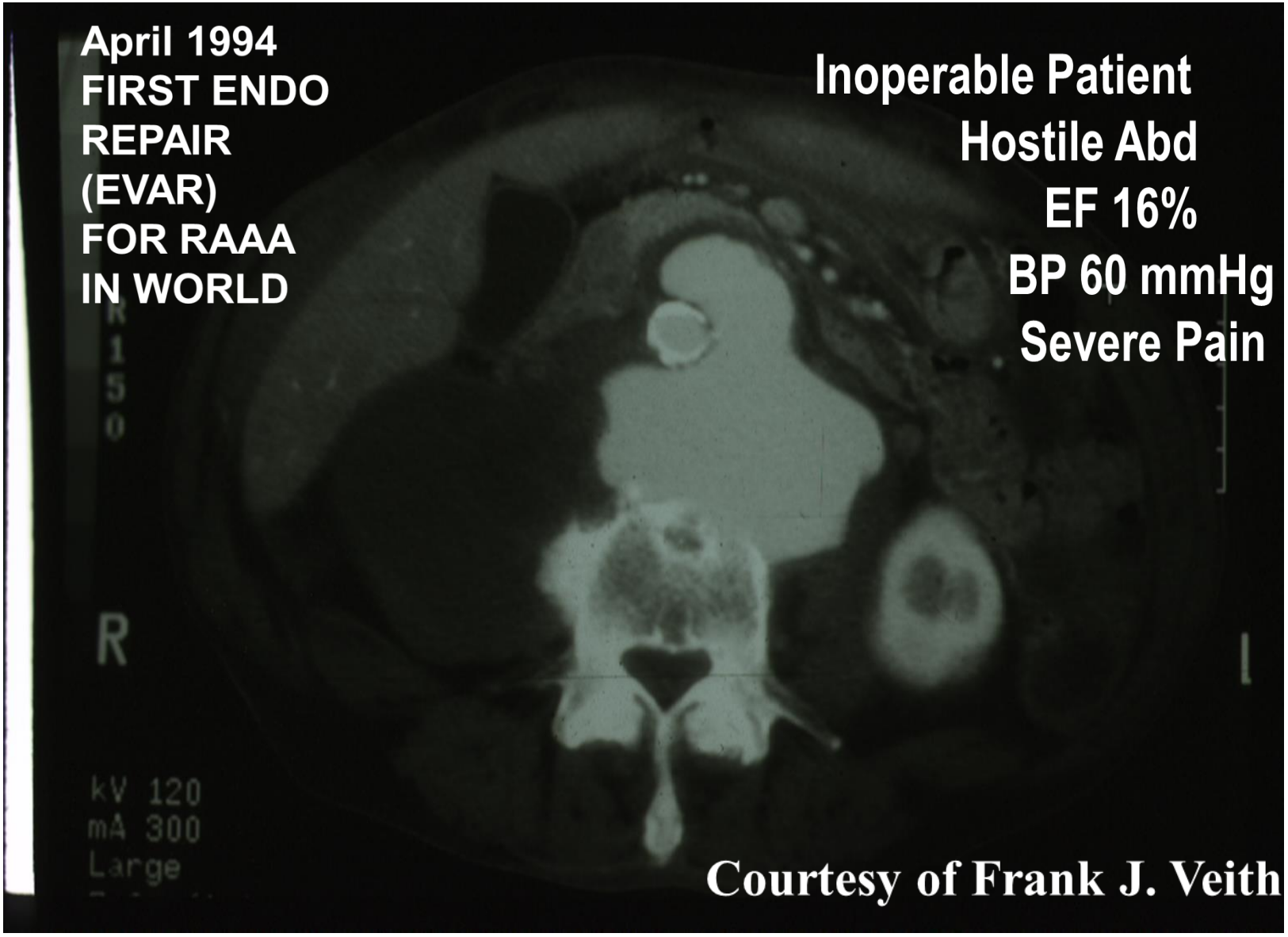
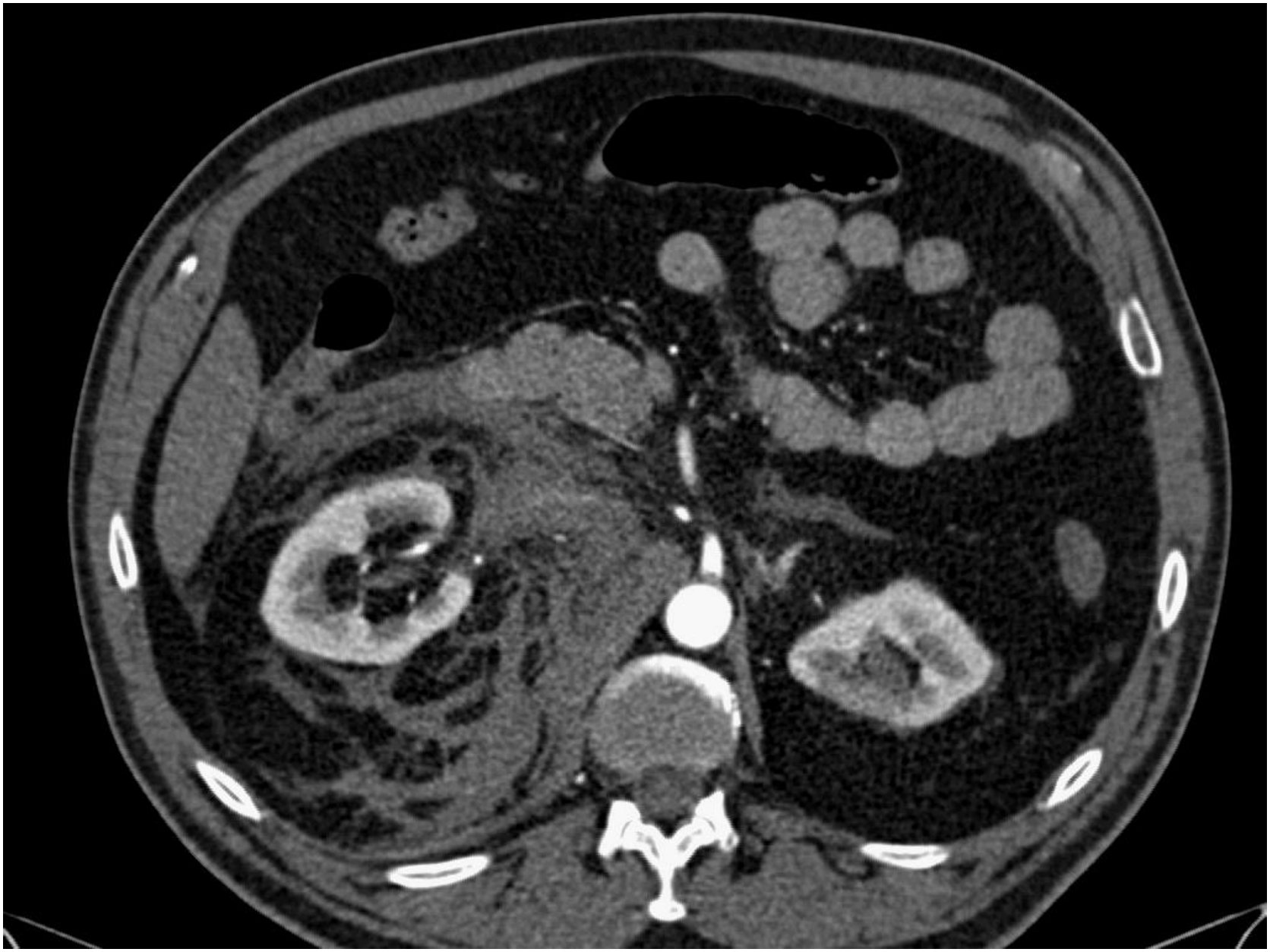
Disclosures

- University Hospital Employee
- Advisory Board: JOTEC
- Consultant: Gore, Medtronic Academia
- Research grant: Philips

First rEVAR 20 years ago !!!




20 YEARS
AFTER



So 26.10.2014 Tag H Modus Kalender Ansicht Status Spalten fix mm

F OPS Pat MA + gelöschte aktuelle/zukünftige

Stand: 09:21:42	F OPS Saal 2	F OPS Saal 3	F OPS Saal 4	F OPS Saal 5	F OPS Saal 6	F OPS Saal 7	F OPS Saal 8	F OPS Weitere Lo...
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08 h								
09 h								
10 h								
11 h								
12 h								

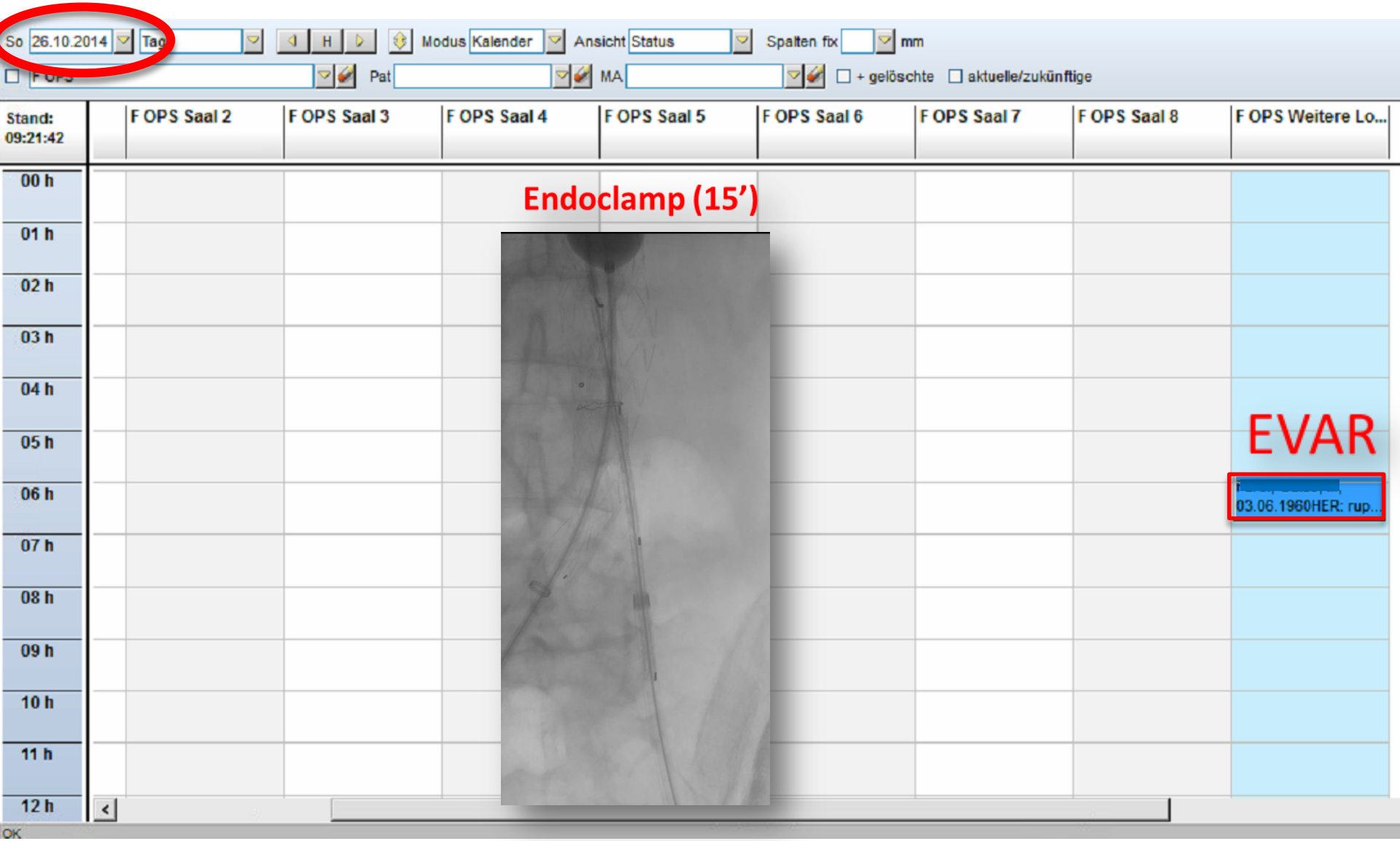
Team (4)
1 VS
1 IR and 1 IRA
1 Anesthesiologist

EVAR

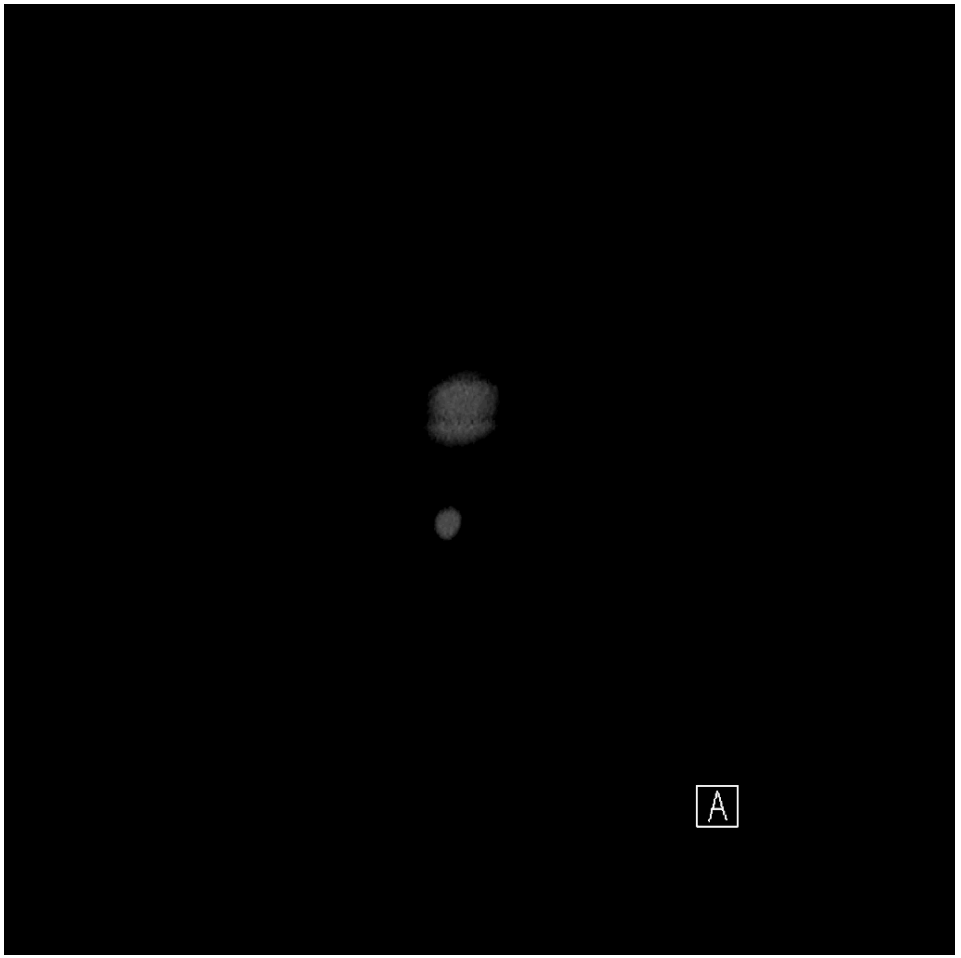
[redacted] 03.06.1960HER: rup...

OK

PEVAR & LA



Mean systolic arterial blood pressure: 65mmHg
Some vasoactive
No transfusion (blood or coagulation factors)



Wir berichten Ihnen über oben genannten Patienten, der in unserer Klinik hospitalisiert war.

Bettenstation	26.10.2014	bis	29.10.2014
Intensivstation	26.10.2014	bis	27.10.2014

CONTROVERSES
ET ACTUALITÉS EN CHIRURGIE VASCULAIRE

CONTROVERSIES & UPDATES IN VASCULAR SURGERY

JANUARY 22-24 2015

MARRIOTT RIVE GAUCHE & CONFERENCE CENTER
PARIS, FRANCE

www.cacvs.org

Chairman
Jean-Pierre Becquemin

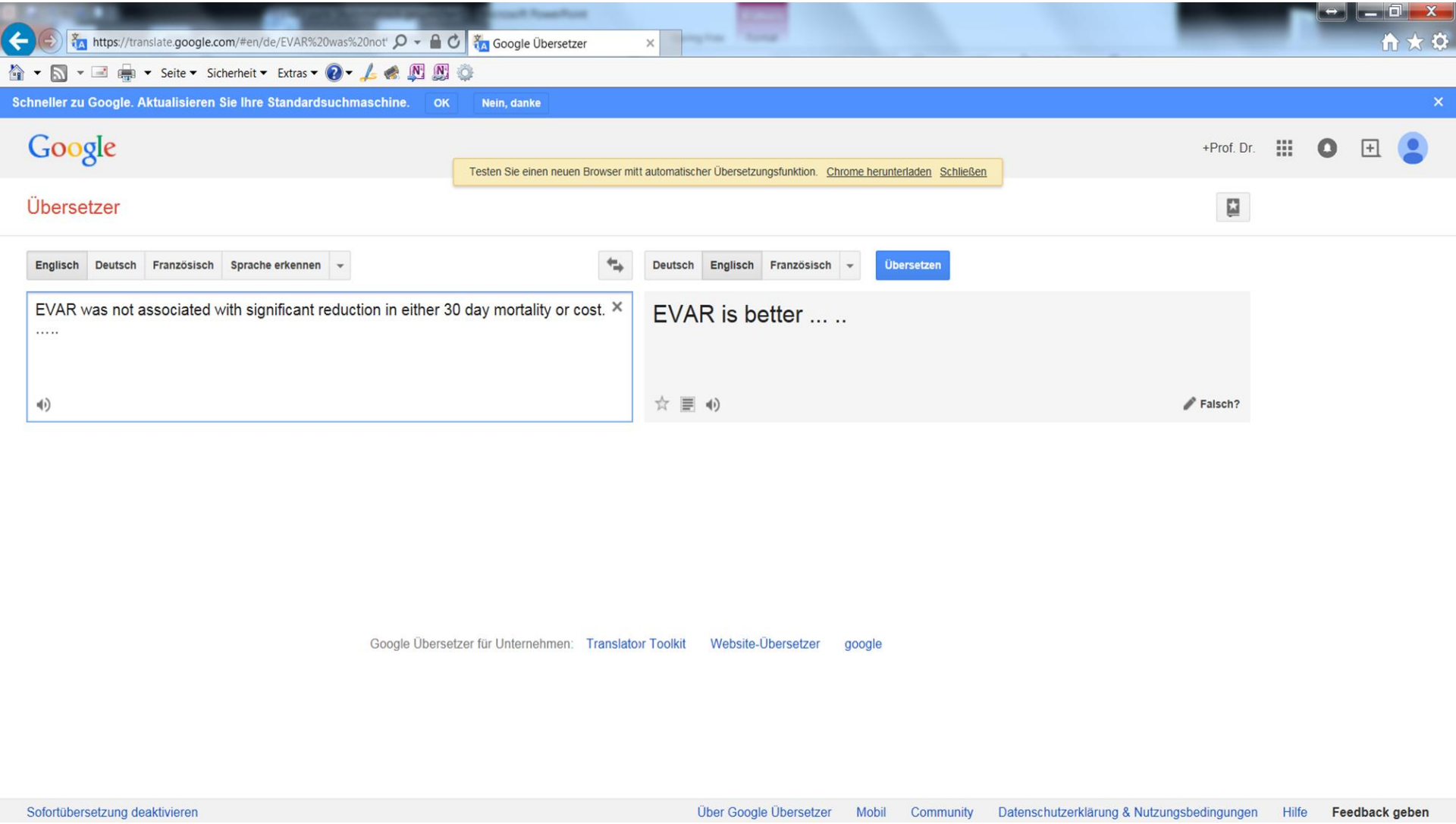
French Scientific Committee
Jean-Luc Gérard
Yves S. Alimi
Eric Allaire
Pierre Bourquelot
Pascal Desgranges
Hicham Kobeiter
Jean Marzelle

International Scientific Committee
Piergiorgio Cao
Nicholas Cheshire
Hans-Henning Eckstein
Christos D. Liapis
Martin Malina
Armando Mansilha

08.50	**CONTROVERSY: Ruptured aneurysms**
08.50	No advantage for EVAR! Except? Janet Powell
09.00	Do EVAR or die! Mario Lachat
09.10	Discussion


IMPROVE
EVAR was not associated with significant reduction in either
30 day mortality or
cost……

Translator for nonbritish english




THE ILLUSIONIST
NOTHING IS WHAT IT SEEMS

If open repair would be

a soupçon better than EVAR, then conclusions would be…

The Facts

REVIEW

Editor's Choice — Endovascular Aneurysm Repair Versus Open Repair for Patients with a Ruptured Abdominal Aortic Aneurysm: A Systematic Review and Meta-analysis of Short-term Survival CME

S.C. van Beek [a], A.P. Conijn [a], M.J. Koelemay, R. Balm [*]

Department of Vascular Surgery, Academic Medical Centre, Amsterdam, The Netherlands

WHAT THIS PAPER ADDS

There is a clinical equipoise about the best treatment for a patient with a ruptured abdominal aortic aneurysm: endovascular (EVAR) or open repair (OR). The results of the present systematic review indicate that endovascular aneurysm repair is not inferior to open repair with regard to short-term survival. This supports the use of EVAR in suitable patients and OR as a reasonable alternative. Possible future directions are centralisation of care in high-volume hospitals, 'EVAR-first'/hybrid repair, or an 'EVAR-only' approach.

Background: There is clinical equipoise between open (OR) and endovascular aneurysm repair (EVAR) for the best treatment of ruptured abdominal aortic aneurysm (RAAA).

Objective: The aim of the study was to perform a systematic review and meta-analysis to estimate the short-term (combined 30-day or in-hospital) survival after EVAR and OR for patients with RAAA. Data sources included Medline, Embase, and the World Health Organization International Clinical Trials Registry until 13 January 2014. All randomised controlled trials (RCTs), observational cohort studies, and administrative registries comparing OR and EVAR of at least 50 patients were included. Articles were full-length and in English.

Methods: Standard PRISMA guidelines were followed. The methodological quality of RCTs was assessed with the Cochrane Collaboration's tool for assessing risk of bias. The quality of observational studies was assessed with a modified Cochrane Collaboration's tool for assessing risk of bias, the Newcastle—Ottawa Scale, and the Methodological Index for Non-Randomized Studies. The results of the RCTs, of the obersvational studies, and of the administrative registries were pooled separately and analysed with the use of a random effects model.

Results: From a total of 3,769 articles, three RCTs, 21 observational studies, and eight administrative registries met the inclusion criteria. In the RCTs, the risk of bias was lowest and the pooled odds ratio for death after EVAR versus OR was 0.90 (95% CI 0.65—1.24). The majority of the observational studies had a high risk of bias and the pooled odds ratio for death was 0.44 (95% CI 0.37—0.53). The majority of the administrative registries had a high risk of bias and the pooled odds ratio for death was 0.54 (95% CI 0.47—0.62).

Conclusion: Endovascular aneurysm repair is not inferior to open repair in patients with a ruptured abdominal aortic aneurysm. This supports the use of EVAR in suitable patients and OR as a reasonable alternative.

Article history: Received 17 January 2014, Accepted 4 March 2014, Available online 18 April 2014

Keywords: Open repair, Endovascular aneurysm repair

MeSH keywords: Abdominal Aortic Aneurysm, Aortic Rupture, Vascular Surgical Procedures

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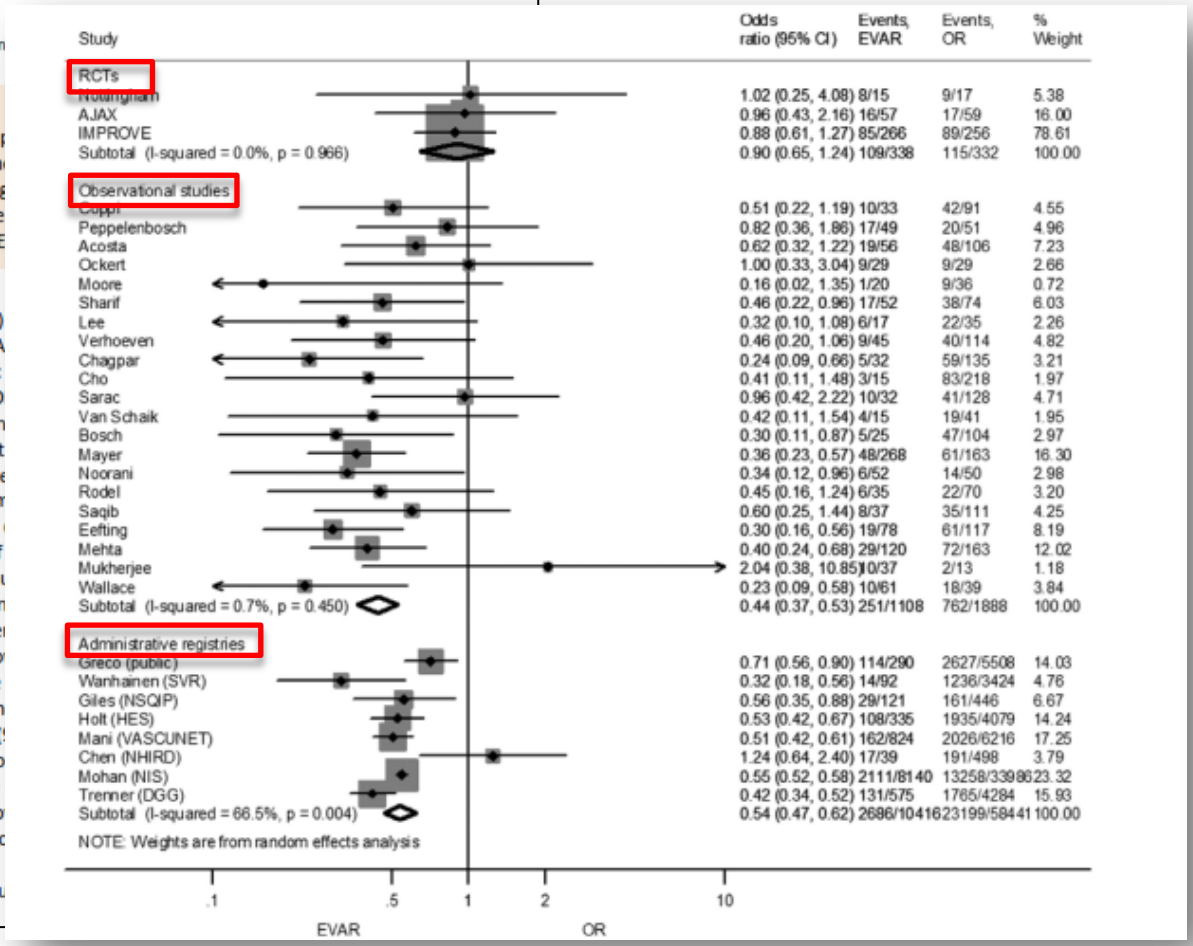

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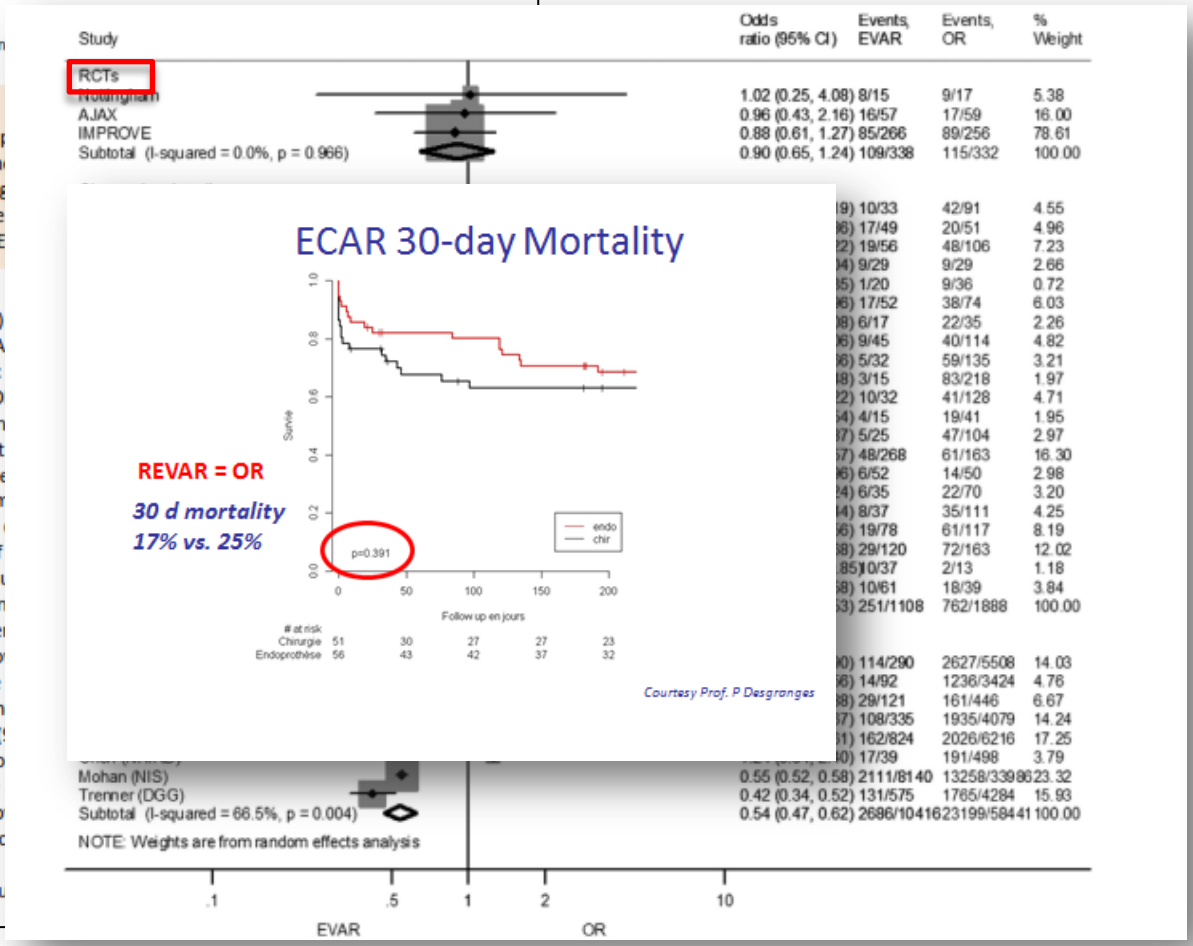

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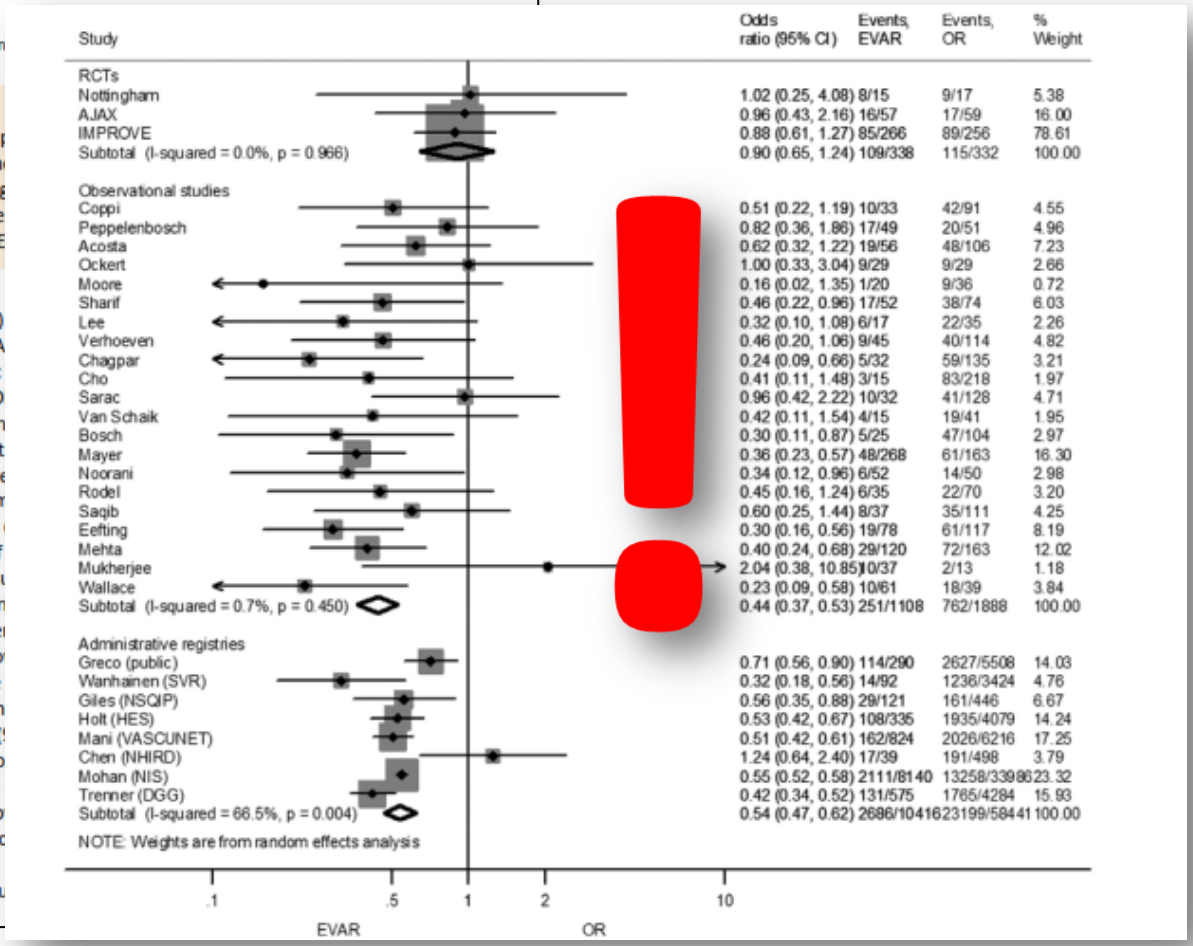


Facts

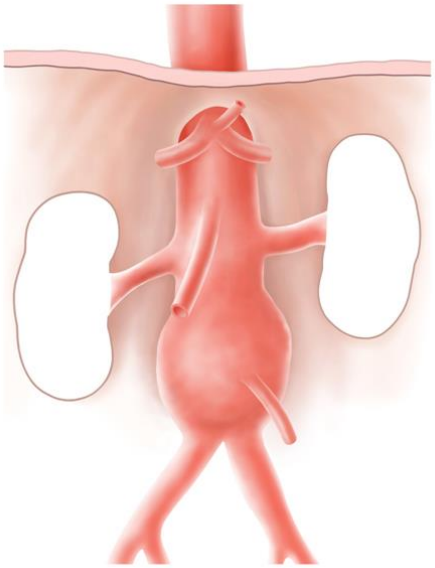
- EVAR shows advantages over OR
  - ER has less severe early postoperative complications
  - ER has better 5 years survival…

Subgroups???

Low risk - good anatomy patients

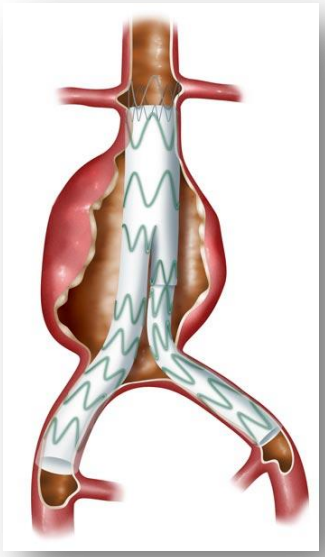
- Is COSR better in such population?

Anatomy fitting for EVAR/OR



Infrarenal

✓ rEVAR



EVAR (>45´000 pts)

EVAR (Lancet, 2005)
DREAM (NEJM, 2005)
Medicare Registry (NEJM, 2008)

	COS	EVAR	EVAR	COS
30d †	4.7%	1.7%	1.2%	4.6%
ARR		3%	3.4%	
RRR		69.5%		

Challenging anatomy patients

- Should we perform COSR in such population?

Open Repair of Pararenal Aortic Aneurysms: Operative Management, Early Results, and Risk Factor Analysis

Roberto Chiesa, MD, Enrico Maria Marone, MD, Chiara Brioschi, MD, Sillia Frigerio, MD, Yamume Tshomba, MD, and Germano Melissano, MD, Milan, Italy

Surgical treatment of pararenal aortic aneurysms, if compared to open surgical repair of infrarenal aneurysms, is technically more demanding and characterized by problems related to organ ischemia. [illegible] with the treatment [illegible] 19 consecutive pa[illegible]spective analysis o[illegible]xtarenal aneurysms[illegible] primary repair of ar[illegible]stomotic pseudoane[illegible]ararenal aorta prox[illegible]ergency operation f[illegible]ality rate was 4.7%[illegible]neurysm group, the [illegible]esent in 16 patients[illegible]n supra-renal ones[illegible]eturn to baseline le[illegible], a short period of d[illegible]a higher risk of trar[illegible]ve renal insufficiency was associated with a higher risk of persistent postoperative deterioration of renal function ($p < 0.0001$). Morbidity and mortality of elective surgery for pararenal aneurysms is acceptable. One of the main risks of this surgery is renal morbidity. Preoperative renal insufficiency and long periods of renal ischemia are associated with a higher risk of postoperative deterioration of renal function that is often, but not always, reversible. Nowadays, pararenal aneurysm repair is a safe procedure, especially if performed electively.

12 years (1993-2005)

2810 AAA repair

149 RAAA (5%)

119 PRAA (4%)

4RPRAA (3% of all RAAA)

Annals of Vascular Surgery 2006; 20: 739–746

High surgical risk patient

- Should we perform COSR

High risk – elective open surgery

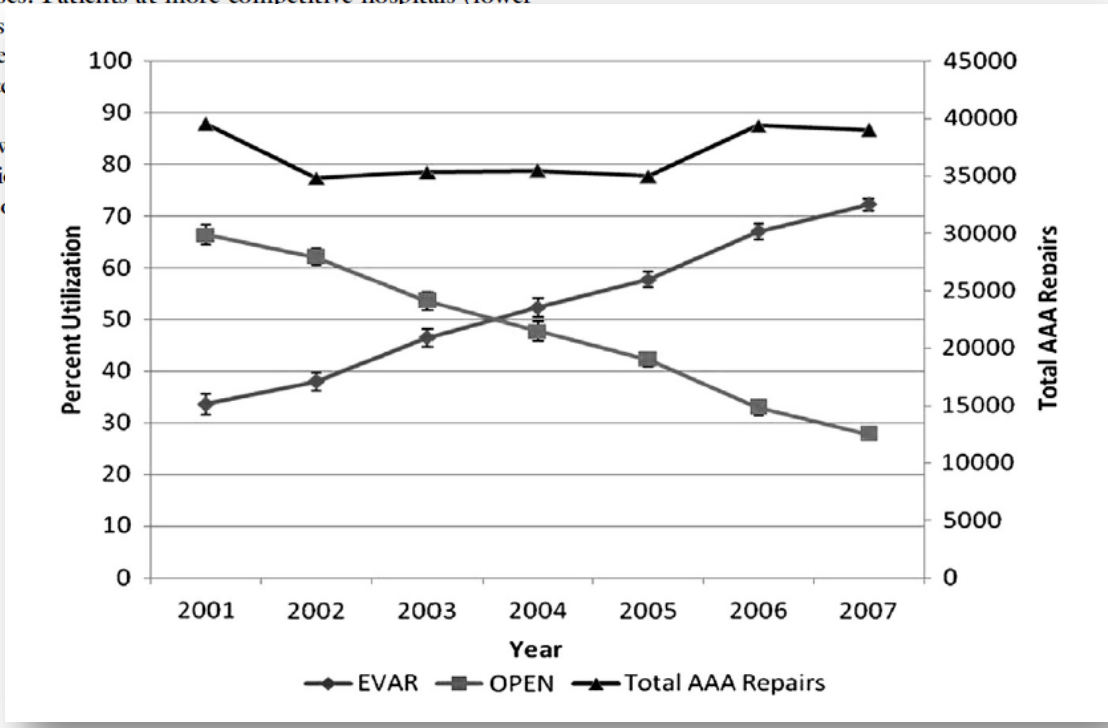
Age	CAD	COLD	Renal	Mortality
<65 years	-	-	-	1%
	+	+	+	23%
65-80 years	-	-	-	2%
	+	+	+	46%
>80 years	-	-	-	4%
	+	+	+	49%

Who is winner?

Impact of hospital market competition on endovascular aneurysm repair adoption and outcomes

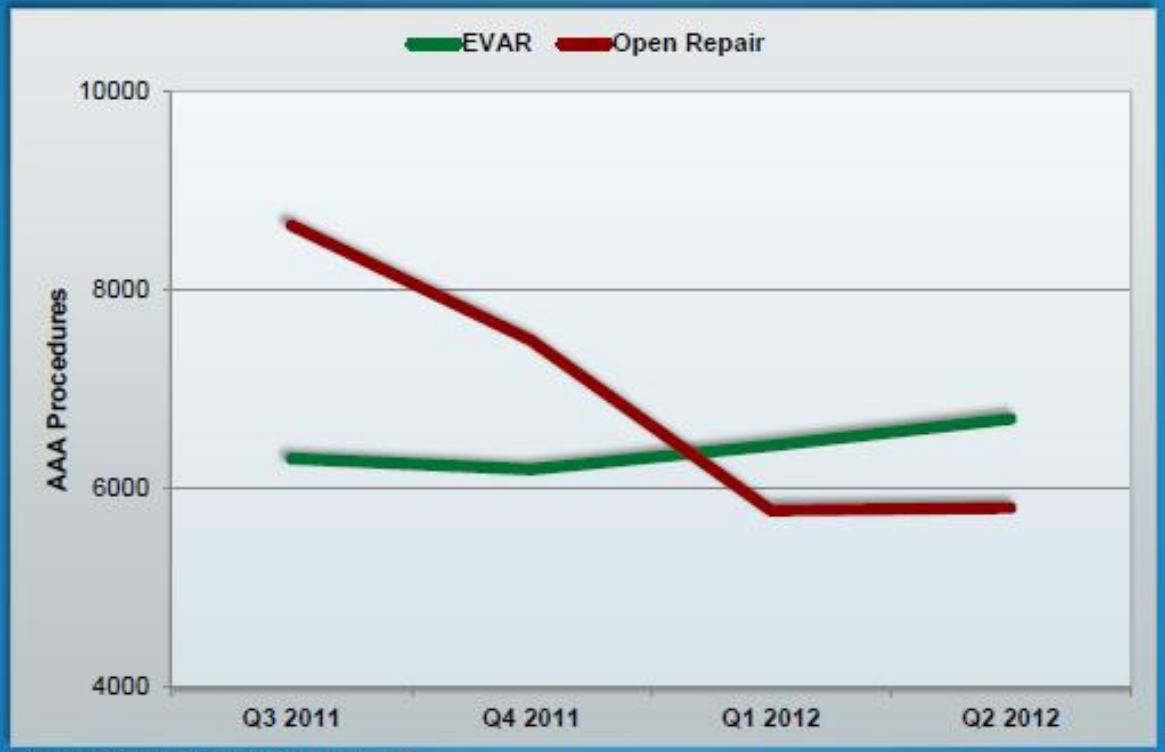
Rosh K. V. Sethi, BS,[a,b] Antonia J. Henry, MD, MPH,[b,c] Nathanael D. Hevelone, MPH,[b] Stuart R. Lipsitz, ScD,[b] Michael Belkin, MD,[a,c] and Louis L. Nguyen, MD, MBA, MPH,[a,b,c] *Boston, Mass*

Objective: The share of total abdominal aortic aneurysm (AAA) repairs performed by endovascular aneurysm repair (EVAR) increased rapidly from 32% in 2001 to 65% in 2006 with considerable variation between states. We hypothesized that hospitals in competitive markets were early EVAR adopters and had improved AAA repair outcomes.
Methods: Nationwide Inpatient Sample and linked Hospital Market Structure (HMS) data was queried for patients who underwent repair for nonruptured AAA in 2003. In HMS, the Herfindahl Hirschman Index (HHI, range 0-1) is a validated and widely accepted economic measure of competition. Hospital markets were defined using a variable geographic radius that encompassed 90% of discharged patients. We conducted bivariate and multivariable linear and logistic regression analyses for the dependent variable of EVAR use. A propensity score-adjusted multivariable logistic regression model was used to control for treatment bias in the assessment of competition on AAA repair outcomes.
Results: A weighted total of 21,600 patients was included in our analyses. Patients at more competitive hospitals (lower HHI) were at increased odds of undergoing EVAR vs open repair (odds
after adjusting for patient demographics, comorbidities, and hospital le
volume, and ownership). Competition was not associated with differenc
or other minor postoperative complications.
Conclusions: Greater hospital competition is significantly associated v
diffusion of this technology passed its tipping point. Hospital competiti
These results suggest that adoption of novel vascular technology is not s
influenced by market forces. (J Vasc Surg 2013;58:596-606.)



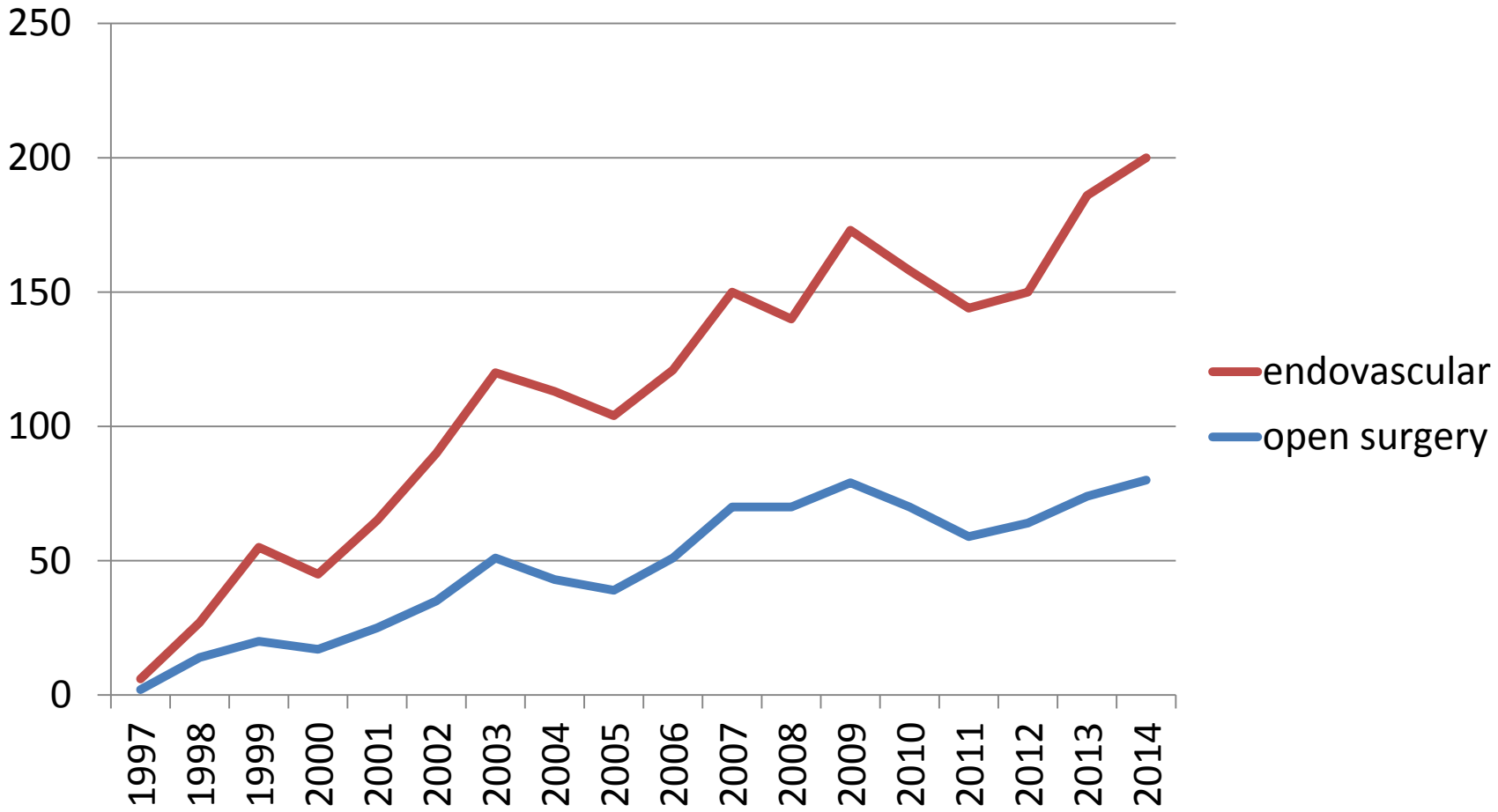
Abdominal aortic aneurysm (AAA) procedures

Chart 1: AAA trend over time, EVAR & Open Surgery



Source: EVEM Panel Estimates, Q2 2012

Per year papers published on rAAA



Complete Replacement of Open Repair for Ruptured Abdominal Aortic Aneurysms by Endovascular Aneurysm Repair

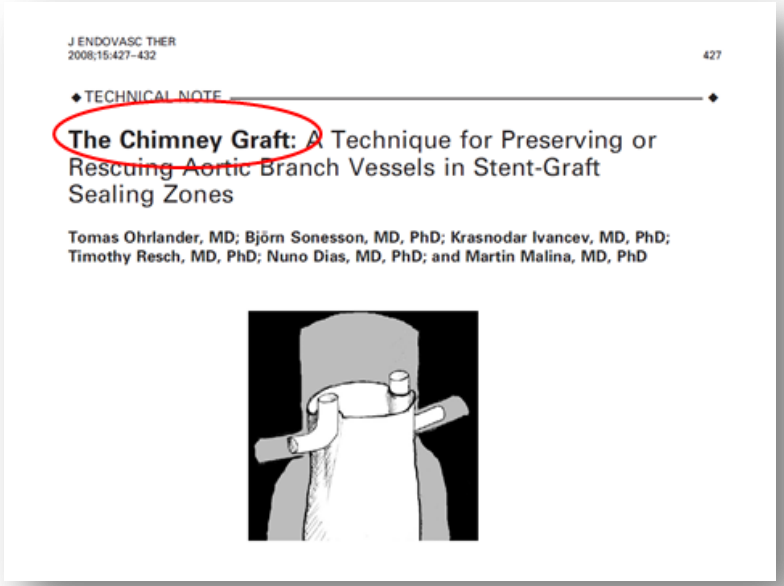
A Two-Center 14-Year Experience

D. Mayer, MD, S. Aeschbacher,* T. Pfammatter, MD,* F. J. Veith, MD,† L. Norgren, MD, PhD,§ A. Magnuson, BSc,|| Z. Rancic, MD, PhD,* M. Lachat, MD,* and T. Larzon, MD‡*

(*Ann Surg* 2012;256: 688–696)

Chimney Technique

- Parallel graft



J ENDOVASC THER
2008;15:427–432

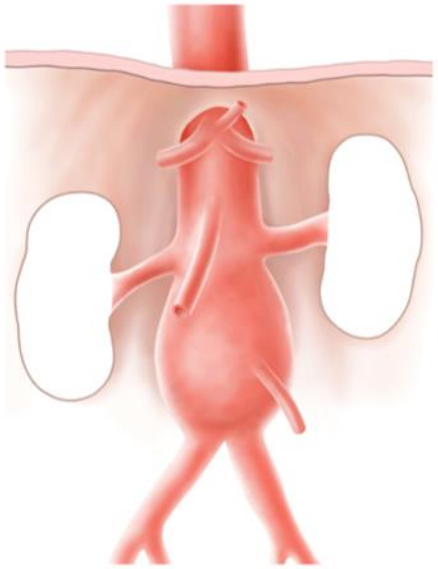
427

◆TECHNICAL NOTE

The Chimney Graft: A Technique for Preserving or Rescuing Aortic Branch Vessels in Stent-Graft Sealing Zones

Tomas Ohrlander, MD; Björn Sonesson, MD, PhD; Krasnodar Ivancev, MD, PhD; Timothy Resch, MD, PhD; Nuno Dias, MD, PhD; and Martin Malina, MD, PhD

- Short neck (juxtarenal)



pair for Ruptured
Endovascular

ience

, MD,† L. Norgren, MD, PhD,§
D,* and T. Larzon, MD‡

Objective: To present the combined 14-year experience of 2 university centers performing endovascular aneurysm repair (EVAR) on 100% of noninfected ruptured abdominal aortic aneurysms (RAAA) over the last 32 months.

Background: Endovascular aneurysm repair for RAAA feasibility is reported to be 20% to 50%, and EVAR for RAAA has been reported to have better outcomes than open repair.

Methods: We retrospectively analyzed prospectively gathered data on 473 consecutive RAAA patients (Zurich, 295; Örebro, 178) from January 1, 1998, to December 31, 2011, treated by an "EVAR-whenever-possible" approach until April 2009 (EVAR/OPEN period) and thereafter according to a "100% EVAR" approach (EVAR-ONLY period).

Straightforward cases were treated by standard EVAR. More complex RAAA were managed during EVAR-ONLY with adjunctive procedures in 17 of 70 patients (24%): chimney, 3; open iliac debranching, 1; coiling, 8; onyx, 3; and chimney plus onyx, 2.

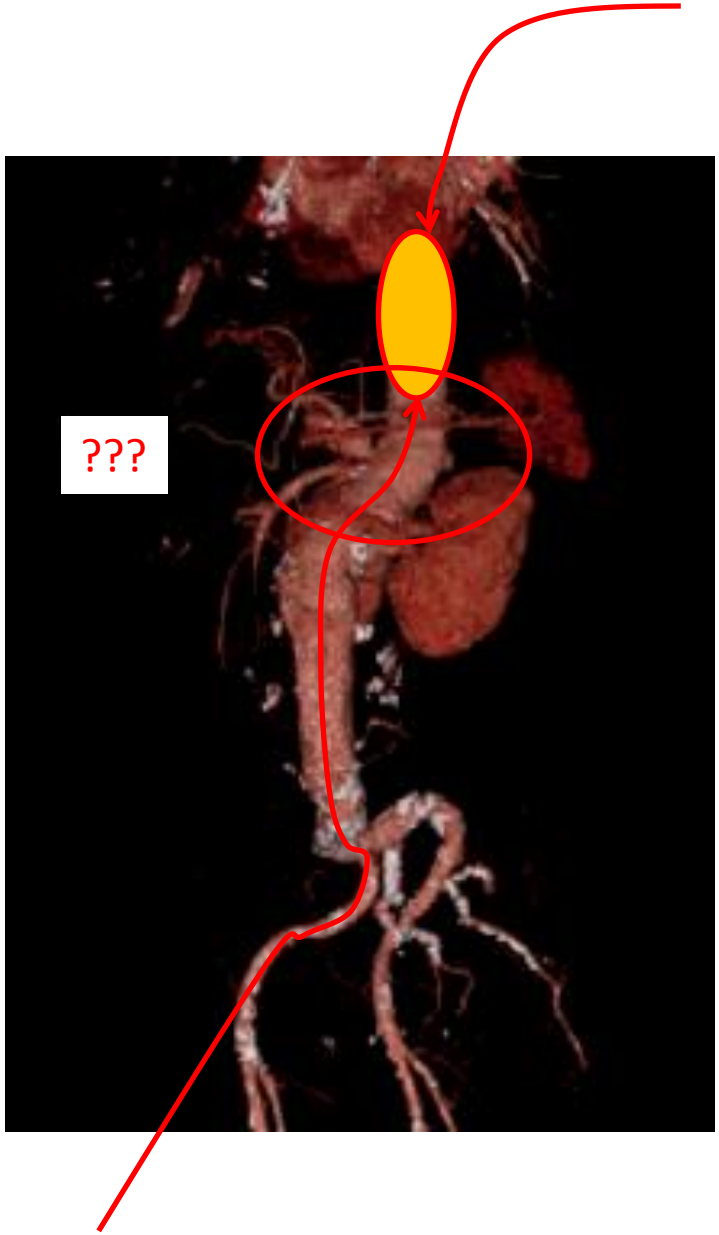
Results: Since May 2009, all RAAA but one have been treated by EVAR (Zurich, 31; Örebro, 39); 30-day mortality for EVAR-ONLY was 24% (17 of 70). Total cohort mortality (including medically treated patients) for EVAR/OPEN was 32.8% (131 of 400) compared with 27.4% (20 of 73) for EVAR-ONLY ($P = 0.376$). During EVAR/OPEN, 10% (39 of 400) of patients were treated medically compared with 4% (3 of 73) of patients during EVAR-ONLY. In EVAR/OPEN, open repair showed a statistically significant association with 30-day mortality (adjusted odds ratio [OR] = 3.3; 95% confidence interval [CI], 1.4–7.5; $P = 0.004$). For patients with no abdominal decompression, there was a higher mortality with open repair than EVAR (adjusted OR = 5.6; 95% CI, 1.9–16.7). In patients with abdominal decompression by laparotomy, there was no difference in mortality (adjusted OR = 1.1; 95% CI, 0.3–3.7).

Conclusions: The "EVAR-ONLY" approach has allowed EVAR treatment of nearly all incoming RAAA with low mortality and turndown rates. Although the observed association of a higher EVAR mortality with abdominal decompression needs further study, our results support superiority and more widespread adoption of EVAR for the treatment of RAAA.

Ann Surg 2012;256: 688–696)

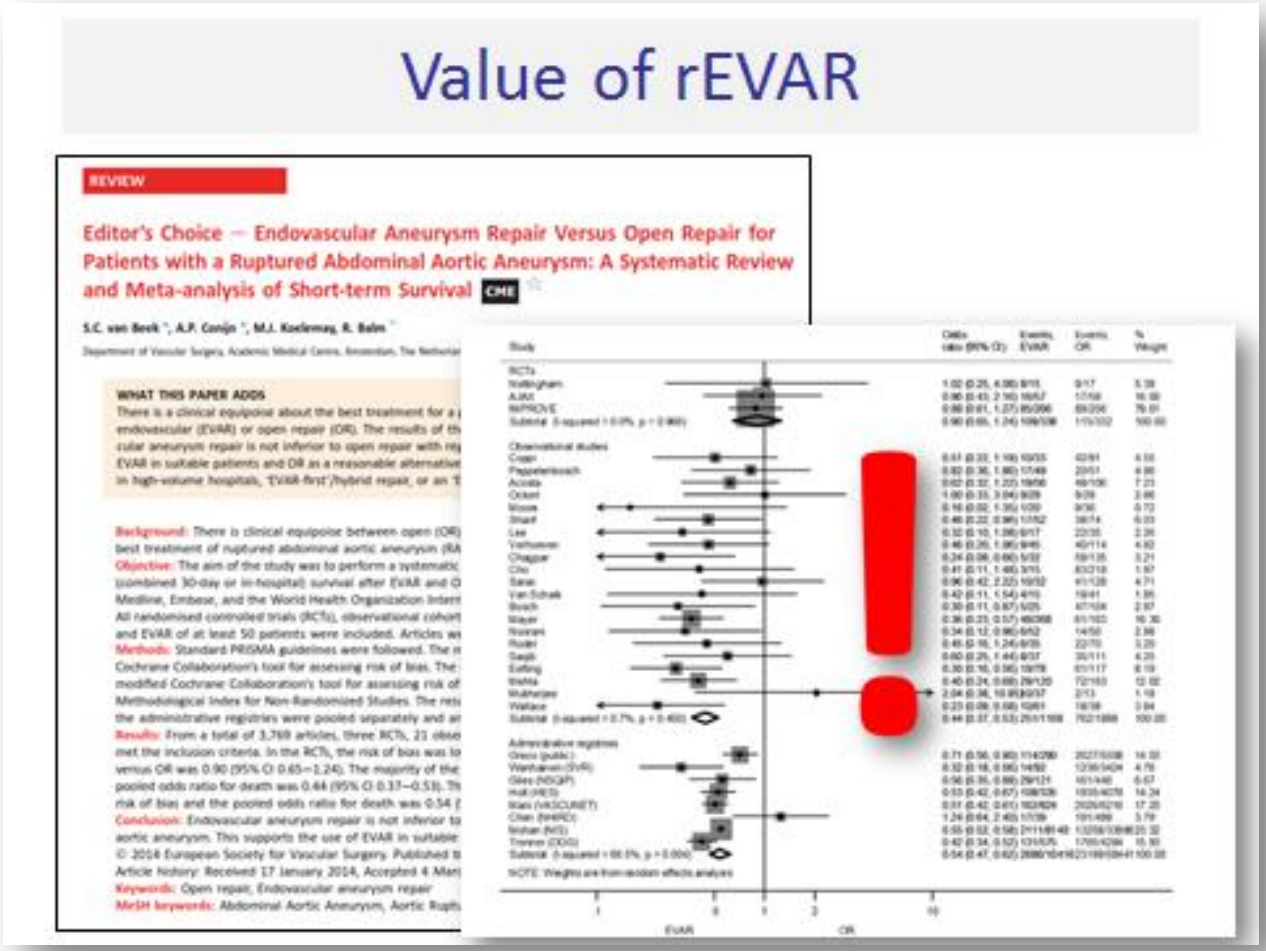
PRAA

- CHIMPS-EVAR may be an alternative to OR, but RPRAA requiring endoclamping should probably be repaired fast-track with open surgery



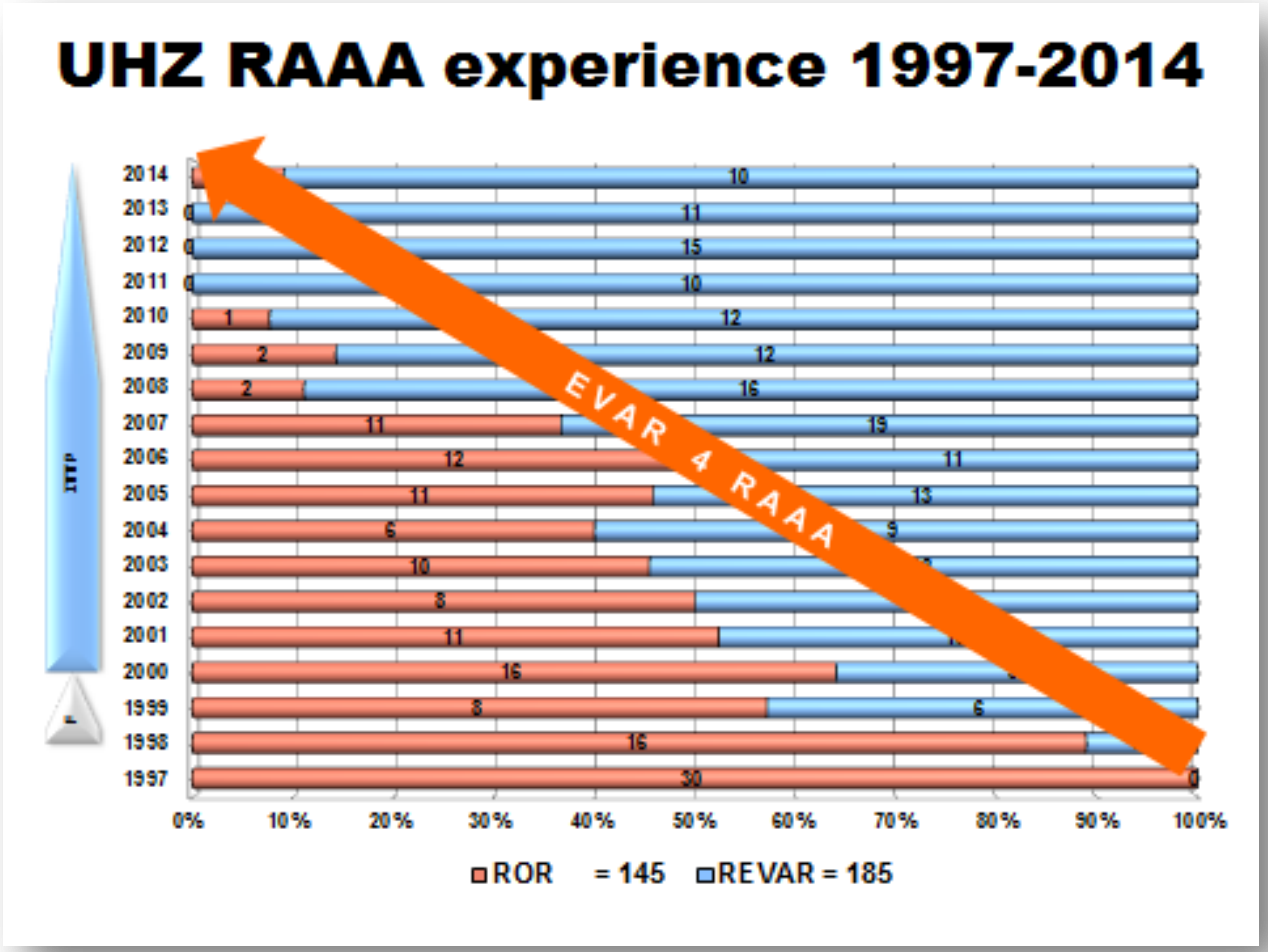
Conclusions

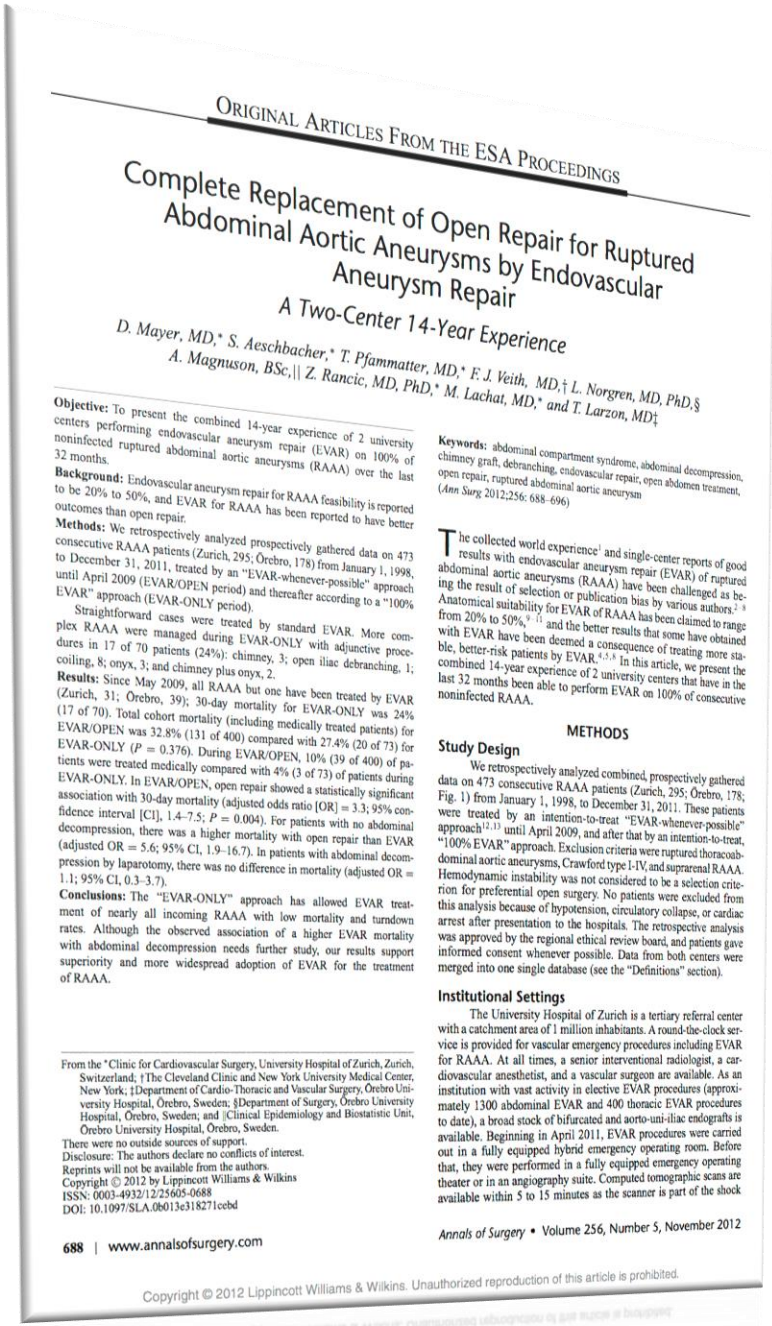
- All studies showed rEVAR ≥ rOR



Conclusions

- EVAR feasible in >90% of rAAA





ORIGINAL ARTICLES FROM THE ESA PROCEEDINGS

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Methods: We retrospectively analyzed prospectively gathered data on 473 consecutive RAAA patients (Zurich, 295; Örebro, 178) from January 1, 1998, to December 31, 2011, treated by an "EVAR-whenever-possible" approach until April 2009 (EVAR/OPEN period) and thereafter according to a "100% EVAR" approach (EVAR-ONLY period).

Straightforward cases were treated by standard EVAR. More complex RAAA were managed during EVAR-ONLY with adjunctive procedures in 17 of 70 patients (24%): chimney, 3; open iliac debranching, 1; coiling, 8; onyx, 3; and chimney plus onyx, 2.

Results: Since May 2009, all RAAA but one have been treated by EVAR (Zurich, 31; Örebro, 39); 30-day mortality for EVAR-ONLY was 24% (17 of 70). Total cohort mortality (including medically treated patients) for EVAR/OPEN was 32.8% (131 of 400) compared with 27.4% (20 of 73) for EVAR-ONLY ($P = 0.376$). During EVAR/OPEN, 10% (39 of 400) of patients were treated medically compared with 4% (3 of 73) of patients during EVAR-ONLY. In EVAR/OPEN, open repair showed a statistically significant association with 30-day mortality (adjusted odds ratio [OR] = 3.3; 95% confidence interval [CI], 1.4–7.5; $P = 0.004$). For patients with no abdominal decompression, there was a higher mortality with open repair than EVAR (adjusted OR = 5.6; 95% CI, 1.9–16.7). In patients with abdominal decompression by laparotomy, there was no difference in mortality (adjusted OR = 1.1; 95% CI, 0.3–3.7).

Conclusions: The "EVAR-ONLY" approach has allowed EVAR treatment of nearly all incoming RAAA with low mortality and turndown rates. Although the observed association of a higher EVAR mortality with abdominal decompression needs further study, our results support superiority and more widespread adoption of EVAR for the treatment of RAAA.

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There were no outside sources of support.
Disclosure: The authors declare no conflicts of interest.
Reprints will not be available from the authors.

ISSN: 0003-4932/12/25605-0688
DOI: 10.1097/SLA.0b013e318271cebd

Keywords: abdominal compartment syndrome, abdominal decompression, chimney graft, debranching, endovascular repair, open abdomen treatment, open repair, ruptured abdominal aortic aneurysm
(*Ann Surg* 2012;256: 688–696)

The collected world experience[1] and single-center reports of good results with endovascular aneurysm repair (EVAR) of ruptured abdominal aortic aneurysms (RAAA) have been challenged as being the result of selection or publication bias by various authors.[2–8] Anatomical suitability for EVAR of RAAA has been claimed to range from 20% to 50%,[9–11] and the better results that some have obtained with EVAR have been deemed a consequence of treating more stable, better-risk patients by EVAR.[4,5,8] In this article, we present the combined 14-year experience of 2 university centers that have in the last 32 months been able to perform EVAR on 100% of consecutive noninfected RAAA.

METHODS

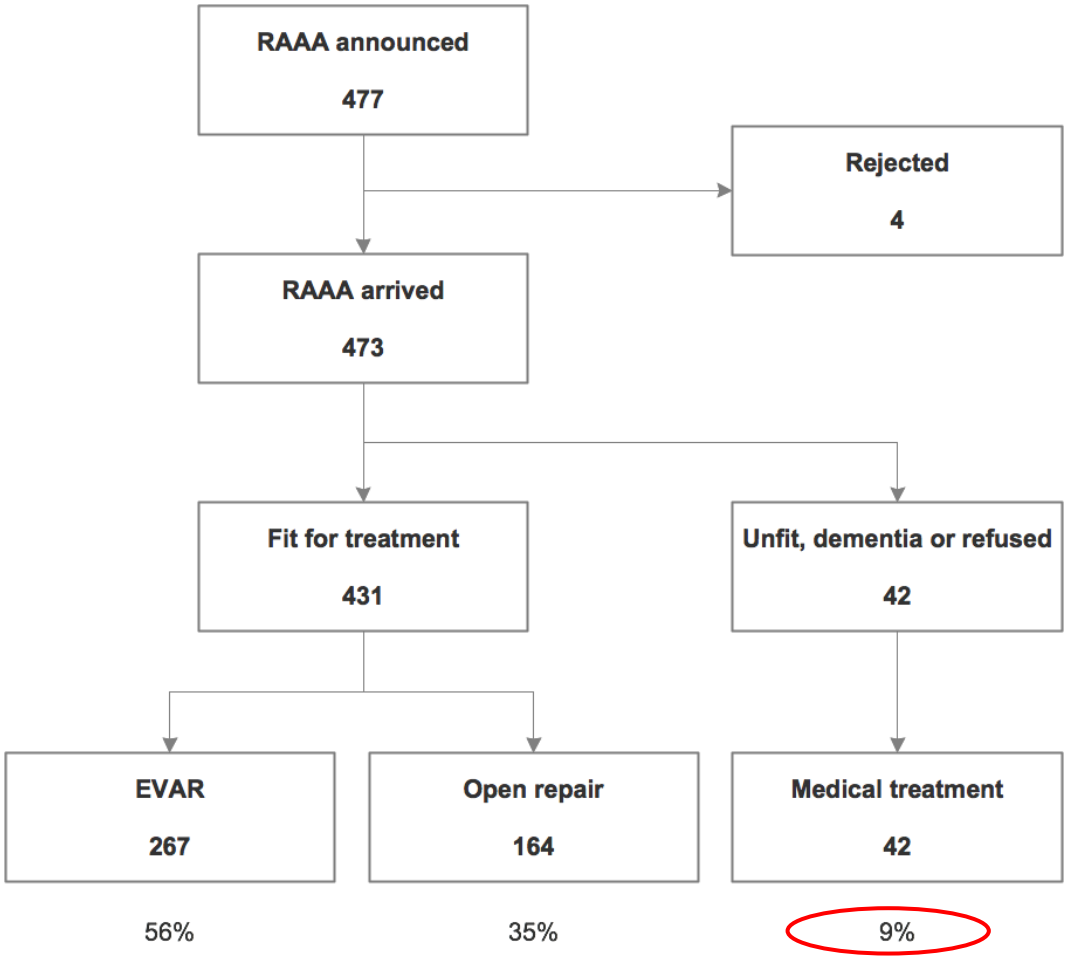
Study Design

We retrospectively analyzed combined, prospectively gathered data on 473 consecutive RAAA patients (Zurich, 295; Örebro, 178; Fig. 1) from January 1, 1998, to December 31, 2011. These patients were treated by an intention-to-treat "EVAR-whenever-possible" approach[12,13] until April 2009, and after that by an intention-to-treat, "100% EVAR" approach. Exclusion criteria were ruptured thoracoabdominal aortic aneurysms, Crawford type I-IV, and suprarenal RAAA. Hemodynamic instability was not considered to be a selection criterion for preferential open surgery. No patients were excluded from this analysis because of hypotension, circulatory collapse, or cardiac arrest after presentation to the hospitals. The retrospective analysis was approved by the regional ethical review board, and patients gave informed consent whenever possible. Data from both centers were merged into one single database (see the "Definitions" section).

Institutional Settings

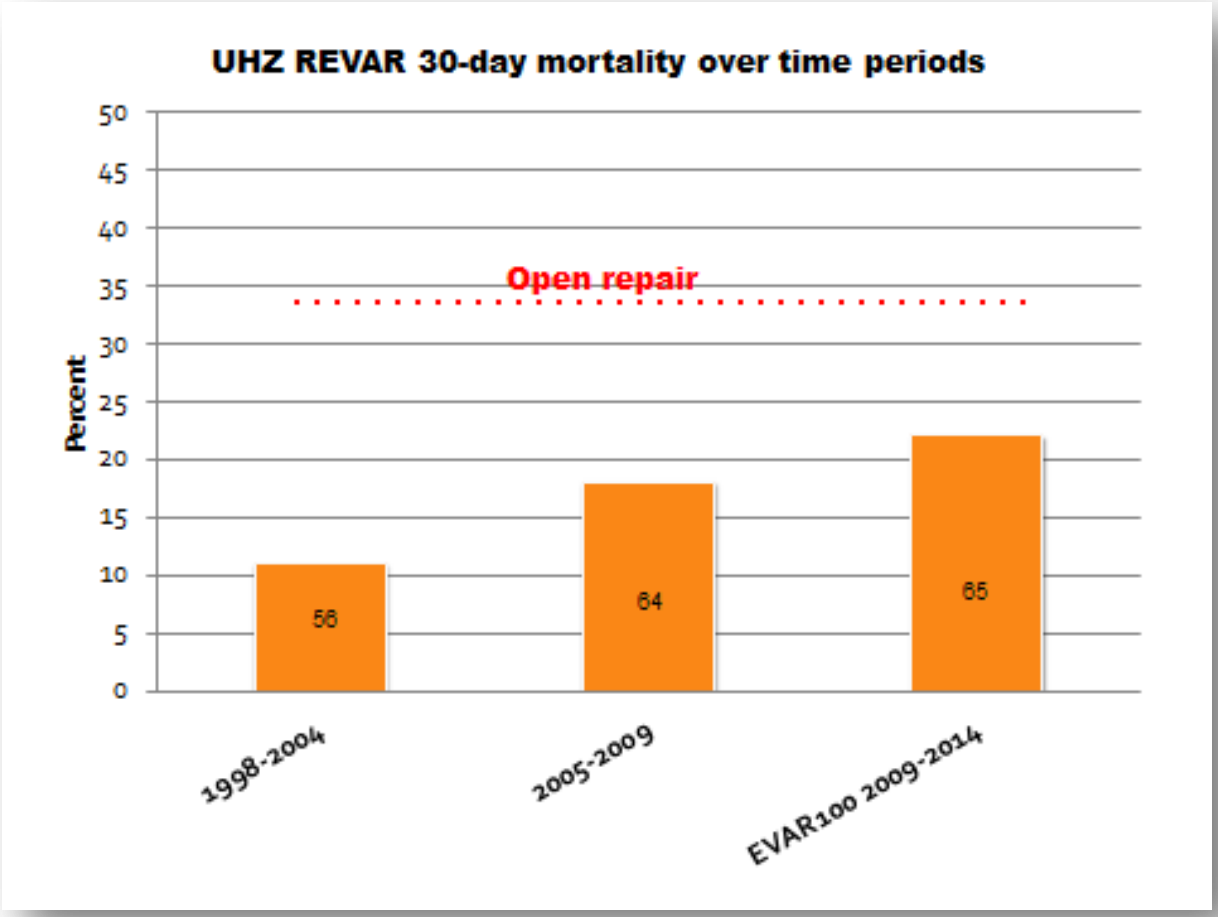
The University Hospital of Zurich is a tertiary referral center with a catchment area of 1 million inhabitants. A round-the-clock service is provided for vascular emergency procedures including EVAR for RAAA. At all times, a senior interventional radiologist, a cardiovascular anesthetist, and a vascular surgeon are available. As an institution with vast activity in elective EVAR procedures (approximately 1300 abdominal EVAR and 400 thoracic EVAR procedures to date), a broad stock of bifurcated and aorto-uni-iliac endografts is available. Beginning in April 2011, EVAR procedures were carried out in a fully equipped hybrid emergency operating room. Before that, they were performed in a fully equipped emergency operating theater or in an angiography suite. Computed tomographic scans are available within 5 to 15 minutes as the scanner is part of the shock

Overall 2C cohort 1998-2011



Conclusions

- EVAR is best approach for rAAA



In Near Future

- Few AAA repaired by open surgery
- Less surgeons (less) trained in open surgery
- Less rAAA to treat

Original article

Explaining the decrease in mortality from abdominal aortic aneurysm rupture

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Background: A steady rise in mortality from abdominal aortic aneurysm (AAA) was reported in the 1980s and 1990s, although this is now declining rapidly. Reasons for the recent decline in mortality from AAA rupture are investigated here.

Methods: Routine statistics for mortality, hospital admissions and procedures in England and Wales were investigated. All data were age-standardized. Trends in smoking, hypertension and treatment for hypercholesterolaemia (statins), together with regre
public sources for those aged at least 65 years. De
were estimated by using the IMPACT equation: de
decline) × β-coefficient.

Results: From 1997, deaths from ruptured AAA ha
pital admissions for elective AAA repair have increas
attributable entirely to more procedures in those a
ruptured AAA have declined from 18·6 to 13·5 per 10
offered and surviving emergency repair unchanged.
those aged at least 65 years has fallen from 65·9 t
deaths per 100 000 population were avoided by a re
from an increase in the number of elective AAA rep
lipid control are uncertain.

Conclusion: The reduction in incidence of ruptured
smoking prevalence and increases in elective AAA re

Presented to the Annual Meeting of the Vascular Society of

PODCAST AVAILABLE ONLINE

Paper accepted 12 January 2012
Published online in Wiley Online Libe

Table 2 Emergency admissions for aneurysm rupture by age group in 1997 and 2009

	Admissions per 100 000 population in age group			
Year	55–64	65–74	75–84	≥ 85
1997	13·2	56·4	97·3	105·5
2009	6·4	35·2	72·0	94·7
*P**	< 0·001	< 0·001	< 0·001	0·064

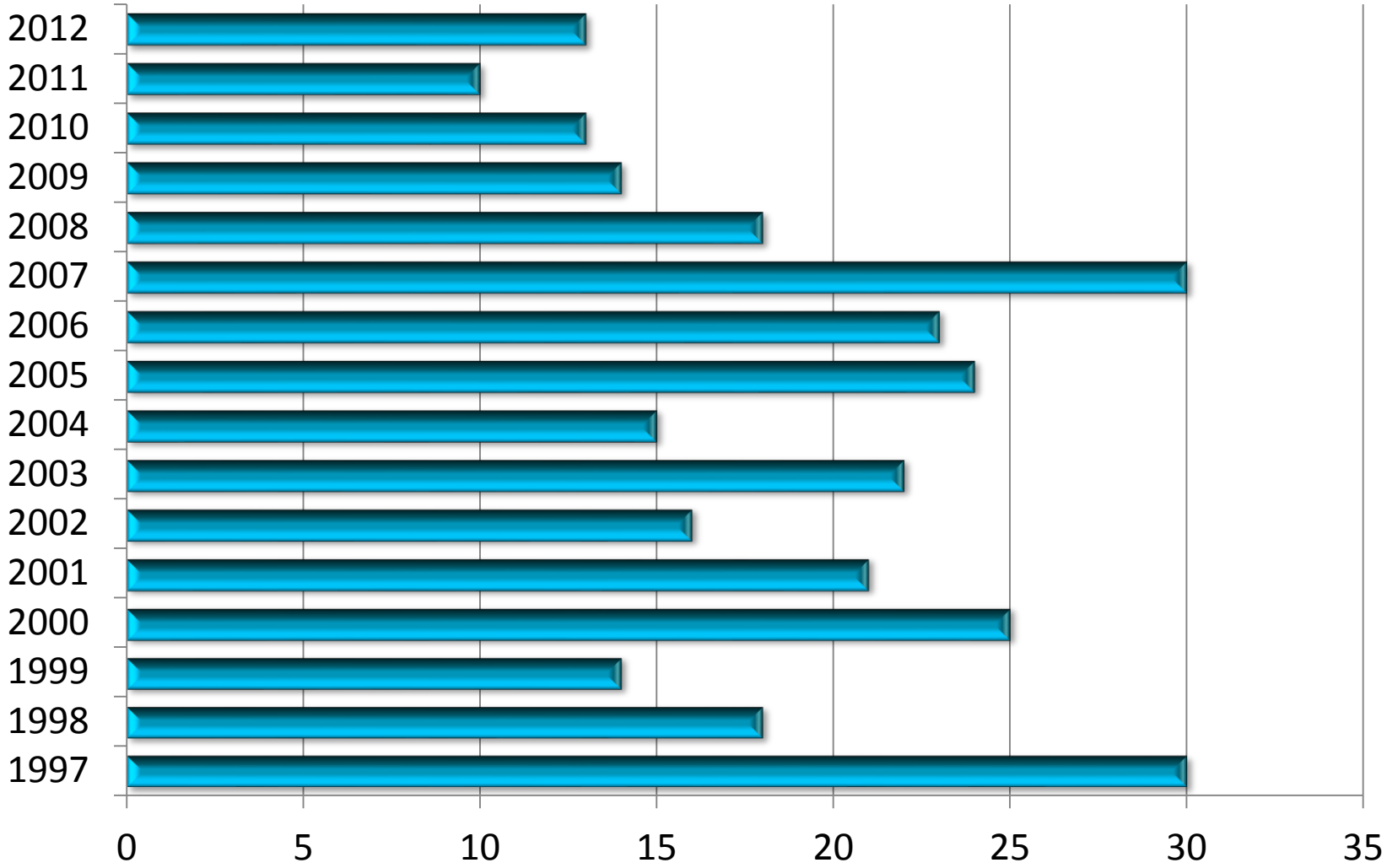
*For trend to decrease (linear regression analysis).

Introduction

In developed countries, a steady increase in the incidence of death from abdominal aortic aneurysm (AAA) was observed between 1979 and 1999[1–4]. As aneurysm rupture is fatal in 74–90 per cent of cases[4,5], the majority of AAA deaths are likely to be attributable to rupture. During the same interval, population screening studies suggested that the prevalence of AAA in older men was about 5 per cent[6]. More recently there has been evidence that both the prevalence and incidence of AAA has been declining since 1999[7–9]. A New Zealand study concluded that the burden of disease has been falling recently[8], probably due to a reduction in AAA incidence. This study also reasons for the rise and fall of AAA are likely to be complex, including safer elective surgery, particularly since the introduction of endovascular aneurysm repair (EVAR), improved aneurysm screening and diagnosis, and the increasing longevity of populations in developed countries.

During the past 30–40 years there have been considerable changes in public health, ranging from a reduction in the prevalence of smoking to improvements in air quality and more aggressive cardiovascular risk protection strategies[10]. These changes in public health measures are likely to influence the rate of AAA rupture, as previous studies have shown that current smoking and higher mean

rAAA @ UHZ


2012
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In Near Future

- Few AAA repaired by open surgery
- Less surgeons (less) trained in open surgery
- Less rAAA to treat
- Most AAA repaired by EVAR
- Most surgeons trained in EVAR
- More rEVAR experience

In Near Future

Conventional Open Surgery will play minor role in future, therefore let's invest in rEVAR programs


Do
EVAR or
Die!

Thank You !