

Simpatectomia renal para Hipertensão Resistente

**Apresentado por Giovanio Vieira da Silva
na reunião da Unidade de Hipertensão
do Hospital das Clínicas da Faculdade de Medicina
da Universidade de São Paulo
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Catheter-based renal sympathetic denervation for resistant hypertension: a multicentre safety and proof-of-principle cohort study

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Summary

Background Renal sympathetic hyperactivity is associated with hypertension and its progression, chronic kidney disease, and heart failure. We did a proof-of-principle trial of therapeutic renal sympathetic denervation in patients with resistant hypertension (ie, systolic blood pressure ≥ 160 mm Hg on three or more antihypertensive medications, including a diuretic) to assess safety and blood-pressure reduction effectiveness.

Methods We enrolled 50 patients at five Australian and European centres; 5 patients were excluded for anatomical reasons (mainly on the basis of dual renal artery systems). Patients received percutaneous radiofrequency catheter-based treatment between June, 2007, and November, 2008, with subsequent follow-up to 1 year. We assessed the effectiveness of renal sympathetic denervation with renal noradrenaline spillover in a subgroup of patients. Primary endpoints were office blood pressure and safety data before and at 1, 3, 6, 9, and 12 months after procedure. Renal angiography was done before, immediately after, and 14–30 days after procedure, and magnetic resonance angiogram 6 months after procedure. We assessed blood-pressure lowering effectiveness by repeated measures ANOVA. This study is registered in Australia and Europe with ClinicalTrials.gov, numbers NCT 00483808 and NCT 00664638.

Findings In treated patients, baseline mean office blood pressure was 177/101 mm Hg (SD 20/15), (mean 4.7 anti-hypertensive medications); estimated glomerular filtration rate was 81 mL/min/1.73m² (SD 23); and mean reduction in renal noradrenaline spillover was 47% (95% CI 28–65%). Office blood pressures after procedure were reduced by -14/-10, -21/-10, -22/-11, -24/-11, and -27/-17 mm Hg at 1, 3, 6, 9, and 12 months, respectively. In the five non-treated patients, mean rise in office blood pressure was +3/-2, +2/+3, +14/+9, and +26/+17 mm Hg at 1, 3, 6, and 9 months, respectively. One intra-procedural renal artery dissection occurred before radiofrequency energy delivery, without further sequelae. There were no other renovascular complications.

Interpretation Catheter-based renal denervation causes substantial and sustained blood-pressure reduction, without serious adverse events, in patients with resistant hypertension. Prospective randomised clinical trials are needed to investigate the usefulness of this procedure in the management of this condition.

Introdução

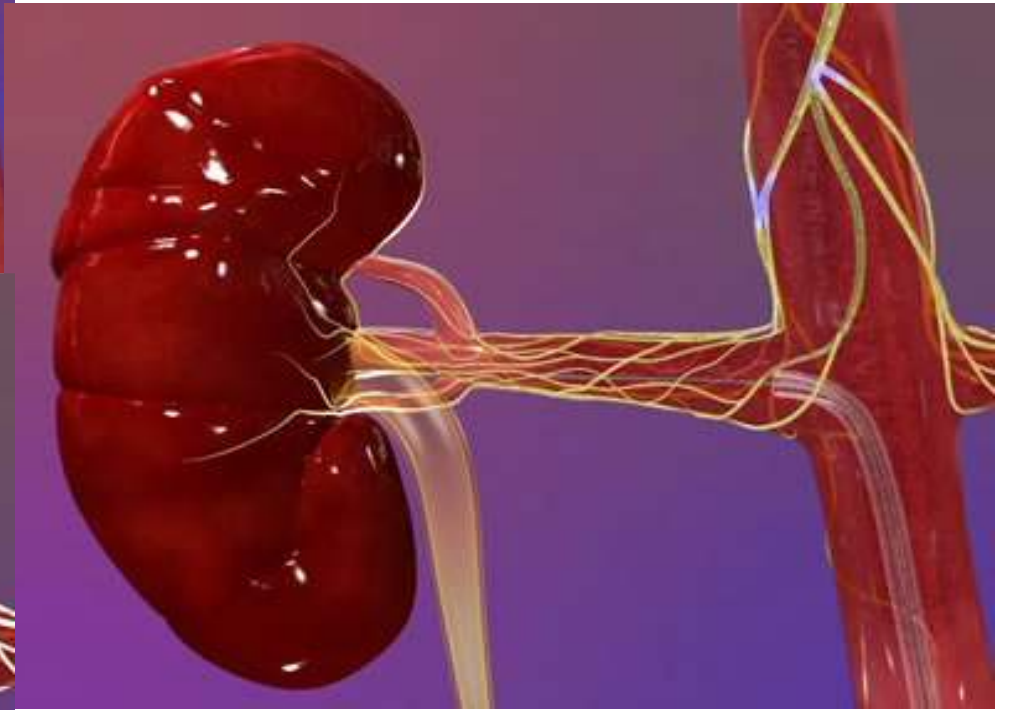
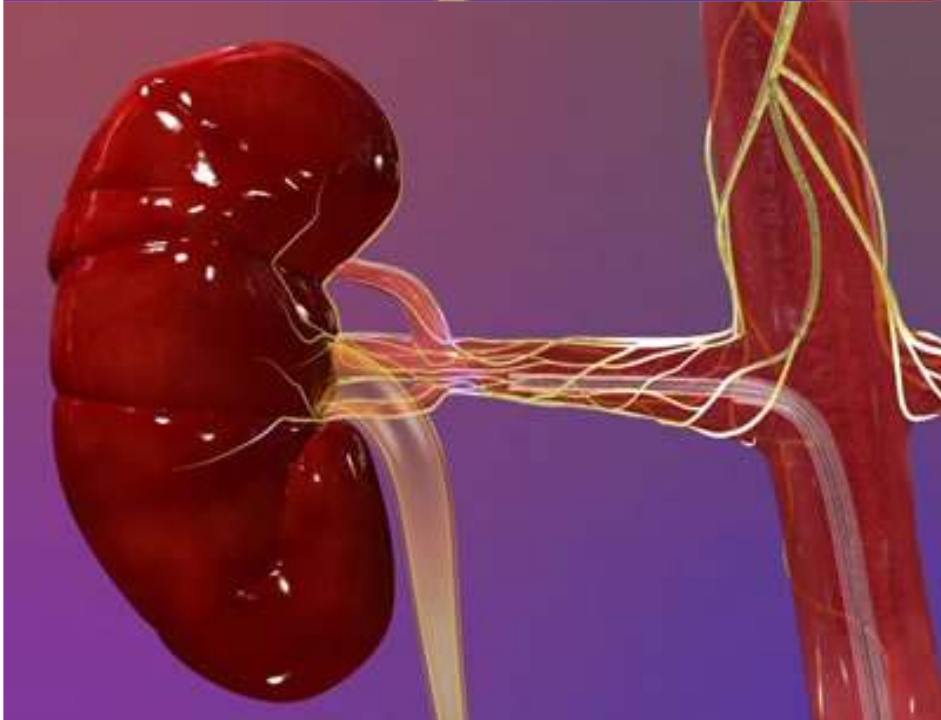
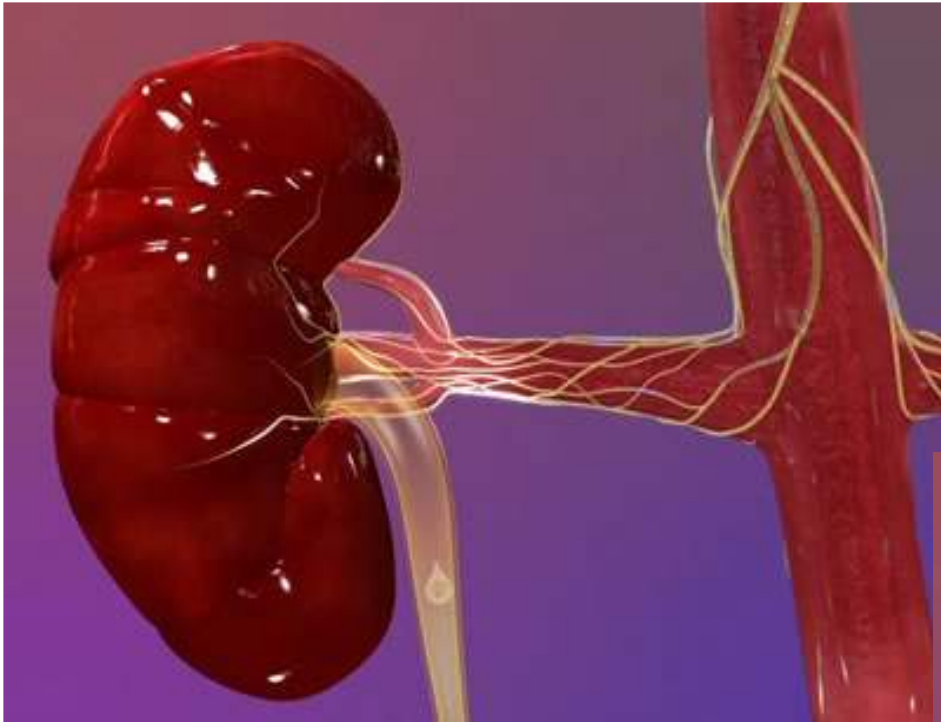
- Apesar de numerosas opções farmacológicas para o tratamento da hipertensão arterial, o controle é sub-ótimo:
 - Não aderência a terapia farmacológica prescrita: medicações não são isentas de efeitos adversos, além da hipertensão ser uma doença assintomática e que necessita de tratamento pelo resto da vida.
 - Falência terapêutica em alguns casos: hipertensão resistente.

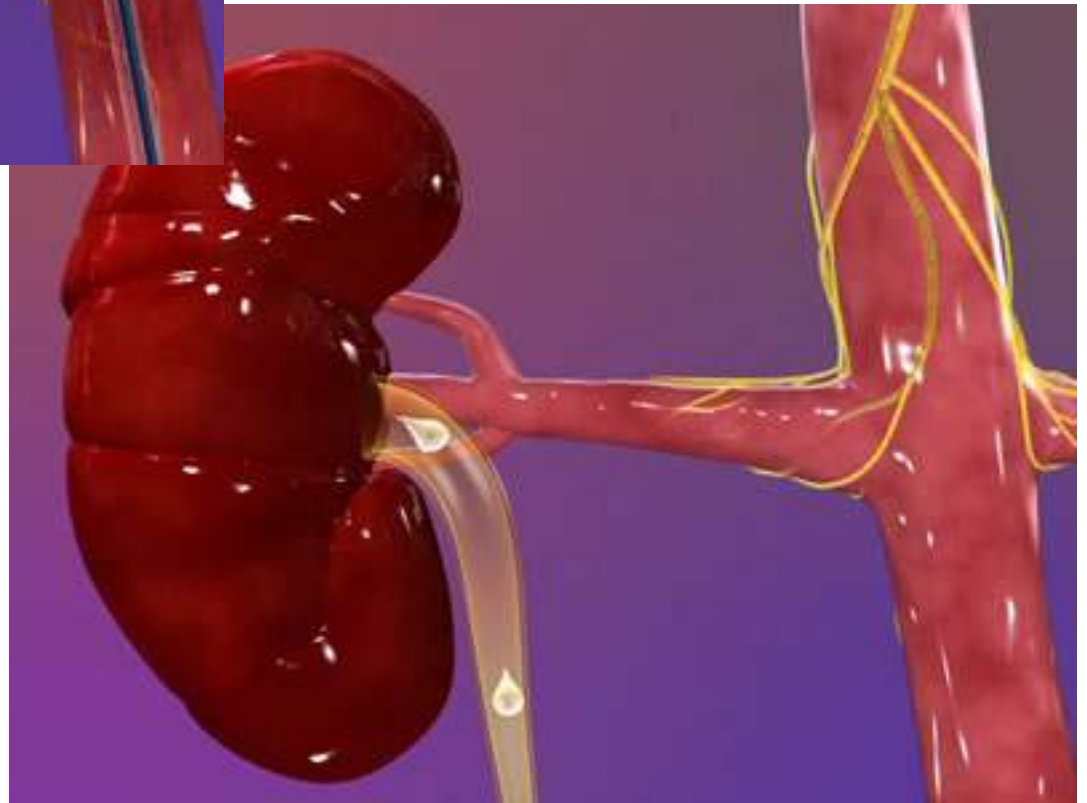
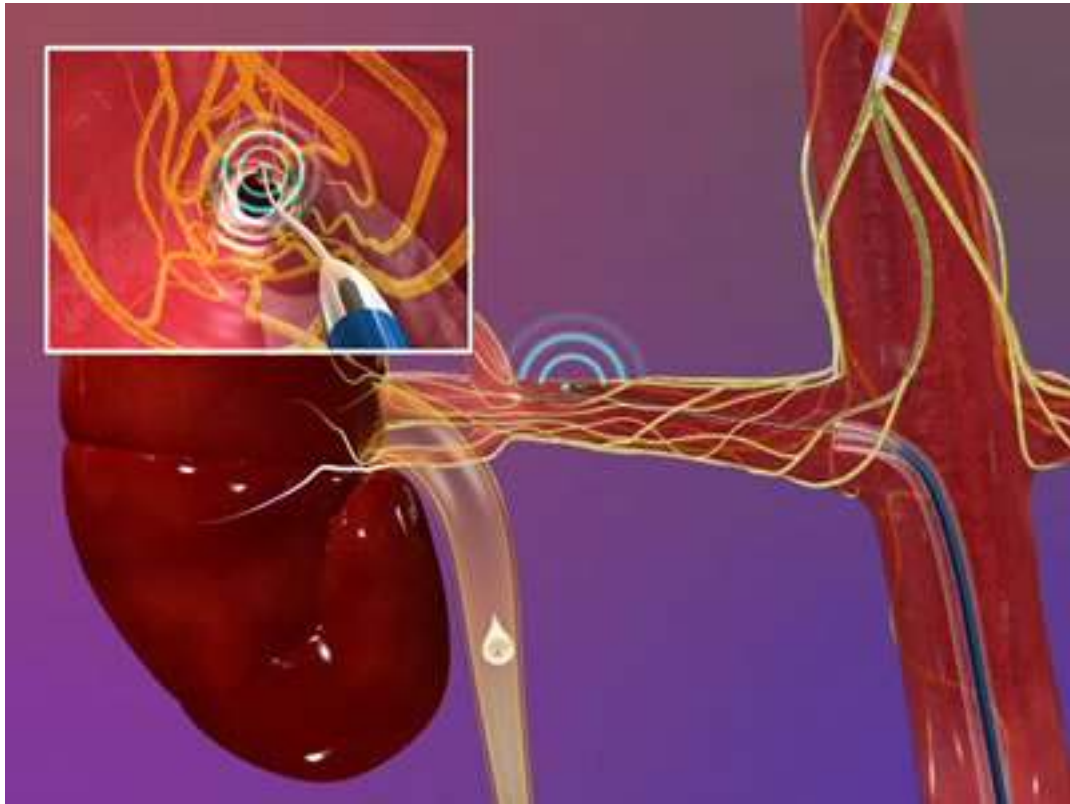
Introdução

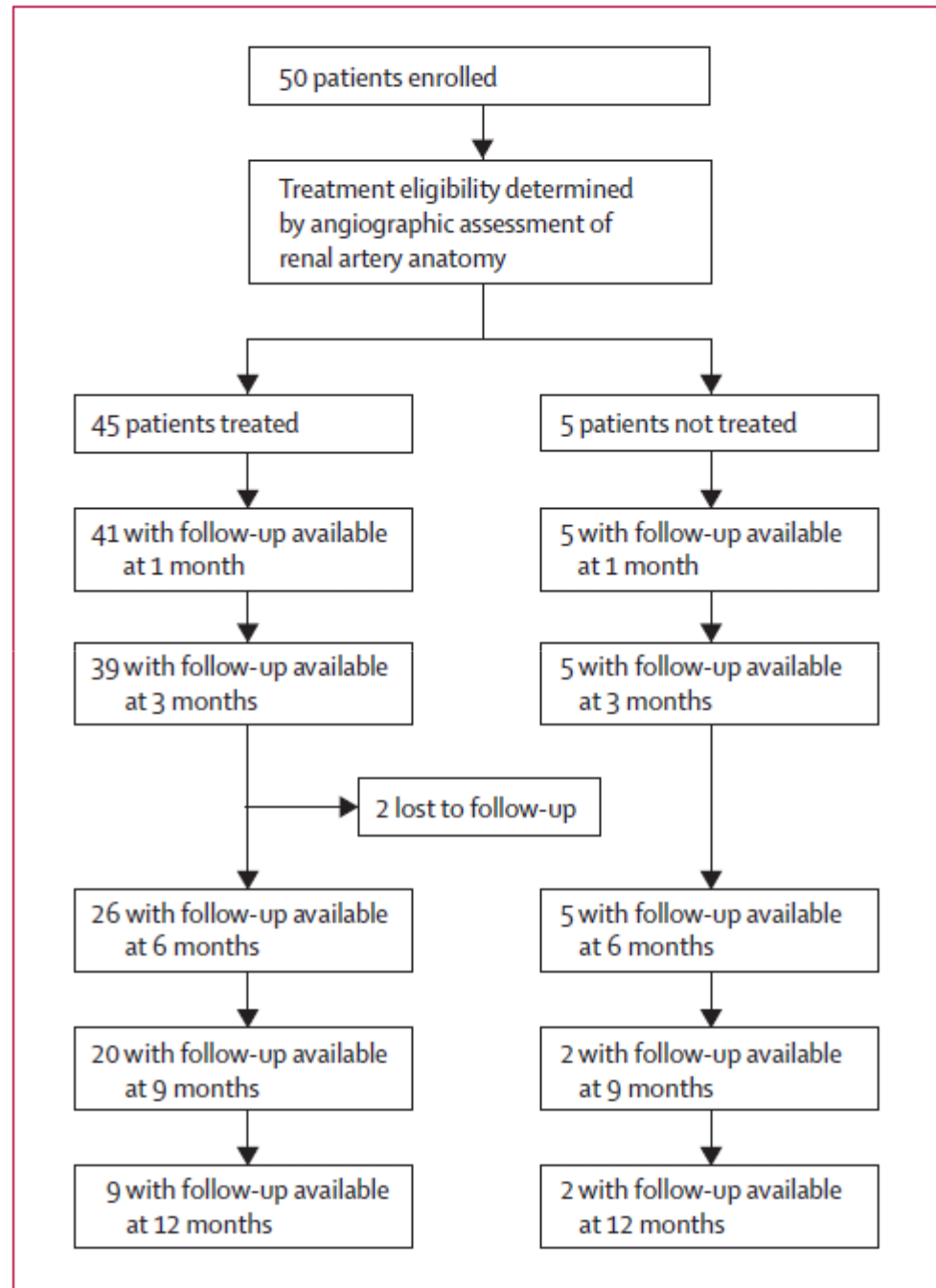
- Década de 50: Relatos de simpatectomia cirúrgica torácica, abdominal ou pélvica para o tratamento de hipertensão maligna: alta morbimortalidade peri-operatória e disautonomia importante.
- Simpatectomia Renal Seletiva: aferências e eferências simpáticas podem ter papel na manutenção da hipertensão arterial

Método

- Objetivos: Avaliar a eficácia e segurança do método em reduzir a pressão arterial (“safety and proof-of-principle cohort study”)
- Critérios de Inclusão:
 - Hipertensão Primária
 - PAS de Consultório > 160 mmHg apesar do uso de pelo menos 03 classes de anti-hipertensivos.
 - Clearance de Creatinina > 45 ml/min







	All patients (N=50)	Patients undergoing procedure (N=45)	Patients not eligible for procedure (N=5)
Age (years)	57 (9)	58 (9)	51 (8)
Sex (female)	21 (42%)	20 (44%)	1 (20%)
Ethnic origin (non-white)	2 (4%)	2 (4%)	0
Type 2 diabetes mellitus	16 (32%)	14 (31%)	2 (40%)
CAD	11 (22%)	10 (22%)	1 (20%)
Hyperlipidaemia	34 (68%)	29 (64%)	5 (100%)
eGFR (mL/min/1.73 m ²)	83 (22)	81 (23)	95 (15)
Heart rate (bpm)	73 (11)	72 (11)	79 (9)
Blood pressure (mm Hg)	177/100 (19/14)	177/101 (20/15)	173/98 (8/9)
Number of antihypertension drugs	4.7 (1.4)	4.7 (1.5)	4.6 (0.5)
ACE or ARB	47 (94%)	43 (96%)	4 (80%)
β blocker	39 (78%)	34 (76%)	5 (100%)
Calcium-channel blocker	36 (72%)	31 (69%)	5 (100%)
Vasodilator	8 (16%)	8 (18%)	0%
Diuretic	46 (92%)	43 (96%)	3 (60%)

Data are mean (SD) or number (%). ACE=angiotensin-converting enzyme inhibitor. ARB=angiotensin II receptor blocker. bpm=beats per minute. CAD=coronary artery disease. eGFR=estimated glomerular filtration rate.

Table: Baseline patient characteristics

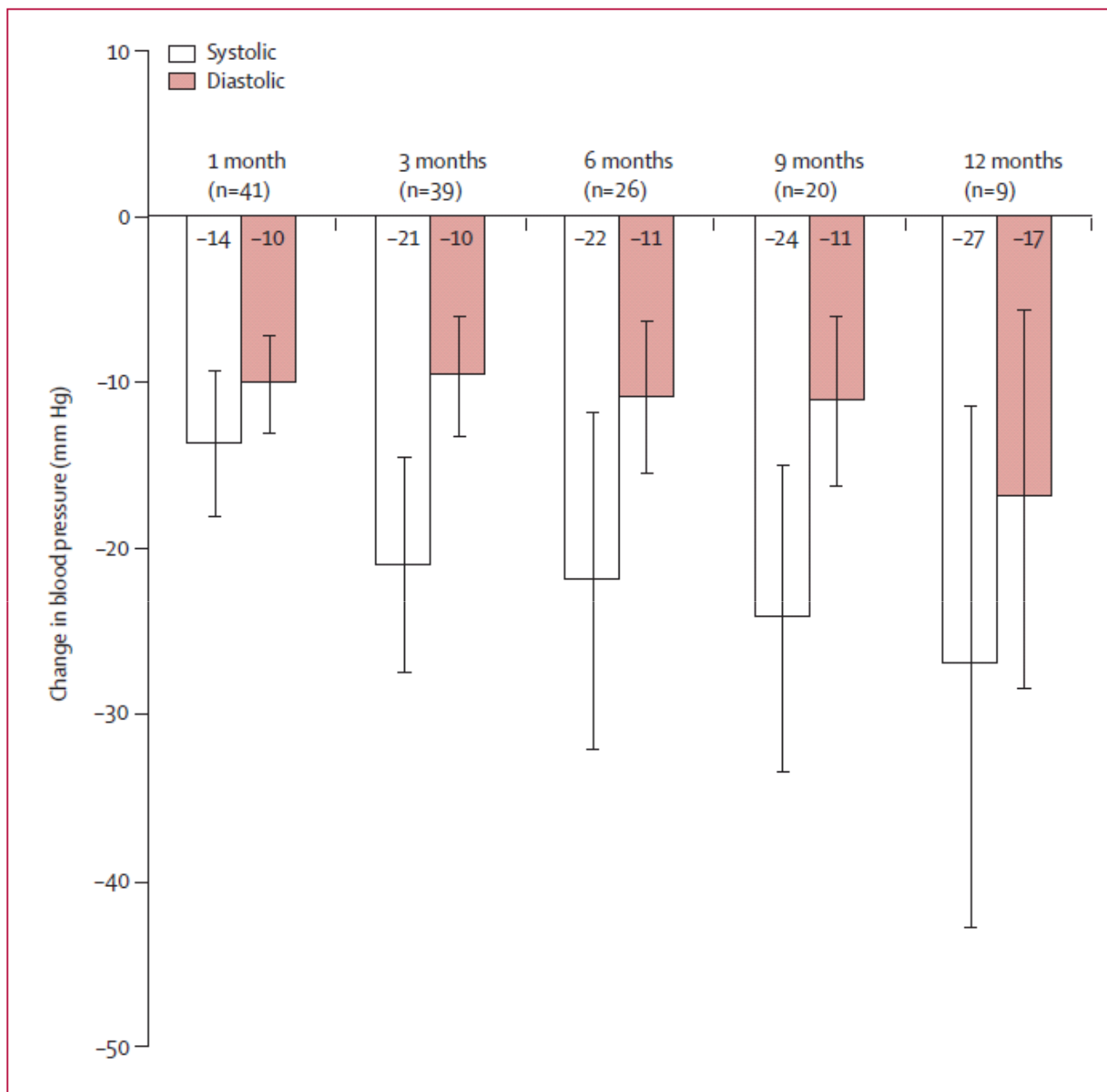


Figure 2: Change in office blood pressure (95% CI) at 1, 3, 6, 9, and 12 months

Numbers in parentheses indicate patients who had attended each predefined visit at the time of submission of this publication.

Resultados

- 06 pacientes dos 45 tratados tiveram redução da PAS < 10 mmHg (não respondedores)
- 12 pacientes realizaram MAPA 30 dias após a intervenção:
 - Redução média da PAS 24 horas: 11mmHg
 - 67% tinham descenso ausente ou atenuado pré-tratamento – 33 % não alteraram o comportamento
- O número de medicações anti-hipertensivos não foi alterado na maioria dos pacientes
- “Renal noradrenaline spillover”: redução em 47%

Resultados

- Complicações:
 - Dor durante o procedimento: manuseado com analgésicos
 - 01 paciente com dissecção da artéria renal: colocado “Stent”
 - 01 paciente com Pseudo-Aneurisma da Artéria Femoral: tratado clinicamente.
 - Ausência de estenose de artéria renal nos exames de controle

Conclusão

“Catheter-based renal denervation causes substantial and sustained blood-pressure reduction, without serious adverse events, in patients with resistant hypertension. Prospective randomised clinical trials are needed to investigate the usefulness of this procedure in the management of this condition.”