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Update in femoral angioplasty & stenting

AAA and renal artery stenosis:

When to treat, how, before or after ?

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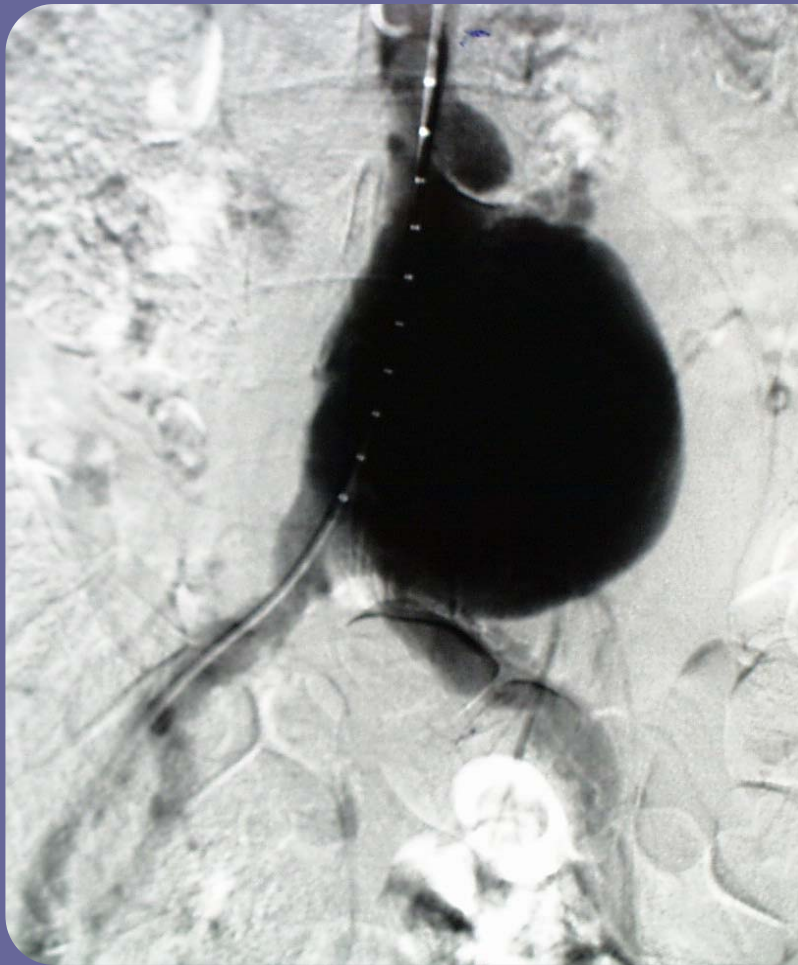
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Disclosure statement of financial interest

- I have the following potential conflicts of interest to report:
 - Consulting
 - Employment in industry
 - Stockholder of a healthcare company
 - Owner of a healthcare company
 - Other(s)
 - ✓ I do not have any potential conflict of interest

Abdominal Aortic Aneurysm (AAA)



Prevalence

- > 50 years \Rightarrow 3%
- > 65 jaar \Rightarrow 5 - 8 %
- Male / female : 4 / 1
- AAA represent 80% of all aneurysms

Indications for treatment

- AAA diameter :
 - 55mm (male patients)
 - or 50mm (female patients)
 - or the double of the native aorta
 - or evidence of growth of at least 5mm over 6 months

EVAR or open repair ?

- Continuing trend towards minimally invasive treatment of AAA
 - Decreased mortality and morbidity
 - Lower blood loss
 - Shorter hospital stay

- Anatomical criteria for Endovascular Aneurysm Repair (EVAR)
 - Proximal neck and distal landing zone :
 - Length of at least 10mm
 - Diameter 10 to 20 % smaller than diameter endoprosthesis
 - Suitable ilio-femoral and/or brachial access

Prevalence of concomitant AAA and RAS

- 2-8% of patients have AAA + RAS which is indicated for treatment⁽¹⁾

⁽¹⁾Johnston KW J Vasc Surg 1988;7:69-81 - AURC and Kieffer E Editions AURC;1990:p.235-43 - Valentine RJ J Vasc Surg 1993;18:433-40

Indications for treatment of RAS in patients with concomittent AAA

- High-grade renal artery stenosis
- Kidney size >7.5cm
- Uncontrolled hypertension
- Rapid and recent increase of creatinine

RAS treatment results

- After surgery⁽¹⁾
 - Only 15% : cure of hypertension after renal revascularisation
 - But : 90% demonstrates improvement in blood pressure control after revascularisation
- After endovascular repair⁽²⁾
 - Similar results to surgery
 - 88% improvement of high blood pressure or cure

(1) Hansen KJ J Vasc Surg 1992;16:319-31

(2) Blum et al N Eng J Med 1997;336:459-65

Open repair or EVAR ?

- introduction of EVAR → decrease in open AAA surgery with 73%
- Reasons :
 - EVAR has become more common
 - Endovascular RAS treatment has become the standard of care and is much easier

Open repair or EVAR ?

You can prefer surgery or EVAR
it's low

We choose EVAR whenever possible

Open AAA surgery is reserved
when EVAR is impossible or difficult

surgery



AAA and RAS : surgery

- Patients with pre-op renal impairment have a higher risk of mortality
- Post-op renal failure affects 2-10% of patients
- Death rate in patients on hemodialysis after AAA surgery : 25-66%
- Reasons for post-op renal dysfunction :
 - Hypoperfusion due to cross-clamping
 - Emboli
 - Ischemia-reperfusion injury

AAA and RAS : surgery

- Simultaneous open surgery of AAA and RAS give comparable results to solitary AAA surgery

TABLE IV.—Res

Authors (year)	Renal artery arteriolarization (n)	Late patency (%)
Brarral ⁴¹ (1990)	39	85
Branchereau ⁴² (1990)	81	89
Mc Neil ⁴³ (1994)	35	92.5
Darling RC.III ⁴⁴ (1994)	77	98.8
Ballard ⁴⁵ (1996)	38	65
Stoney ⁴⁶ (1999)	77	NA
Hassen-Khodja ⁴⁷ (2000)	51	98
Hertzer ⁴⁸ (2001)	83	85

NA: non available; *

In case of open AAA repair :
Always treat RAS and AAA
 during the same surgical procedure

Benefits of EVAR in patients with RAS

- Less invasive (reduction of surgical trauma)
- Elimination of hypoperfusion secondary to hemodynamic instability and cross-clamping
- Lower peri-procedural mortality & morbidity
- Less ischemia-reperfusion injury

Potential dangers of EVAR in patients with RAS

- Hemodynamics, lower limb ischemia, reperfusion injury
- Contrast nephropathy
 - Large volumes of contrast media used during EVAR
- Renal infarction
 - Dislodged emboli from AAA wall during manipulations of guidewires, catheters, endograft
 - Suprarenal endoprosthesis fixation (+ unknown long-term effect)
- Transrenal graft fixation (unknown long-term effects)

AAA and RAS : EVAR

- Treat AAA and RAS in one endovascular intervention
- PTA of renal stenosis after EVAR
 - Infrarenal endoprosthesis :
Avoid potential problem of dislocating renal stent
(if placed before EVAR) during AAA-endoprosthesis fixation
 - Suprarenal endoprosthesis :
Avoid renal stent to get entangled in the struts of the endoprosthesis

Conclusion

In experienced hands,
even the most difficult
situations can be handled

THE
AAA - TEAM

