7.9)	6(5.8)	4(7.8)	4(7.1)	-	2(8)
<b>Lymphocele</b>	14(15.7)	22(21.6)	10(19.6)	9(15.8)	4(33.3)	8(32)
<b>Surgery field infection</b>	4(4.4)	4(3.9)	2(3.8)	3(5.3)	1(8)	1(4)
<b>Hypotension</b>	6(6.7)	11(10.8)	3(5.9)	7(12.2)	-	3(12)
<b>Acute rejection</b>	5(5.6)	8(7)	-	9(15)	2(16)	2(8)
<b>Graft loss at 1<sup>st</sup> year</b>	5(5.7)	8(7.8)	2(3.9)	6(10.5)	1(8.3)	3(12)

## Conclusion

The results of this study suggest that all three anastomosis types can be successfully applied in experienced hands with similar complications and short-term outcomes in living or deceased kidney transplant patients. The choice of anastomosis type in kidney transplantation may depend on the presence of arteriosclerotic plaques in the iliac arteries, the presence of more than one renal artery, the position of the kidney and the choice of surgical team rather than anastomosis type.