Renal denervation – dead or alive?
The view point of a nephrologist/hypertension specialist

Oliver Vonend
28.01.2015
Why do I still believe in renal denervation?

What need to be considered?
Promising Data and Hype

Mean Decrease in Office Systolic Blood Pressure at 6 Mo (mm Hg)

- Published Sources:
  1. Lancet 2009
  2. Lancet 2010
  3. TCT 2013
  4. Journal of Human Hypertension 2013
  5. Circulation 2013
  8. Eur Heart J 2013
  9. TCT 2013
  10. EuroIntervention 2013
  11. EuroIntervention 2013
Renal Denervation – Old Concept

THE EFFECT OF RENAL DENERVATION ON THE LEVEL OF
ARTERIAL BLOOD PRESSURE AND RENAL FUNCTION
IN ESSENTIAL HYPERTENSION

BY IRVINE H. PAGE AND GEORGE J. HEUER

(From the Hospital of the Rockefeller Institute for Medical Research, New York, and
the Department of Surgery, New York Hospital, New York)

(Received for publication September 12, 1934)
Mechanisms of SNS-Activation


Mechano- / Chemo- Receptors

CNS

sympathetic efferent

sensoric afferent

Nerves

Target organs:

Kidney

Brain

Vessels

Kidney

Heart

ATP, NPY

NA

Sympathetic nerve ending
Blinded RCT HTN-3 with disappointing results

-14.1 mmHg

RDN HTN-3 (n=353)
Blinded RCT HTN-3 with disappointing results

Primary Endpoint failed!
Selection and Maintenance Problems in HTN-3

Screening Failure:
- <3 Med: 388
- SBP <160mmHg: 145
- GFR <45ml/min: 67


In 40 % of Pat. (n = 208) sign. Change in Medication !!
HTN-3: What happened after 6 Months?
HTN-3: What happened after 6 Months?

Blutdruck [mmHg]

Studienbeginn 6 Monate 12 Monate
180,7 164,7 -15.2 mmHg
168,4 -11.8 mmHg

RDN HTN3  n=364
"Sham"  n=171

Modif nach Bakris 2014  ESC Barcelona
HTN-3: What happened after 6 Months?

- 12 Mo Data

Blutdruck [mmHg]

Studienbeginn  6 Monate  12 Monate

X-Over (RDN)  n=93
RDN HTN3  n=322
"Sham"  n=48
Non-X-Over  n=48

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HTN-3: What happened after 6 Months?

- 12 Mo Data

Studienbeginn

Blutdruck [mmHg]

- X-Over (RDN) n=93
- RDN HTN3 n=322
- "Sham"
- Non-X-Over n=48

unblinded

What happened after 6 Months?

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Refractory Hypertension
Office SBP >160mmHg and ≥ 3 antihypertensives

Possible Reasons:

- Suboptimal Therapy
- Drug-Interactions
- Volume Overload
- Insufficient Compliance
- Pseudo-HTN
- White-Coat HTN
- Secondary Hypertension

Moser M et al. 2006: Resistant or difficul-to-control hypertension; New Engl J Med 355 385
Refractory does not necessarily mean Refractory

731 Pat. referred for RDN to 11 European expert centres → Careful screening and treatment adjustment removed indication of RDN in 2/3 of Pat.
The view point of a nephrologist/hypertension specialist:

RDN is dead - resuscitation needed!
The viewpoint of a nephrologist/hypertension specialist:

One must consider:

- RDN is no alternative method to medication therapy
- RDN should be last option – as an ultima ratio
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One must consider:

- RDN is no alternative method to medication therapy
- RDN should be last option – as an ultima ratio
- In many cases refractory htn has some underlying cause
- Only hypertension specialists AND well trained intervaltionalists should apply RDN
The viewpoint of a nephrologist/hypertension specialist:

One must consider:

- RDN is no alternative method to medication therapy
- RDN should be last option – as an ultima ratio
- In many cases refractory htn has some underlying cause
- Only hypertension specialists AND well trained interventionalists should apply RDN
- Every Pat. should be followed up in registries
- RCTs with highly selected Pat. are needed
Gemeinsame Stellungnahme der Deutschen Hochdruckliga, Deutschen Gesellschaft für Kardiologie/Herz- und Kreislaufforschung, Deutschen Gesellschaft für Angiologie/Gefäßmedizin, Deutschen Gesellschaft für Nephrologie und Deutschen Röntgen Gesellschaft zur renalen Denervation bei Patienten mit nicht-kontrollierter arterieller Hypertonie

Oliver Vonend, Michael Böhm, Siegfried Eckert, Martin Hausberg, Harald Rittger, Lars-Christian Rump, Roland Schmieder, Karl-Ludwig Schulte, Heribert Schunkert, Michael Uder, Roland Vealken, Dierk Vorwerk, Joachim Weil, Ulrich Wenzel, Felix Mahfoud
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