

PERCUTANEOUS TRANSLUMINAR ANGIOPLASTY AND STENTING OF POST TRANSPLANT RENAL ARTERY STENOSIS: MONOCENTRIC EXPERIENCE



Authors: Carta P¹, Dattolo E², Buti E¹, Zanazzi M¹, Villari D², Di Maria L¹, Santoro G³, Li Marzi V², Minetti E¹, Nicita G²

Hospital: 1) Nephrology unit,; 2) Urology II, Careggi, 3) Interventistic radiology, all from Careggi University Hospital, Florence, Italy

OBJECTIVES

Renal artery stenosis after kidney transplantation has an incidence between 1,8 and 25% and is a cause of arterial hypertension and a reduced graft function. We retrospectively evaluated the occurrence of post transplant renal artery stenosis (TRAS) in 808 recipients of a cadaveric renal transplantation performed in our unit between 1991 and 2013 and the outcome after a percutaneous revascularization.

METHODS

TRAS was diagnosed when a Peak systolic Velocity (PSV) > 2.5 m/sec was found in the graft renal artery by Doppler ultrasound. Subsequently an angiography and eventually a percutaneous transluminal angioplasty (PTA) with stenting was performed. In all patients, the lesion was dilated with a 4.8-French angioplasty balloon via a femoral approach before placement of the stent. We compared renal function, blood hypertension, PSV and Resistive index (RI) at the time of the diagnosis of TRAS with the values collected at the last follow up visit.

Graphs and tables

Results

	Diagnosis	Last follow up visit	P value
PSVmax(m/sec)	3,36±0,80	1,59±0,59	<0.05
RI	0,61±0,09	0,71±0,08	<0.05
SYS (mmHg)	152±17	134,4±17,2	<0.05
DYA (mmHg)	88±11	79,8±9,8	<0.05
Serum creatinine (mg/dl)	1,98±1,27	1,56±0,59	0,087
eGFR ml/min	49±23	59,3±27,4	0,12

Follow-up time: 1997±1765 days

RI : Resistive index, SYS: systolic blood pressure, DY: diastolic blood pressure

RESULTS

We found 74 (8.9%) TRAS of whom 18 due to a kinking of the artery or a non hemodynamic stenosis (defined as PSV between 2.0 and 2.5 m/sec) that didn't require angiography. 56 patients underwent an angiography.

In 4 cases the stenosis was not confirmed, 51 were treated with PTA with stenting and one only with PTA without stenting. The median of the time between the diagnosis of TRAS and the renal transplantation was 70 days (range 2-3347 days). TRAS occurred near the anastomosis in 60% of the cases.

We observed 1 hemorrhagic complication during the procedure (1.9%) that required an urgent nephrectomy.

A restenosis was found in 8 cases (17%) treated again with a PTA in 4 patients, PTA and stenting in 2, and with medical therapy in 2.

With a mean follow up of 5±4 years we confirmed the reduction of PSV, blood pressure and serum creatinine and an increase of RI and GFR as show in table 1.

CONCLUSIONS

TRAS was found in 8.9% of our cohort of transplanted patients. The angiography is useful to confirm the diagnosis made by Doppler examination and eventually treat the lesion with a low rate of complications.

REFERENCES:

- 1)Renal transplant artery stenosis. Buturović-Ponikvar J.Nephrol Dial Transplant. 2003 Jul;18 Suppl 5:v74-7
- 2)Management of vascular and nonvascular complications after renal transplantation. Hedegard W, Saad WE, Davies MG.Tech Vasc Interv Radiol. 2009 Dec;12(4):240-62
- 3)Vascular complications following kidney transplant: the role of color-Doppler imaging. Granata A, Floccari F, Lentini P, et al Ital Nefrol. 2012 Nov-Dec;29 Suppl 57:S99-105
- 4)Transluminal angioplasty of transplanted renal artery stenosis: a review of the literature for its safety and efficacy.Leonardou P, Gioldasi S, Pappas P.J Transplant. 2011;2011:693820.
- 5)Interventional radiologic management of renal transplant dysfunction: indications, limitations, and technical considerations.Kobayashi K, Censullo ML, Rossman LL, et al Radiographics. 2007 Jul-Aug;27(4):1109-30.
- 6)Efficacy and safety of Palmaz stent implantation in the treatment of renal artery stenosis in renal transplantation.Salvadori M, Di Maria L, Rosati A, Larti A, et al E. Transplant Proc. 2005 Mar;37(2):1047-8.
- 7)Treatment of transplant renal artery stenosis by percutaneous transluminal angioplasty and/or stenting: study in 63 patients in a single institution. Marini M, Fernandez-Rivera C, Cao I, et al.Transplant Proc. 2011 Jul-Aug;43(6):2205-7

