

CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE
CONTROVERSIES & UPDATES
IN VASCULAR SURGERY



JANUARY 23-25 2014

MARRIOTT RIVE GAUCHE & CONFERENCE CENTER PARIS, FRANCE

Renal artery stenting: are there any indications left?

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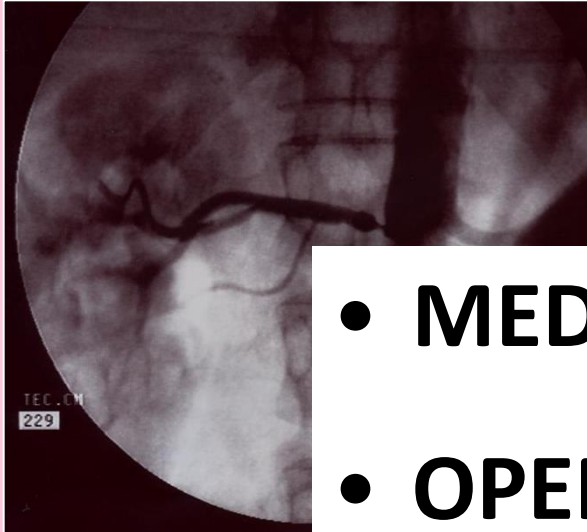


Disclosures

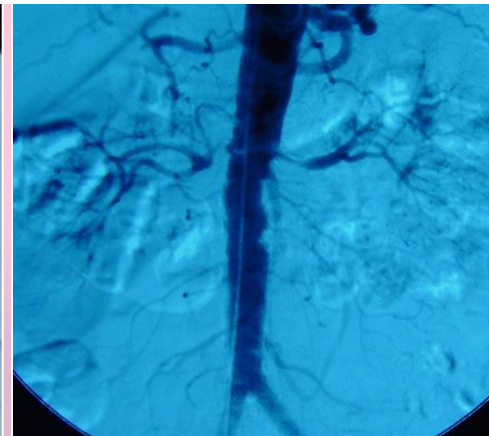
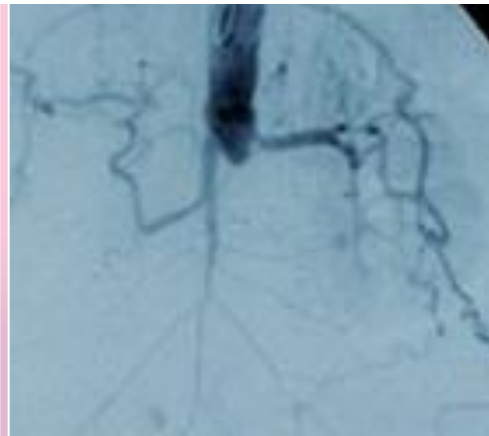
Speaker name: Luís Mendes Pedro

I do not have any potential conflict of interest.

Renal artery stenting: are there any indications left?



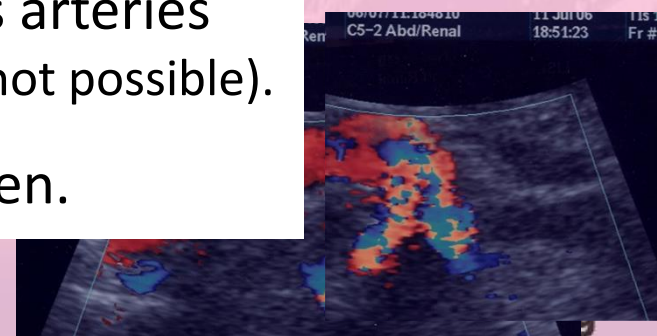
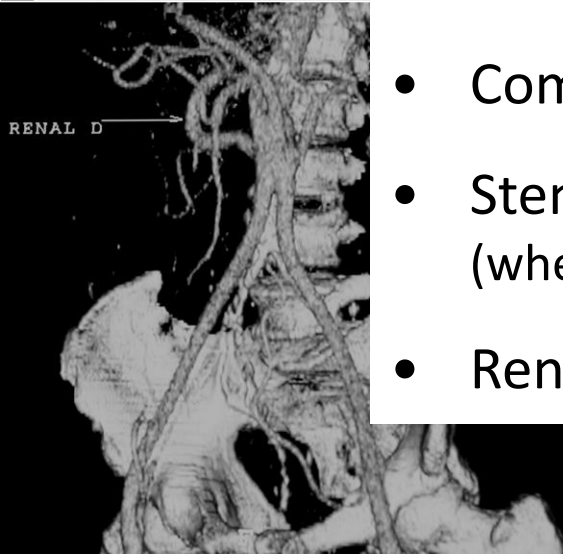
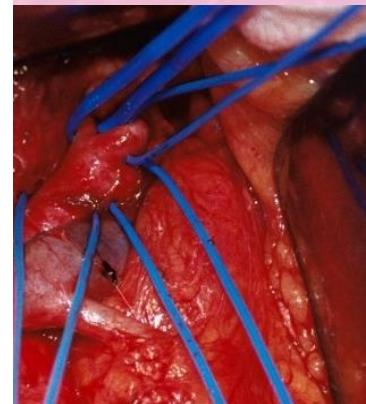
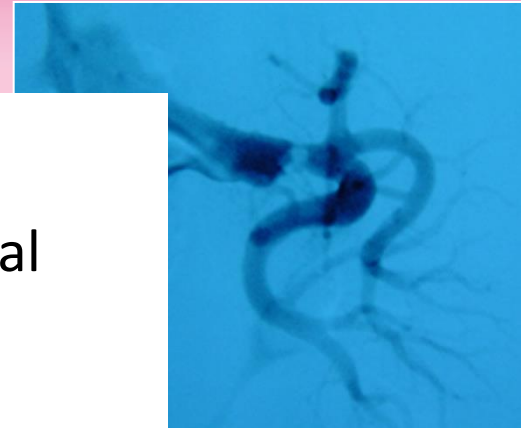
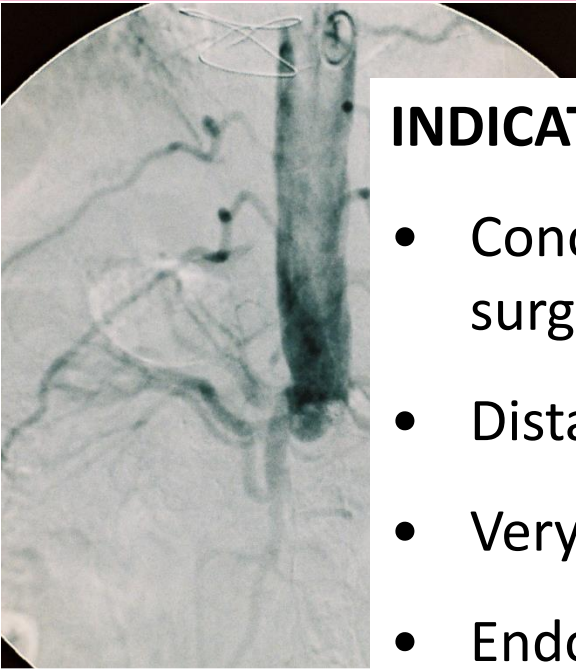
- **MEDICAL TREATMENT.**
- **OPEN SURGERY.**
- **ENDOVASCULAR SURGERY.**



Renal artery stenting: are there any indications left?

INDICATIONS FOR OPEN SURGERY

- Concomitant need for aortic or visceral surgical reconstruction.
- Distal or branch renal stenosis.
- Very calcified (“coraliform”) lesions.
- Endovascular surgery not possible.
- Complications of endovascular treatment.
- Stenosis in transplanted kidneys arteries (when an endovascular approach is not possible).
- Renal revascularization in children.



Renal artery stenting: are there any indications left?

RESULTS OF RENAL STENTING

TECHNICAL SUCCESS: 95-100%

MORTALITY: <1%

MAJOR MORBIDITY: 4-6%

MINOR MORBIDITY : 1-2%

RESTENOSIS: 10-20%

PRIMARY PATENCY (5 years): 75-82%

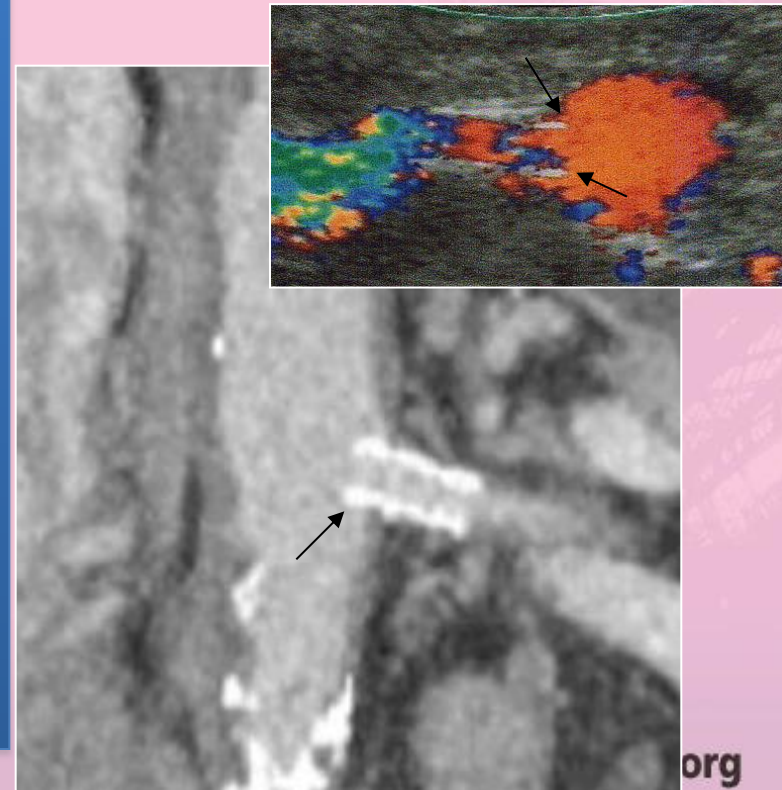
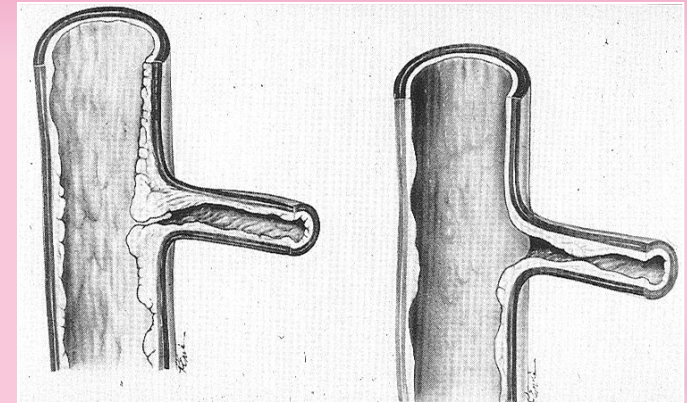
ASSISTED PRIMARY PATENCY (5 years): >90%

IMPROVEMENT OF AH: 50-80%

RENAL FUNCTION: IMPROVED or STABLE: 70-87%

DETERIORATION: 13-24%

Nolan et al. J Vasc Surg 2005;41:46-52
Sivamurthy et al. Vasc Surg 2004;39:565-74
Lanzer P. Weser R., 2007



Renal artery stenting: are there any indications left?

	n	Endpoints	Arms (n)	Mean % stenosis (%)	Stenosis <70% (%)	Bilateral disease (%)	Mean syst BP	Mean dyast BP	Mean n° AH drugs (n)	Mean GFR	Major Complications %
ASTRAL, 2009	806	Change renal function	Medical-403 Stent- 403	76	41	20	152/149	76/76	2.8	40/40	8
CORAL, 2013	931	Major CV/renal events	Medical- 472 Stent- 459	67		16/20	150/150		2.1±1.6	57/58	5.2

Selection bias: patient's doctor uncertain about the benefit of revascularization.

Less severe degree of stenosis.

Lack of comprehensive hemodynamic assessment.

Moderate arterial hypertension.

Renal artery stenting: are there any indications left?

- **Most patients with renal stenosis may not require intervention and should be managed medically.**

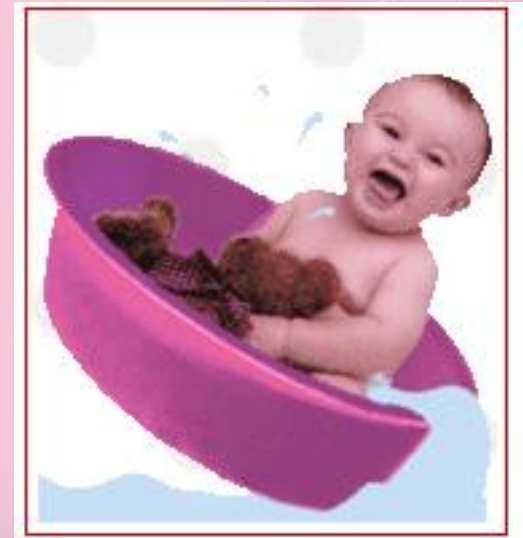
BUT

EDITORIAL

Don't throw out the baby with the bath water

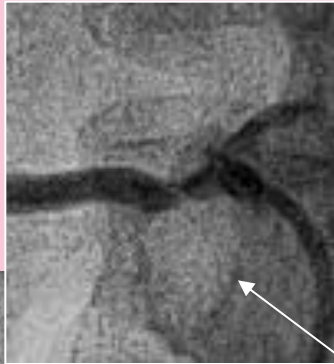
A perspective on carotid endarterectomy

Jesse E. Thompson, M.D., *Dallas, Tex.*

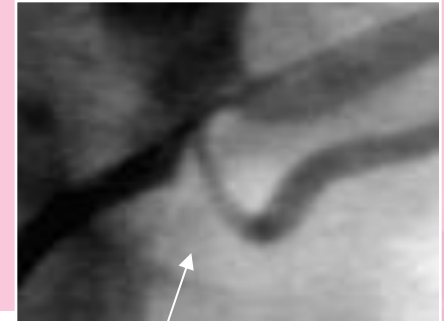


Renal artery stenting: are there any indications left?

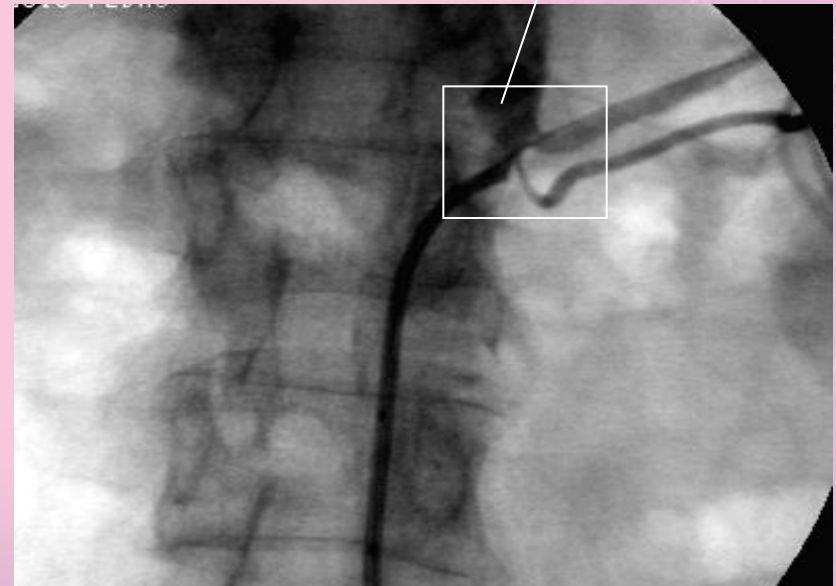
- 72 years.
- Chronic renal failure (creat. 3.4).
- **Deterioration 1 week before.**
- **DIALYSIS.**



Right renal artery



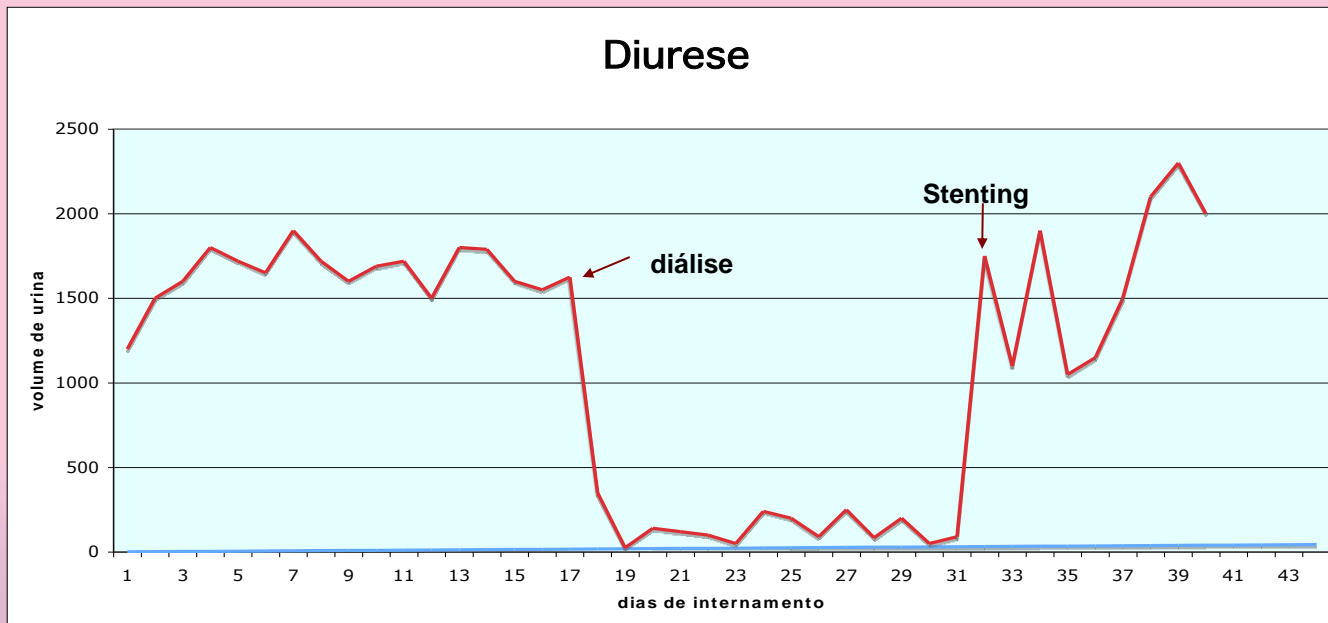
Left renal artery



Renal artery stenting: are there any indications left?



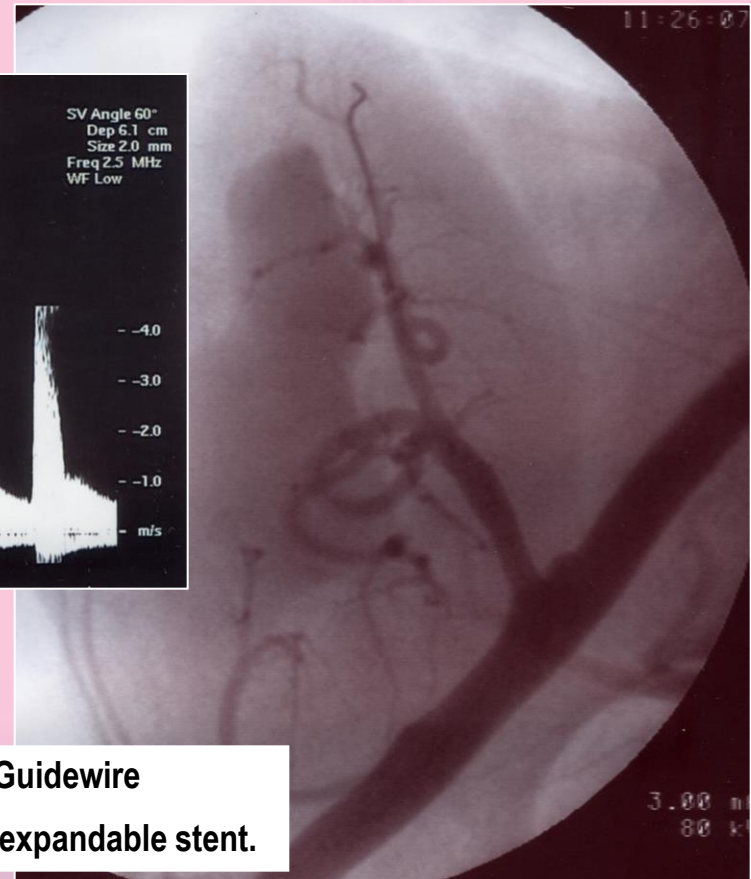
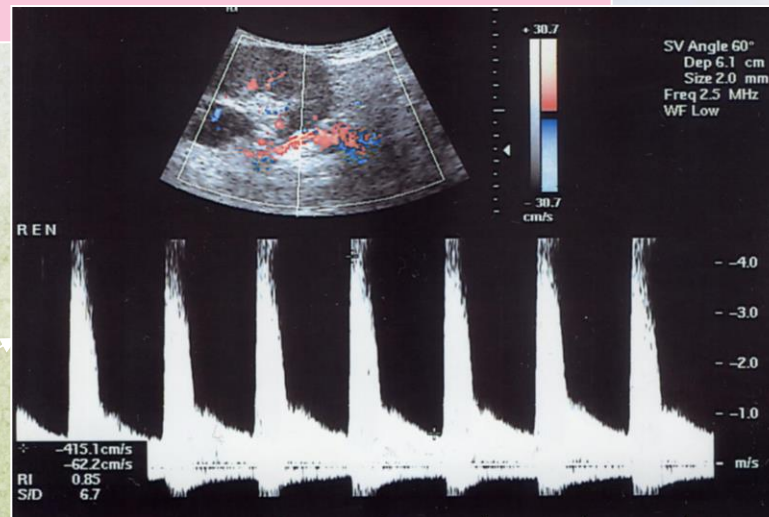
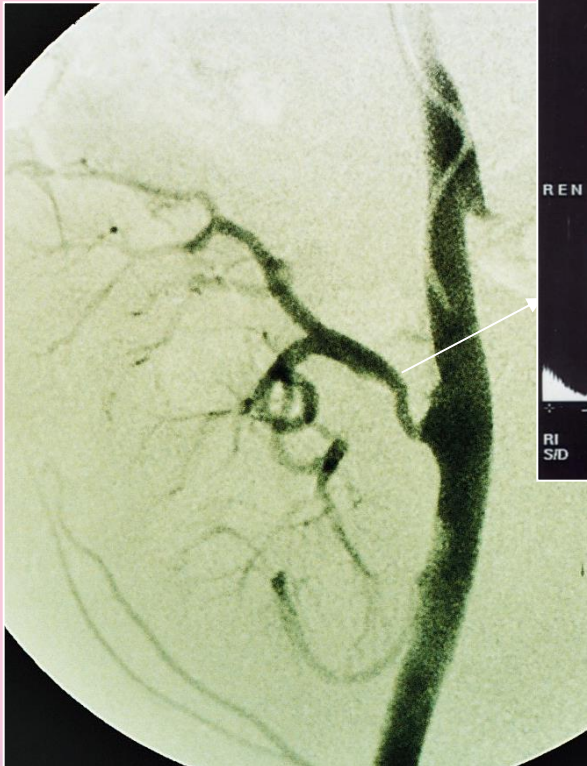
- **Recovery of diuresis** (1200cc first 12h).
- **No need for dialysis.**
- *BP control with 1 drug.*
- *Creat. at 2 yrs – 2.2 mg/dL*



Renal artery stenting: are there any indications left?

RENAL TRANSPLANT ARTERY STENOSIS

- Abdominal bruit.
- Poorly controlled AH.
- Renal dysfunction after ACEI.



0.014 Guidewire
5 mm balloon-expandable stent.

Renal artery stenting: are there any indications left?

POPULATION

- 101 patients (77% men) / **123 renal arteries.**
- Mean **age** 66 years (40-87).
- Retrospective study.

- **Mean degree of stenosis: 83% (60-95).**
- **All patients with CFDS hemodynamic assessment (PSV>200 cm/s).**

- **Bilateral disease: 21.7%**
- **Arterial Hypertension: 98%**
- **Renal Failure (Creat>1.5 mg/dl): 18%**

- **Mean follow-up: 76 (1-168) months.**

Renal artery stenting: are there any indications left?

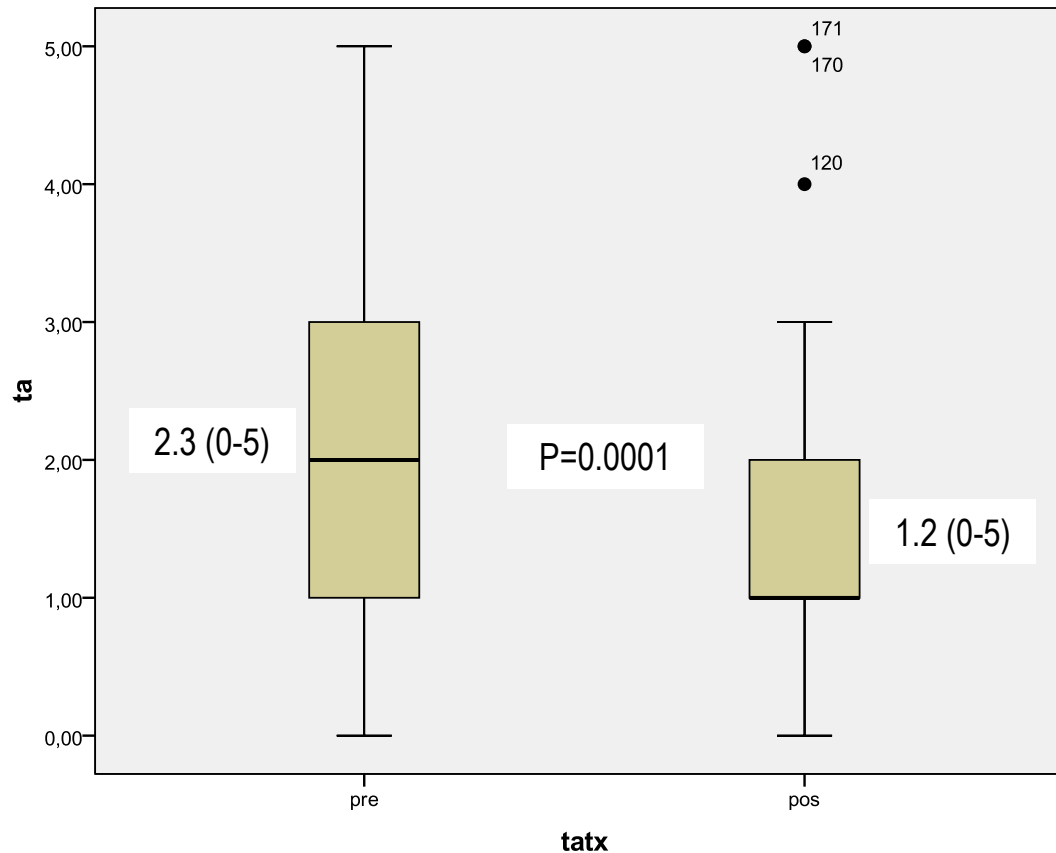
EARLY RESULTS

Atherosclerosis (n= 123 arteries ; 101 patients)

- **Technical success:** 121/123- 98%
- **Mortality:** 0
- **Major morbidity:**
 - Patient- 2/101 (Reversible stroke + Renal artery rupture)- 1.9%
 - Technical- 1/123 (Renal artery rupture)- 0.8%
- **Access complications:** 0

Renal artery stenting: are there any indications left?

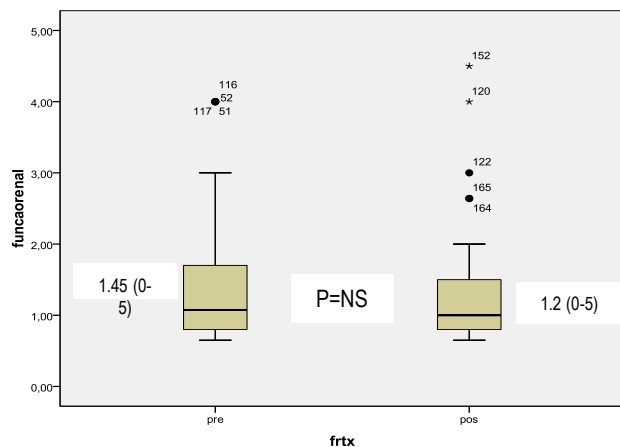
LATE RESULTS / Number of hypotensive drugs



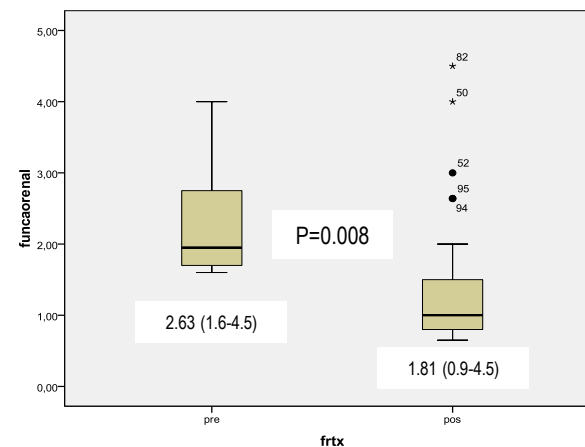
Renal artery stenting: are there any indications left?

LATE RESULTS / Renal function

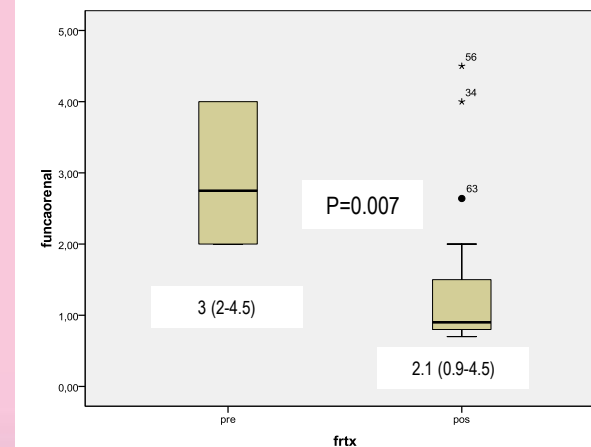
Creat (mg/dl)	PRÉ	PÓS	p
All patients (n=101)	1.45 (0.6-4.5)	1.45 (0.6-4.5)	NS
Creat >1.5 (n=18)	2.63 (1.6-4.5)	1.81 (0.9-4.5)	0.008
Creat >2 (n=10)	3 (2-4.5)	2.1 (0.9-4.5)	0.007



N= 101



Creat >1.5



Creat >2

Renal artery stenting: are there any indications left?

IMPROVE PATIENT SELECTION

Outcomes that need to be specifically (re)assessed in prospective trials / registries:

- Severe bilateral disease.
- Single-kidney / transplanted kidney.



- Hemodynamic assessment of the lesions:
 - Focal increased velocity on CFDS.
 - Trans-stenosis gradient (>20 mmHg).

- **Rapid pre-intervention decline of renal function.**
- **Accelerated, malignant and resistant (>4 drugs) hypertension.**
- **Flush pulmonary edema.**
- GFR 25-40 ml/min?
- β -Natriuretic peptide (>50pg/ml)?

- Low renal resistive index.
- No significant proteinuria.

Renal artery stenting: are there any indications left?

CONCLUSIONS

- Renal “prophylactic” interventions, driven by image, are ineffective.
- The RCT did not address severely symptomatic patients where the benefit of revascularization is usually accepted.
- More prospective studies with improved **patient** and **lesion** selection criteria are needed.