Nouveauté artères rénales

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Patiente de 63 ans
Apparition récente d'une HTA sévère
Pas de facteur de risque
Echodoppler: dysplasie a rénale drt
Sténose sévère

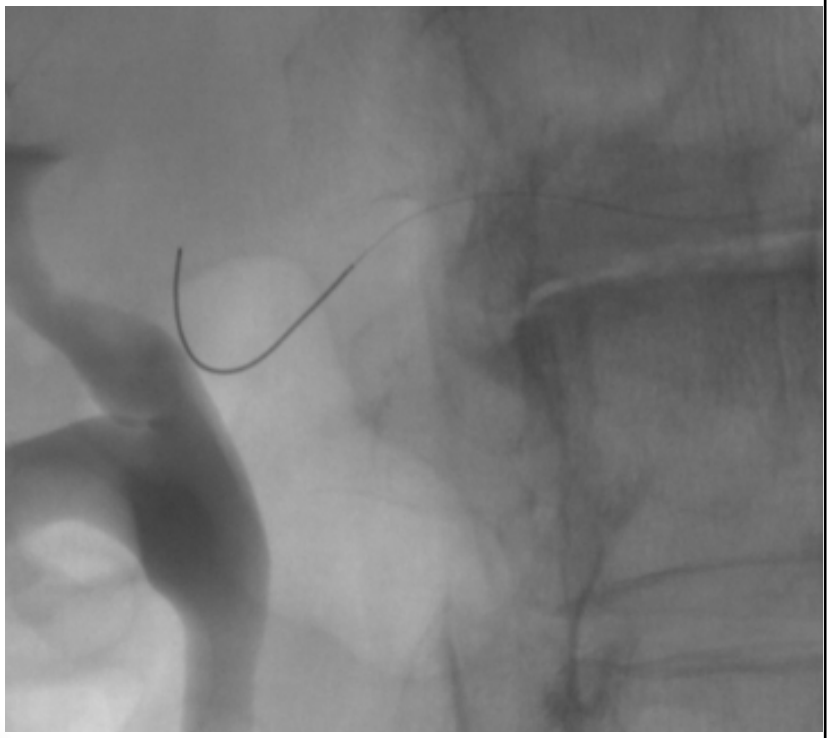
63-year-old patient with recent onset of hypertension
No risk factors
Doppler: unilateral right renal artery dysplasia estimated as « severe »

- Multiple very short diaphragmatic lesions
- No precise recommendation in the litterature

- Scan and MRI → limitation (spatial definition)
- Doppler: no precise definition of what stenosis should be considered as severe or to be treated

- Use a pressure gide wire to assess trans stenotic gradient as standard of reference
- Use IVUS to assess intra arterial abnormality

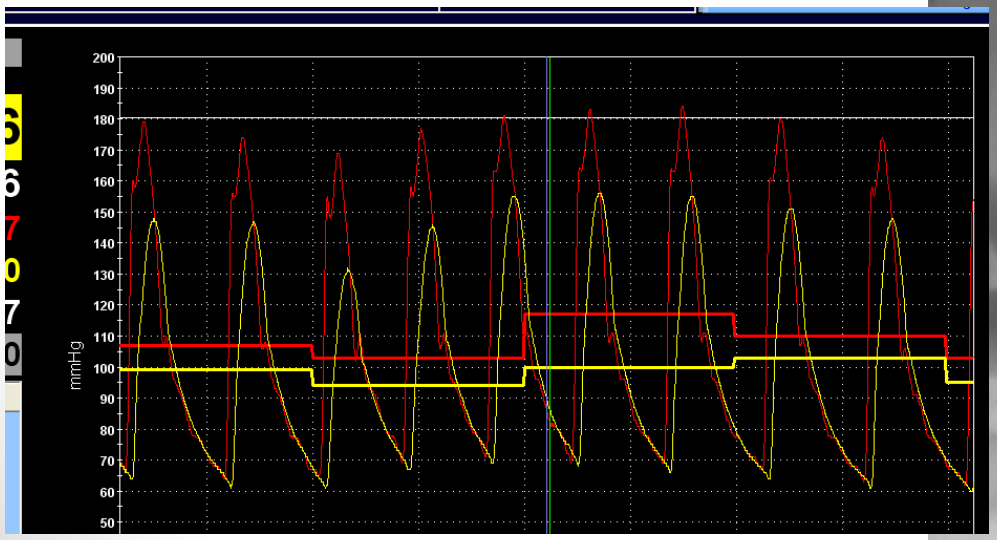
Olin J Circ 2014 scientific statement

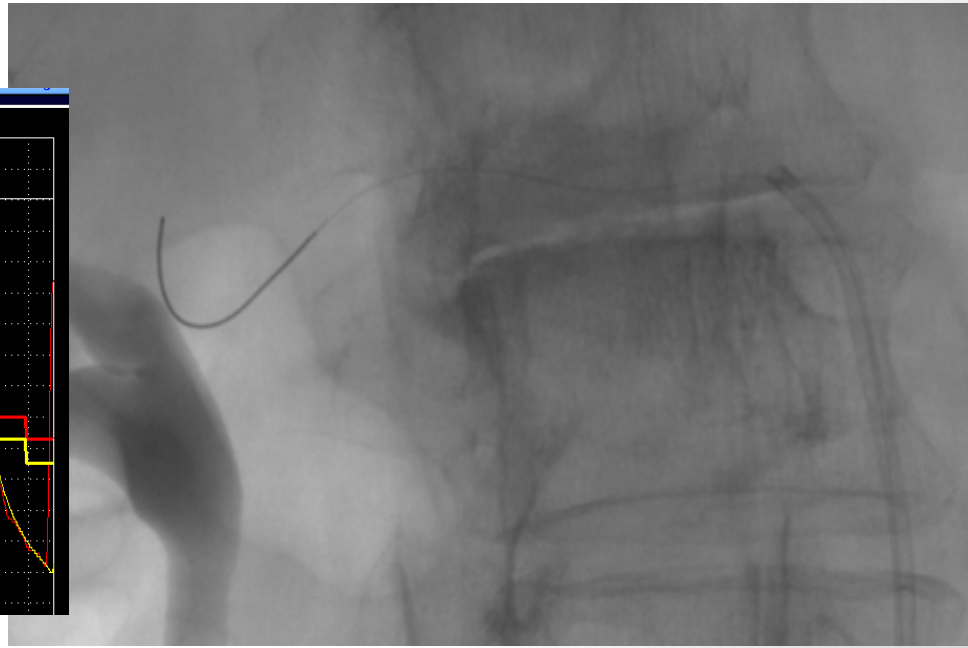


Guide 0.014 avec capteur de pression

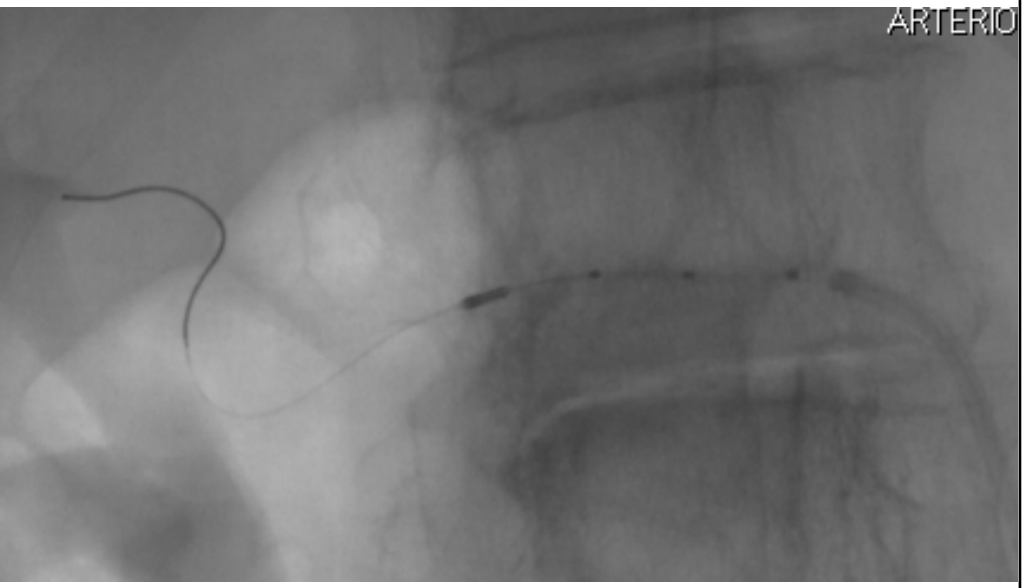
Mesure des pressions trans sténotique

	P Ao	P distale	P distale/P ao (FFR)	P ao – P distale
Repos	122	115	0,94	20





Echo endovasculaire



Echographie intra vasculaire sonde 5F, dans le cathéter guide 6F

Ballon de 6mmx20mm

	PAo	Pdistale	Pdistale/Pao FFR	PAo-Pdistale
Repos	122	102	0,94	20
Post ATP 6mm	120	102	0,93	18
post ATP 7mm	120	119	0,99	1

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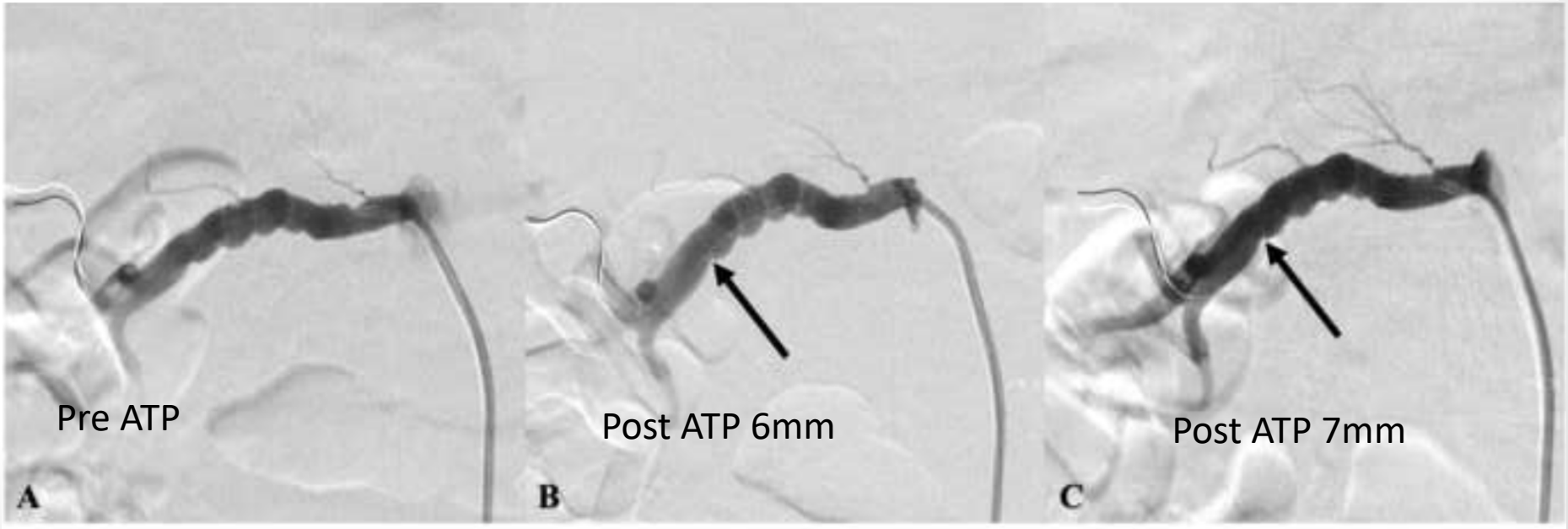


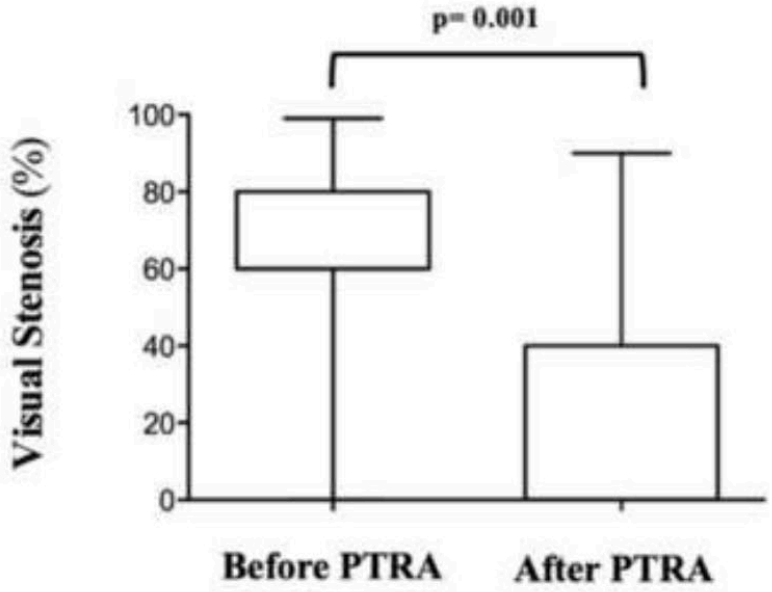
Objectifs

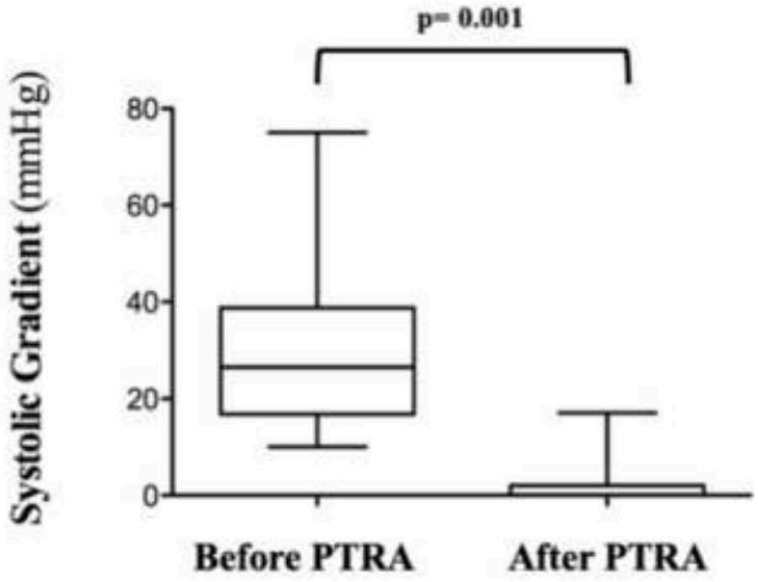
- Définition des critères prédictifs de la récupération tensionnelle
- 4 centres: Grenoble, Toulouse, Paris HEGP, Marseille

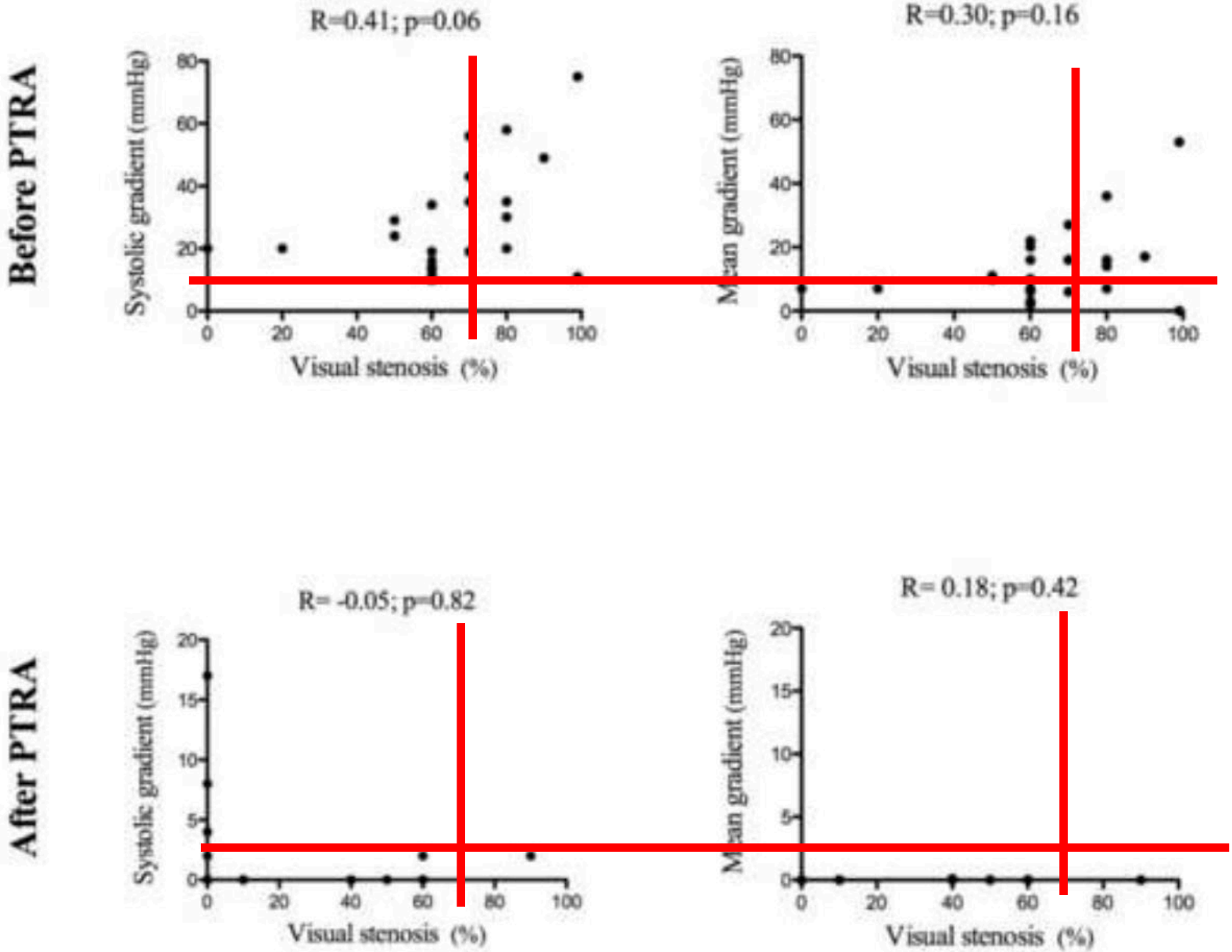
Population

- Hypertension confirmé sur la mesure des 24H
  - Avec une sténose dysplasique
  - Sur une artère qui mesure au moins 5mm
- Patient doit bénéficier d'une angioplastie
  - Aggravation de son hypertension
  - Résistance aux traitements
  - Peu de compliance
  - OAP flash

- Doppler avec mesure gradient ao renal, v max, IR
- Scan
- Prise de pression / guide de pression et sonde
- End point de l'ATP guidé par le gradient
- End-point: équilibre tensionnel à 6 mois
  - Mesure TA / 24H
  - Nombre de traitement


p= 0.001
Visual Stenosis (%)
100
80
60
40
20
0
Before PTRA
After PTRA


p= 0.001
Systolic Gradient (mmHg)
80
60
40
20
0
Before PTRA
After PTRA


Before PTRA
R=0.41; p=0.06
Systolic gradient (mmHg)
Visual stenosis (%)
R=0.30; p=0.16
Mean gradient (mmHg)
Visual stenosis (%)
After PTRA
R= -0.05; p=0.82
Systolic gradient (mmHg)
Visual stenosis (%)
R= 0.18; p=0.42
Mean gradient (mmHg)
Visual stenosis (%)

6 patients (25%) ont nécessités une seconde angioplastie

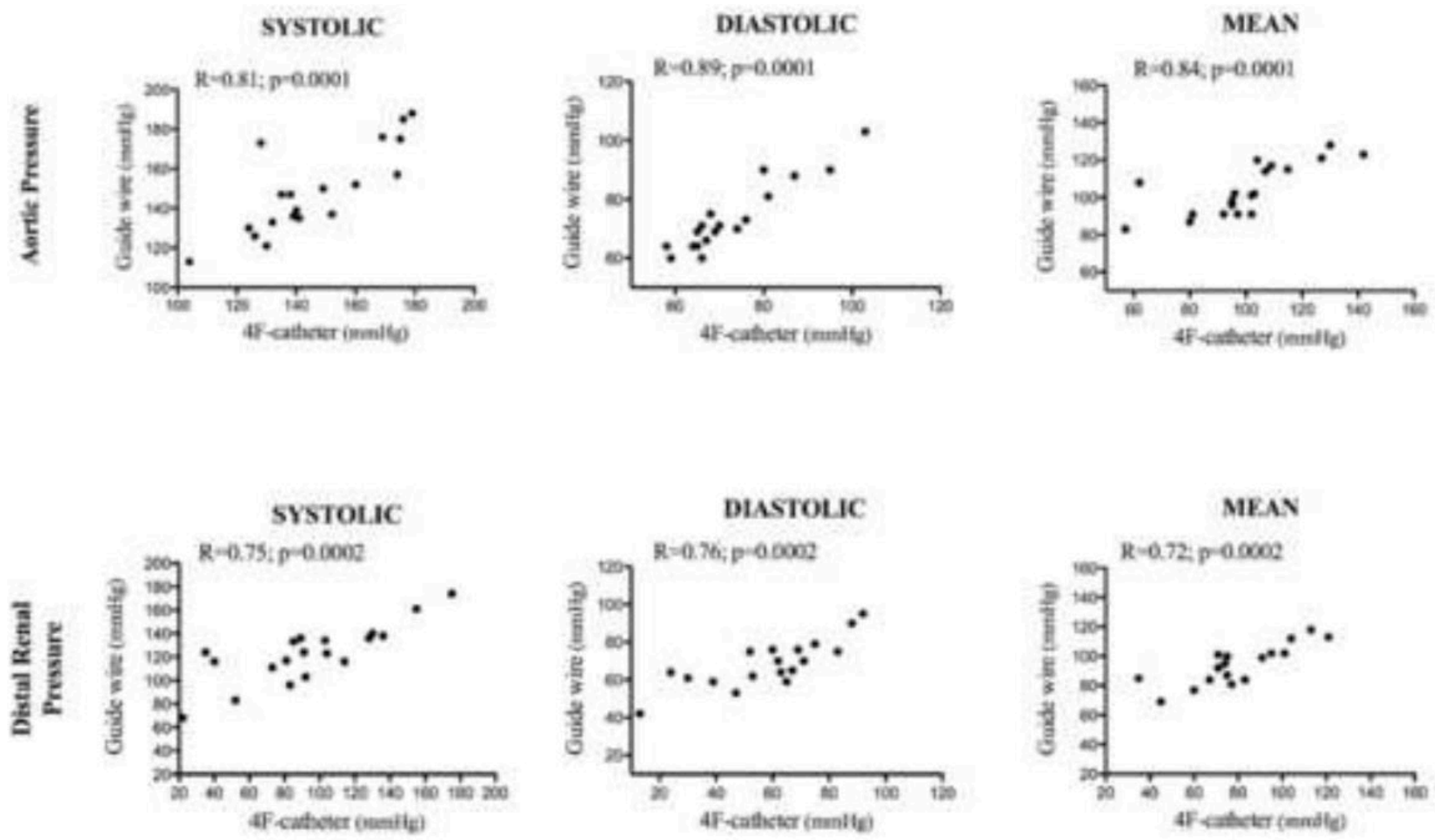
n=24	Before PTRA	After PTRA	P-value
Pa (mmHg)			
Systolic	154.00 ± 29.45	162.40 ± 30.42	**0.02**
Diastolic	76.88 ± 13.37	77.41 ± 13.10	0.70
Mean	108.40 ± 19.76	111.60 ± 21.14	**0.13**
Pd (mmHg)			
Systolic	126.00 ± 33.44	155.20 ± 29.26	**<0.01**
Diastolic	70.25 ± 14.50	75.95 ± 15.55	**0.05**
Mean	94.29 ± 22.08	109.00 ± 21.90	**<0.01**
Pd - Pa gradient (mmHg)			
Systolic	26.50 (16.75-38.75)	0.00 (0.00-2.00)	**<0.01**
Mean	12.50 (7.00-19.25)	0.00 (0.00-0.00)	**<0.01**
Pd/Pa ratio			
Systolic	0.82 ± 0.14	0.96 ± 0.03	**<0.01**
Mean	0.87 ± 0.12	0.97 ± 0.03	**<0.01**

	Responders	Nonresponders
	n=21	n=3
Clinical baseline characteristics		
Age (years)	48.71 ± 13.85	47.33 ± 7.51
Sex (M/F)	0 (0%)/21 (100%)	3 (100%)/0 (0%)
Number of cardiovascular risk factors	1.29 ± 1.11	1.33 ± 1.16
Systolic blood pressure (mmHg)*	152.70 ± 18.60	153.00 ± 20.30
Diastolic blood pressure (mmHg)*	92.19 ± 12.77	83.67 ± 15.50
Number of antihypertensive drugs	2.52 ± 1.25	2.33 ± 0.58
Total treatment dose (mg/day)	170.00 (72.50-241.00)	92.50 (7.50-177.50)
eGFR (MDRD, ml/min/1.73 m2)	78.99 ± 13.02	80.45 ± 3.46
DUS baseline indices (treated side)		
Kidney size (cm)	104.90 ± 9.51	99.33 ± 8.14
IR	0.53 ± 0.10	0.63 ± 0.09
SAT (ms)	126.60 ± 46.84	168.00 ± 19.97
Aortic PSV (cm/s)	85.00 ± 17.75	76.67 ± 6.81
Renal PSV (cm/s)	387.50 ± 106.06	233.70 ± 133.00
EDV (cm/s)	137.70 ± 67.85	67.33 ± 38.00

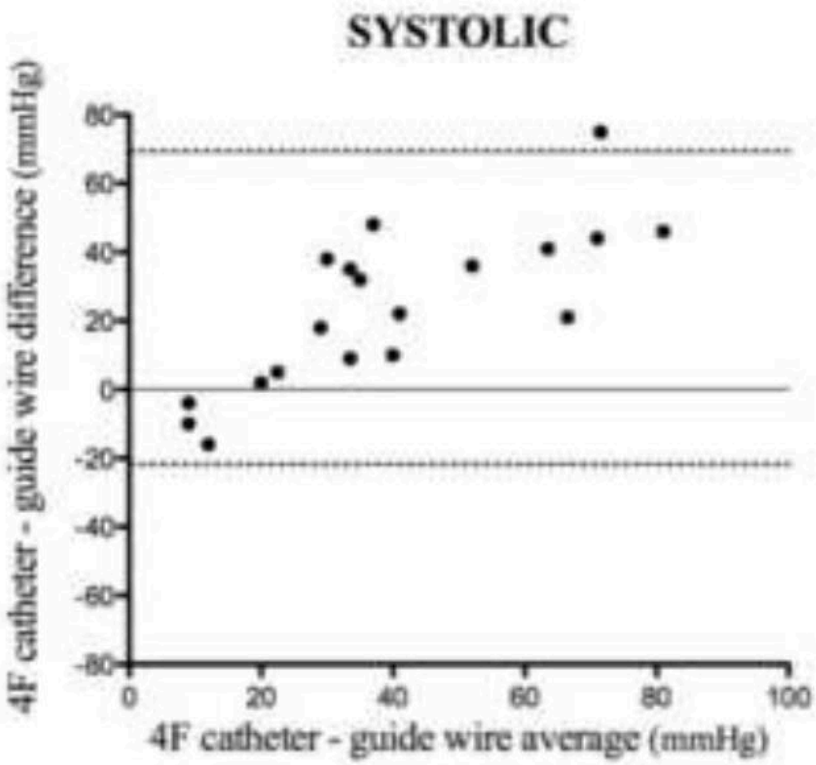
Angiographic indices (treated side)	Responder	Non responder
Systolic Pa (mmHg)	149.40 ± 24.25	186.30 ± 48.01
Diastolic Pa (mmHg)	75.86 ± 13.04	84.00 ± 16.37
Mean Pa (mmHg)	105.30 ± 16.13	130.30 ± 32.62
Systolic Pd (mmHg)	119.80 ± 28.56	170.00 ± 37.32
Diastolic Pd (mmHg)	68.19 ± 13.24	84.67 ± 17.62
Mean Pd (mmHg)	89.90 ± 18.03	125.00 ± 27.18
Systolic Pd-Pa gradient (mmHg)	30.00 (16.00-40.00)	20.00 (19.50-22.00)
Mean Pd-Pa gradient (mmHg)	16.00 (7.00-20.00)	7.00 (6.50-9.00)
Systolic Pd/Pa ratio	0.80 ± 0.14	0.92 ± 0.06
Mean Pd/Pa ratio	0.86 ± 0.12	0.96 ± 0.04

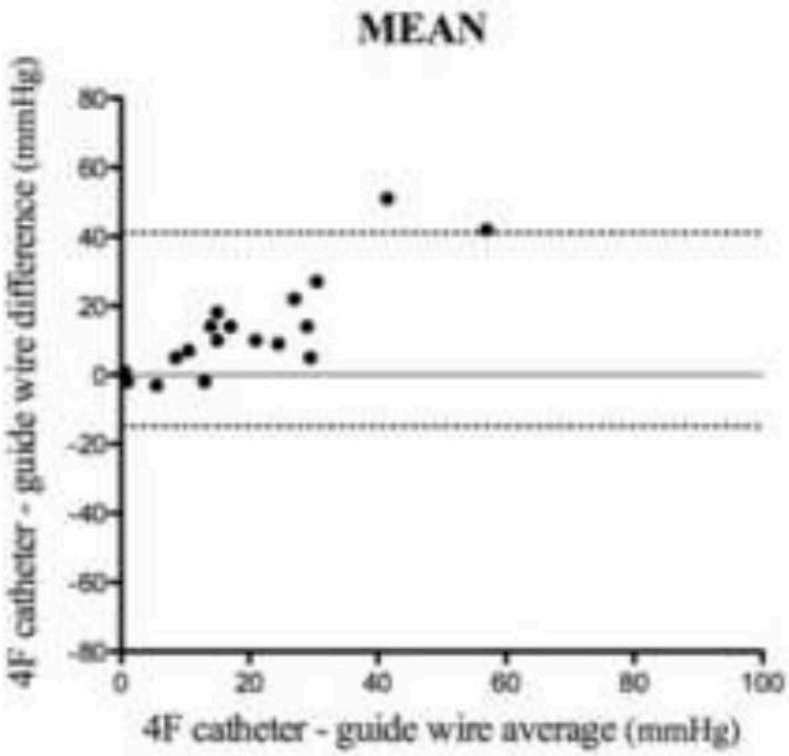
Procedural succes

- Procedural success :
  - translesional systolic gradient Pd - Pa ≤ 10 mmHg2
  - reduction in systolic gradient by at least 80%.
- In case of procedural failure, a second PTRA was performed with a balloon 0.5 mm larger than the first.
- In case of a second failure, the operator kept the right to decide to perform another angioplasty with a larger balloon or to stop the procedure.


Aortic Pressure
SYSTOLIC
R=0.81; p=0.0001
DIASTOLIC
R=0.89; p=0.0001
MEAN
R=0.84; p=0.0001
Distal Renal Pressure
SYSTOLIC
R=0.75; p=0.0002
DIASTOLIC
R=0.76; p=0.0002
MEAN
R=0.72; p=0.0002
Guide wire (mmHg)
4F-catheter (mmHg)

Pd - Pa
GRADIENT





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- Patient doit bénéficier d'une angioplastie
  - Aggravation de son hypertension
  - Résistance aux traitements
  - Peu de compliance
  - OAP flash
- Guide l'angioplastie par mesure de pression gradient < 10mmHg ou une baisse de 80% du grandient

→ Soignent 80% des patients