THE IMPACT OF FUNCTIONING HEMODIALYSIS ARTERIOVENOUS ACCESSES ON RENAL GRAFT PERFUSION: Results of a pilot study

Ivo Laranjinha (1); Patrícia Matias (1;3); Zilla Cerqueira (1); Cristina Jorge (1); Rita Birne (1); Margarida Bruges (1); Teresa Adragão (1;3); Regina Oliveira (1); Ana Casqueiro (1); Maria Teresa Bento (2); Ana Paula Carvalho (2); Domingos Machado (1); André Weigert (1;4)

(1) - Centro Hospitalar de Lisboa Ocidental - Hospital de Santa Cruz, Kidney Transplant Unit - Nephrology Department, Lisbon, Portugal;
(2) - Centro Hospitalar de Lisboa Ocidental - Hospital de Santa Cruz, Department of Radiology, Lisbon, Portugal;
(3) - Nova Medical School, Faculdade de Ciências Médicas, Lisbon, Portugal;
(4) - University of Lisbon, Faculdade de Medicina, Lisbon, Portugal.

INTRODUCTION and AIM

- The cardiac and hemodynamic changes associated to the construction of an arteriovenous (AV) access in hemodialysis (HD) patients have already been documented.
- However, it is unknown if after a successful kidney transplantation (KT) the maintenance of a functioning AV access has deleterious effects on renal graft.
- We hypothesized that maintaining an AV access can also deviate a significant proportion of the cardiac output from the renal graft.
- **AIM:** The aim of this study was to investigate if a temporary closure of the AV access could lead to an increase in graft perfusion.

POPULATION and METHODS

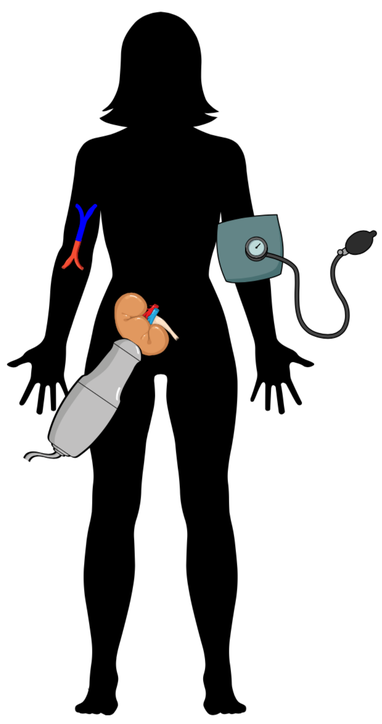
- We conducted a study in 17 kidney-transplanted patients with a functioning AV access.
- We evaluated, at baseline and 15 seconds after manual compression of the AV access (access flow occlusion), the hemodynamic parameters (HR, heart rate and BP, blood pressure) and the intrarenal resistive index (RI) of the graft.
- RI is a Doppler measure that is inversely associated with renal graft perfusion.
- Access blood flow (Qa) was also measured by Doppler ultrasound.

Table I: Baseline characteristics of the studied population.

Age, years	**52.2 ± 15.6**
Gender, male	**9 (53%)**
KT vintage, months	**14 (10-37)**
Diabetes	**2 (11.8%)**
Deceased donor	**16 (94%)**
GFR, mL/min	**51 (47-57)**
Access blood flow, L/min	**2.3 (1.3-2.5)**

* Values are: mean ± SD, median(interquartile range) or frequencies[n(%)]

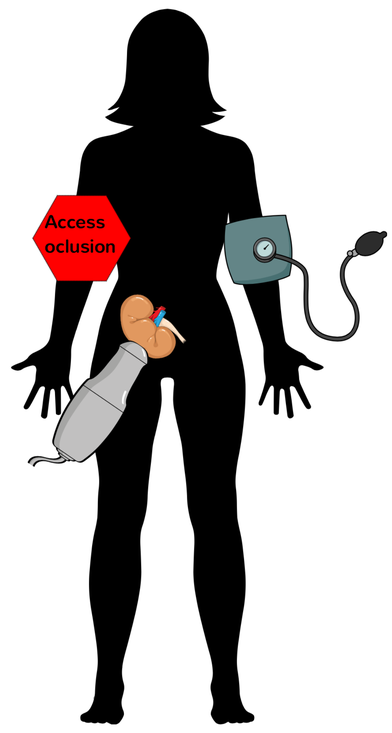
RESULTS



	FUNCTIONING AV ACCESS	ACCESS FLOW OCCLUSION (15 seconds)	
Heart rate (bpm)	**67**	**58**	**p<0.001**
Mean BP (mmHg)	**98.3**	**101.7**	**p=0.044**
Intrarenal resistive index	**0.68 (0.63-0.74)**	**0.64 (0.62-0.67)**	**p=0.030** Wilcoxon signed-rank test

Variation in the RI (ΔRI) — **Negative correlation (r^2=-0.55, p=0.022)** — **Access blood flow**

RI before oclusion — **Independent predictors of the ΔRI** (multivariable analysis) — **Access blood flow**



CONCLUSIONS

- Our results showed that the temporary occlusion of the AV access caused a significant decline in renal graft RI, suggesting that the maintenance of these AV accesses can decrease graft perfusion.
- The reduction of the RI was more considerable in patients with accesses with higher blood flow.
- These results and its consequences in the kidney graft survival should be studied in prospective randomized studies.

REFERENCES

1. Weekers L, Vanderweckene P, Pottel H, et al. Effect of spontaneous closure of arteriovenous fistula access on cardiac structure and function in renal transplant patients. Nephrol Dial Transplant. 2015;42(10):432–7.
2. Locatelli F, Zoccali C. Arteriovenous fistula as a nephroprotective intervention in advanced CKD: scientific discovery and explanation, and the evaluation of interventions. Nephrol Dial Transplant. 2015;30(12):1939–41.
3. Vajdic B, Arnol M, Ponikvar R, Kandus A, Buturovic-Ponikvar J. Functional status of hemodialysis arteriovenous fistula in kidney transplant recipients as a predictor of allograft function and survival. Transplant Proc. 2010;42(10):4006–9.
4. Weekers L, Vanderweckene P, Pottel H, et al. Original Article The closure of arteriovenous fi stula in kidney transplant recipients is associated with an acceleration of kidney function decline. 2016;1–5.

CONTACT OF THE FIRST AUTHOR:
ivolaranjinha@gmail.com

54 ERA
814--MP
Renal transplantation - Epidemiology & outcome II
Ivo Laranjinha
DOI: 10.3252/pso.eu.54ERA.2017
ePosters supported by F. Hoffmann- La Roche Ltd.