

EBM

報告者:外科部R1蘇暉淵
指導老師: 心臟血管外科
陳懷民醫師

- Clinical Scenario: 臨床情境分析
- Q (Question): 形成一個可以回答的問題
- S (Searching): 尋找最佳的文獻證據
- A (Appraisal): 對文獻進行嚴格評讀
- P (Practice): 應用在個案患者身上
- A (Audit): 自我評估

Case

- Name : 黃X雄
- Sex: male
- Age 70-year-old
- ID : 14386525

Clinical Scenario

- He was brought to ED due to syncope.
- Abdominal discomfort was noted for 2~3 months.
- He arrived with clear consciousness E4V5M6 and Vital sign: RR 22/min, BP 72/40mmHg, PR 138/min and Bt 38.1' C.
- CT showed ruptured AAA.



















- CT finding:

Ruptured aneurysm of distal abdominal aortic
aneurysm size about 6.1 x 4.9 x 4.7 cm in size with
massive retroperitoneal hematoma.

Operation

- AAA stent grafting + right common iliac artery embolization with vascular plug + femoral-femoral bypass with Gortex graft

(2012/09/22 22:35 ~2012/09/23 02:20)

Hospital course

- After operation, the patient was admitted to CVS-ICU.
- Low BP was noted under dual levophed and dopamine pump use.
- Progression of abdominal distention and congestion over bilateral legs were noted.
- Coagulopathy condition with nasal and oral bleeding were also found out.
- The patient expired on 9/24(PM 08:30).

Background

- Endovascular abdominal aortic aneurysm repair (EVAR) was introduced in the 1990s as an alternative to open surgical repair(OSR) for patients with high operative risk.
- Randomized, control trials (RCT) report lower perioperative morbidity and mortality with elective EVAR compared with OSR.

Question => PICO

- P: Patient with ruptured abdominal aortic aneurysm
- I: Endovascular aortic repair
- C: Open repair
- O: short-term survival

Dose endovascular aortic repair have better short-term survival than open repair in patients with ruptured abdominal aortic aneurysm?

 Title, Abstract, Keywords 

ruptured abdominal aortic aneurysm and endovascular aortic repair

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☒ Cochrane Reviews (2)

☒ All

☐ Review

☐ Protocol

☐ Other Reviews (6)

☐ Trials (28)

☐ Methods Studies (0)

☐ Technology Assessments (1)

☐ Economic Evaluations (4)

☐ Cochrane Groups (0)

☒ All

☐ Current Issue

There are 2 results from 7604 records for your search on 'ruptured abdominal aortic aneurysm and endovascular aortic repair in title abstract keywords in Cochrane Reviews'

Sort by  Relevance

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- ☐ **Endovascular treatment for ruptured abdominal aortic aneurysm**
Marianne Dillon , Chris Cardwell , Paul H Blair , Peter Ellis , Frank Kee and Denis W Harkin
October 2008

[Review](#)

- ☐ **Surgery for small asymptomatic abdominal aortic aneurysms**
Giovanni Filardo , Janet T Powell , Melissa Ashley-Marie Martinez and David J Ballard
March 2012

[Ns](#) [Review](#)

1/2



檢索中：MEDLINE | [選擇資料庫](#)

ruptured abdominal aortic aneurysm

於

TI Title

檢索

消除



AND

endovascular aortic repair

於

TI Title

OR

open surgical repair

於

TI Title

OR

prognosis

於

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Relevance ▾

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提醒 / 儲存 / 共享 ▾

38,969 以下檢索的結果...

尋找我的所有檢索條件：

TI ruptured abdominal aortic
aneurysm AND TI endovascular
aortic ...

1.



學術期刊

Complete replacement of open repair for ruptured abdominal aortic aneurysms by endovascular aneurysm repair: a two-center 14-year experience.

(eng)Abstract Available By: Mayer D, Aeschbacher S, Pfammatter T, Veith FJ, Norgren L, Magnuson A, Rancic Z, Lachat M, Larzon T, Annals Of Surgery [Ann Surg], ISSN: 1528-1140, 2012 Nov; Vol. 256 (5), pp. 688-96; PMID: 23095611

資料庫: MEDLINE

40.

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PubMed ruptured abdominal aortic aneurysm and endovascular aortic repair Search

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Filters activated: Full text available, published in the last 5 years Clear all

1. Retroperitoneal haematoma causing gastric outflow obstruction following endovascular repair of a ruptured abdominal aortic aneurysm.

Hunter B, Tod L, Ghosh J.

BMJ Case Rep. 2012 Nov 15;2012. doi:pii: bcr2012007311. 10.1136/bcr-2012-007311.

PMID: 23162028 [PubMed - in process]

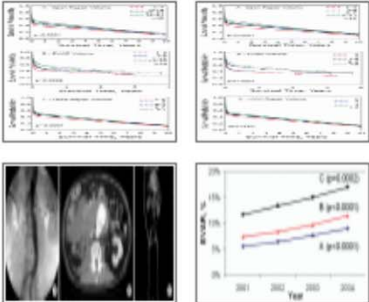
Related citations

2. Technique of supraceliac balloon control of the aorta during endovascular repair of ruptured abdominal aortic aneurysms.

Berland TL, Veith FJ, Cayne NS, Mehta M, Mayer D, Lachat M.

J Vasc Surq. 2012 Nov 15. doi:pii: S0741-5214(12)01933-7. 10.1016/j.jvs.2012.09.001. [Epub ahead of print]

PMC Images search for ruptured abdominal aortic aneurysm and endovascular aortic repair



29. [!\[\]\(906fcfdd9eb5c03ebb47c43ae11c8201_img.jpg\) Coupling bifurcated stent-grafts to overcome anatomic limitations of **endovascular repair** of **abdominal aortic** aneurysms.](#)

Lee M, Lee do Y, Kim MD, Lee KH, Lee MS, Park SI, Won JY, Choi D, Ko YG.

J Vasc Interv Radiol. 2012 Aug;23(8):1065-9. Epub 2012 Jun 13.

PMID: 22626871 [PubMed - indexed for MEDLINE]
Re: [Journal of vascular and interventional radiology : JVIR](#)

30. [!\[\]\(28fc9caa3a0977dc08cd11067e2f65a5_img.jpg\) **Endovascular** vs open **repair** for **ruptured abdominal aortic aneurysm**.](#)

Nedeau AE, Pomposelli FB, Hamdan AD, Wyers MC, Hsu R, Sachs T, Siracuse JJ, Schermerhorn ML.

J Vasc Surg. 2012 Jul;56(1):15-20. Epub 2012 May 23.

PMID: 22626871 [PubMed - indexed for MEDLINE]

[Related citations](#)

31. [!\[\]\(0a4f05fc8ef180d7e2ce2c0100f3cae0_img.jpg\) **Late conversion of endovascular to open repair of abdominal aortic aneurysms.**](#)

Forbes TL, Harrington DM, Harris JR, DeRose G.

Can J Surg. 2012 Aug;55(4):254-8. doi: 10.1503/cjs.038310.

PMID: 22617542 [PubMed - indexed for MEDLINE] [Free PMC Article](#)

[Related citations](#)

ORIGINAL ARTICLES FROM THE ESA PROCEEDINGS

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‡*

Annals of Surgery • Volume 256, Number 5, November 2012

Levels of Evidence (March 2009)

www.cebm.net

Level 1A	Therapy/Prevention, Aetiology/Harm Prognosis Diagnosis Differential diag/symptom prevalence Economic and decision analyses	1a SR (with homogeneity*) of RCTs SR (with homogeneity*) of inception cohort studies; CDR† validated in different populations SR (with homogeneity*) of Level 1 diagnostic studies; CDR† with 1b studies from different clinical centres SR (with homogeneity*) of prospective cohort studies SR (with homogeneity*) of Level 1 economic studies
Level 1b	Therapy/Prevention, Aetiology/Harm Prognosis Diagnosis Differential diag/symptom prevalence Economic and decision analyses	Individual RCT (with narrow Confidence Interval†) Individual inception cohort study with > 80% follow-up; CDR† validated in a single population Validating** cohort study with good††† reference standards; or CDR† tested within one clinical centre Prospective cohort study with good follow-up**** Analysis based on clinically sensible costs or alternatives; systematic review(s) of the evidence; and including multi-way sensitivity analyses
Level 1c	Therapy/Prevention, Aetiology/Harm Prognosis Diagnosis Differential diag/symptom prevalence Economic and decision analyses	All or none§ All or none case series Absolute SpIns and SnNouts†† All or none case-series Absolute better-value or worse-value analyses ††††
Level 2a	Therapy/Prevention, Aetiology/Harm Prognosis Diagnosis Differential diag/symptom prevalence Economic and decision analyses	SR (with homogeneity*) of cohort studies SR (with homogeneity*) of either retrospective cohort studies or untreated control groups in RCTs SR (with homogeneity*) of Level >2 diagnostic studies SR (with homogeneity*) of 2b and better studies SR (with homogeneity*) of Level >2 economic studies
Level 2b	Therapy/Prevention, Aetiology/Harm Prognosis Diagnosis Differential diag/symptom prevalence Economic and decision analyses	Individual cohort study (including low quality RCT; e.g., <80% followup) Retrospective cohort study or follow-up of untreated control patients in an RCT; Derivation of CDR† or validated on split sample §§§ only Exploratory** cohort study with good††† reference standards; CDR† after derivation, or validated only on split-sample§§§ or databases Retrospective cohort study, or poor follow-up Analysis based on clinically sensible costs or alternatives; limited review(s) of the evidence, or single studies; and including multi-way sensitivity analyses
Level 2c	Therapy/Prevention, Aetiology/Harm Prognosis Diagnosis Differential diag/symptom prevalence Economic and decision analyses	*"Outcomes" Research; Ecological studies *"Outcomes" Research Ecological studies Audit or outcomes research
Level 3a	Therapy/Prevention, Aetiology/Harm Prognosis Diagnosis Differential diag/symptom prevalence Economic and decision analyses	SR (with homogeneity*) of case-control studies SR (with homogeneity*) of 3b and better studies SR (with homogeneity*) of 3b and better studies SR (with homogeneity*) of 3b And better studies
Level 3b	Therapy/Prevention, Aetiology/Harm Prognosis Diagnosis Differential diag/symptom prevalence Economic and decision analyses	Individual Case-Control Study Non-consecutive study; or without consistently applied reference standards Non-consecutive cohort study, or very limited population Analysis based on limited alternatives or costs, poor quality estimates of data, but including sensitivity analyses incorporating clinically sensible variations.
Level 4	Therapy/Prevention, Aetiology/Harm Prognosis Diagnosis Differential diag/symptom prevalence Economic and decision analyses	Case-series (and poor quality cohort and casecontrol studies§§) Case-series (and poor quality prognostic cohort studies****) Case-control study, poor or nonindependent reference standard Case-series or superseded reference standards Analysis with no sensitivity analysis
Level 5	Therapy/Prevention, Aetiology/Harm Prognosis Diagnosis Differential diag/symptom prevalence Economic and decision analyses	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles" Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles" Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles" Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles" Expert opinion without explicit critical appraisal, or based on economic theory or "first principles"

TABLE 1. Patient Characteristics and 30-day Mortality of Operative and Total Cohorts

	EVAR-ONLY	EVAR/OPEN		
	EVAR May 2009–December 2011 (n = 70)	EVAR 1998–April 2009 (n = 198)	Open repair 1998–April 2009 (n = 163)	Combined 1998–April 2009 (n = 361)
Age at operation				
Mean (SD)	75.9 (7.8)	74.1 (9.1)	72.1 (8.5)	73.2 (8.9)
Sex				
Women	24%	15%	13%	14%
Type of rupture				
Contained	67%	64%	71%	67%
Free	27%	32%	26%	29%
Fistula	6%	4%	3%	4%
Missing			6 missing info	6 missing info
Hemodynamics				
BP systolic < 80 mmHg	47%	41%	34%	38%
Anesthesia				
LA	63%	58%	0%	32%
LA/GA	20%	24%	19%	22%
GA	13%	16%	81%	45%
Other (eg, Ketalar)	4%	2%	0%	1%
Missing			6 missing info	6 missing info
AD				
No	71%	78%	76%	77%
Laparotomy	20%	15%	23%	19%
Other	9%	7%	1%	4%
Missing			6 missing info	6 missing info
Clinic (% of patients)				
Zurich	44	60	63	62
Örebro	56	40	37	38
Operative cohort				
30-day mortality	24.3%	15.7%, $P = 0.106^*$	37.4%, $P = 0.051^\dagger$	25.5%, $P = 0.833^\ddagger$
Total cohort				
30-day mortality	$n = 73^* (27.4\%)$			$n = 400^\S (32.8\%), P = 0.367^\ddagger$

*Chi-square test of 30 days' mortality between EVAR-ONLY and EVAR (EVAR/OPEN).

†Chi-square test of 30 days' mortality between EVAR-ONLY and open repair (EVAR/OPEN).

‡Chi-square test of 30 days' mortality between EVAR-ONLY and combined (EVAR/OPEN).

§The number includes medically treated patients.

AD indicates abdominal decompression; BP, blood pressure; EVAR, endovascular aneurysm repair; GA, general anesthesia; LA, local anesthesia; SD, standard deviation.

Results

- In EVAR/OPEN duration , 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).

TABLE 3. Logistic Regression of 30-Day Mortality Comparing EVAR and Open Repair for Patients Operated On From Year 1998 to April 2009 (EVAR/OPEN)

	30-D Mortality, %	Unadjusted		Adjusted	
		OR (95% CI)	<i>P</i>	OR (95% CI)	<i>P</i>
EVAR (n = 198)	15.7	1.0		1.0	
Open repair (n = 163)	37.4	3.2 (1.9–5.3)	<0.001	3.3 (1.4–7.5)	0.004

TABLE 4. Pairwise Interaction Test Between Groups (EVAR and Open Repair) and the Other Markers in the Model During EVAR/OPEN Period (1998–April 2009)

	30-D Mortality, %	Unadjusted		Adjusted	
		OR (95% CI)	<i>P</i>	OR (95% CI)	<i>P</i>
Laparotomy					
EVAR (n = 30)	30.0	1.0		1.0	
Open repair (n = 37)	32.4	1.1 (0.4–3.2)	0.831	1.1 (0.3–3.7)	0.845

- In patients with abdominal decompression by laparotomy, there was no difference in mortality.
(adjusted odds ratio[OR] =1.1;
95% confidence interval[CI] ,0.3-3.7).

TABLE 4. Pairwise Interaction Test Between Groups (EVAR and Open Repair) and the Other Markers in the Model During EVAR/OPEN Period (1998–April 2009)

		Unadjusted		Adjusted	
	30-D Mortality, %	OR (95% CI)	<i>P</i>	OR (95% CI)	<i>P</i>
Interaction of AD and group:					
No AD					
EVAR (n = 154)	10.4	1.0		1.0	
Open repair (n = 119)	37.0	5.1 (2.7–9.6)	<0.001	5.6 (1.9–16.7)	0.002

- For patients with no abdominal decompression, there was a higher mortality with open repair than EVAR.

(adjusted odds ratio[OR] =5.6; 95% confidence interval[CI] , 1.9-16.7, p=0.002).

Critical appraisal

Critical appraisal of Prognostic studies

Are the results of the study valid? (Internal Validity)

1. Was the defined representative sample of patients assembled at a common (usually early) point in the course of their disease?

What is best?

It is preferable if study patients are enrolled at a uniformly early time in the disease, usually when the disease first becomes manifest. Such groups of patients are called an '*inception cohort*'. Patients should also be representative of the underlying population. Patients from tertiary referral centres may have more advanced disease and poorer prognoses than patients from primary care.

Where do I find the information?

The **Methods** section should describe the stage at which patients entered the study (e.g. at the time of first myocardial infarction; Stage 3 breast cancer, etc.). The **Methods** section should also provide information about patient recruitment; whether patients were recruited from primary care or tertiary referral centres.

This paper: Yes ☐ No ☐ Unclear ☐

Comment:

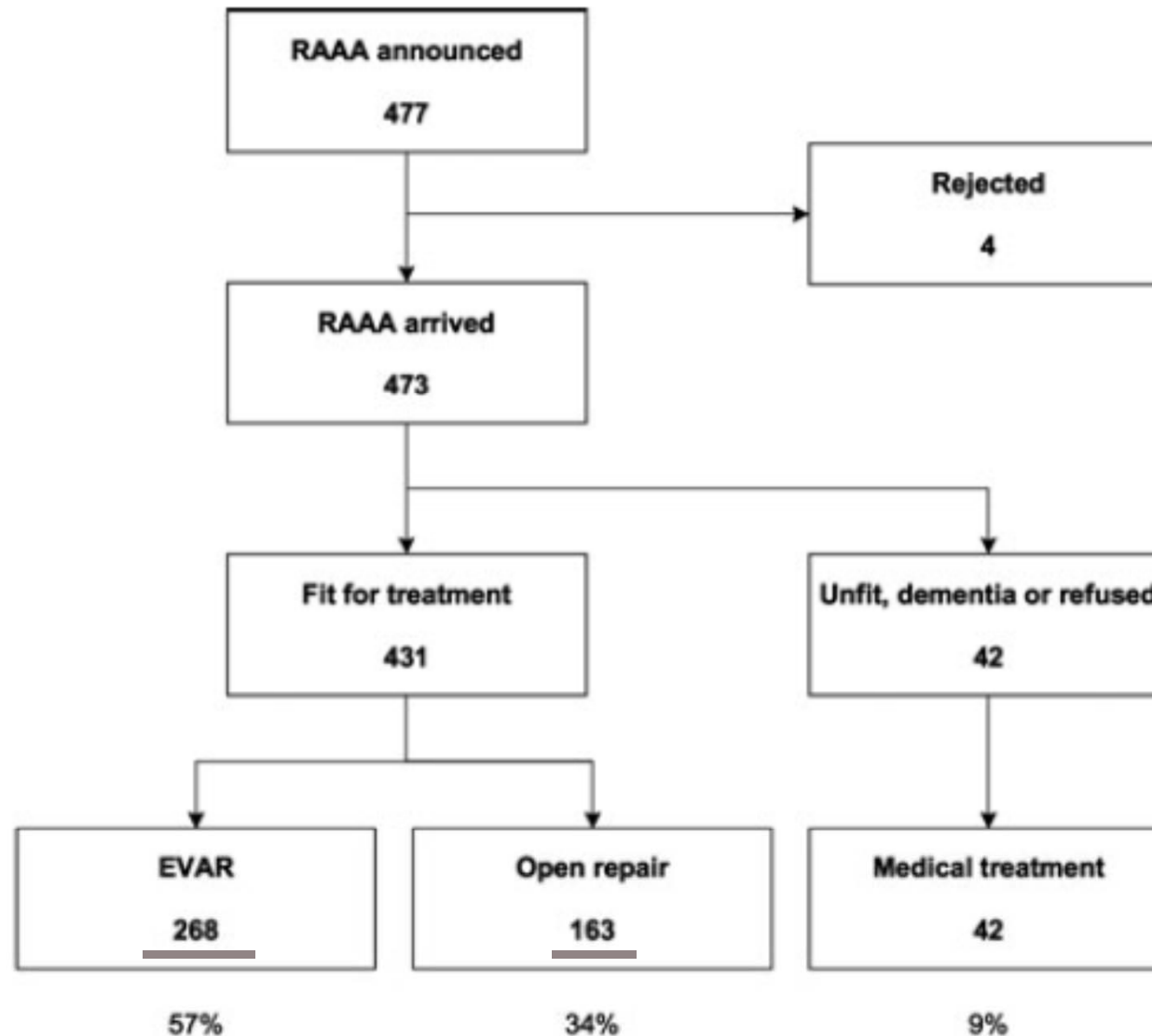


FIGURE 1. Total cohort of RAAA 1998 to 2011. Percent is calculated from the patients who were accepted for treatment evaluation ("patients arrived").

- During the study period (January 1, 1998-December 31, 2011), 477 consecutive patients with RAAA were managed.
- 4 patients were rejected because of staff or facility unavailability, and the 473 remaining patients were considered for treatment.

Reasons for medical treatment

- Patient or relatives refused treatment
- Severe mental disorder (Alzheimer disease, highly advanced dementia)
- Combination of old age, severe shock, and/or ineffective cardiopulmonary resuscitation on arrival.
- Before the era of EVAR for RAAA, patients with an extremely poor prognosis (combination of old age, severe comorbidities , and circulatory instability despite adequate resuscitation), when treated by open repair, were not offered open surgical repair.

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Total cohort				
30-day mortality	n = 73* (27.4%)			n = 400§ (32.8%), $P = 0.367^\ddagger$

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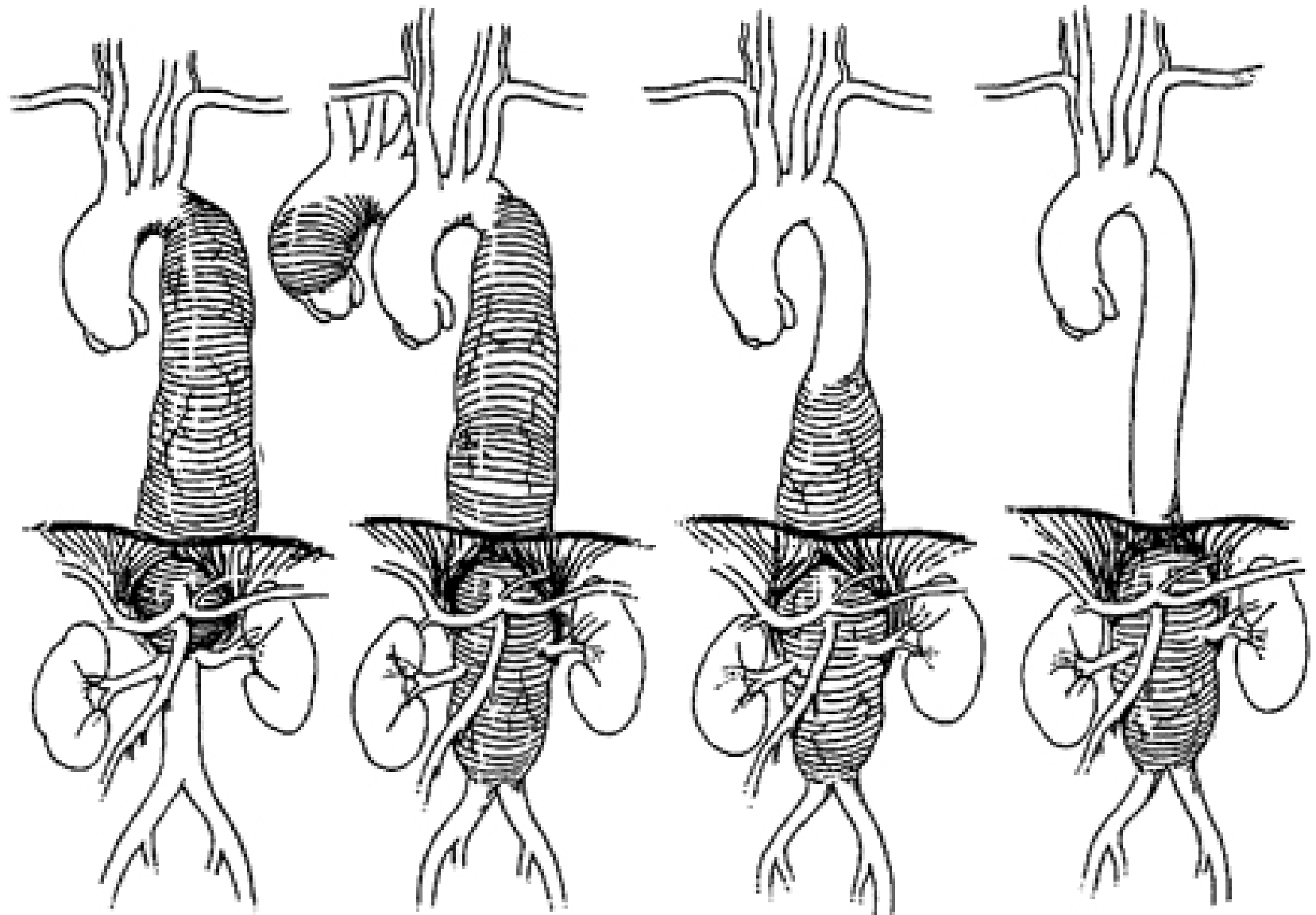
‡Chi-square test of 30 days' mortality between EVAR-ONLY and combined (EVAR/OPEN).

§The number includes medically treated patients.

AD indicates abdominal decompression; BP, blood pressure; EVAR, endovascular aneurysm repair; GA, general anesthesia; LA, local anesthesia; SD, standard deviation.

- These patients were treated by an “ EVAR-whenever-possible ’ ’ approach until April 2009(EVAR/OPEN period) and thereafter according to a “ 100% EVAR ’ ’ approach (EVAR only period)
- “ EVAR-ONLY’ ’ (73 patients) is defined as the period starting from May 1, 2009, to December 31, 2011.
- “ EVAR/OPEN’ ’ includes all 400 patients from January 1, 1998, until April 30,2009.

- Exclusion criteria :
 - Ruptured thoraco-abdominal aortic aneurysm
 - Crawford type I-IV
 - Suprarenal RAAA.



I

II

III

IV

- 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 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.

- The Orebro university hospital is also 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.

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

- Since May 2009,all RAAA but one have been treated by EVAR(Zurich,31;Orebro,39).
- One female patient presenting with a mycotic RAAA in Zurich was treated by open repair during this period.

2. Was patient follow-up sufficiently long and complete?

What is best?

Length of follow-up should be long enough to detect the outcome of interest. This will vary depending on the outcome (e.g., for pregnancy outcomes, nine months; for cancer, many years). All patients should be followed from the beginning of the study until the outcome of interest or death occurs. Reasons for non follow-up should be provided along with comparison of the demographic and clinical characteristics of the patients who were unavailable and those in whom follow-up was complete.

Where do I find the information?

The **Results** section should state the median or mean length of follow-up.

The **Results** section should also provide the number of and the reasons for patients being unavailable for follow-up. A comparison of the two groups (those available and those unavailable) may be presented in table form or the authors may simply state in the text whether or not there were differences.

This paper: Yes ☐ No ☐ Unclear ☐

Comment:

- We retrospectively analyzed combined, prospectively gathered data on 473 consecutive RAAA patients from January 1, 1998, to December 31, 2011.

3. Were outcome criteria either objective or applied in a 'blind' fashion?

What is best?

A clear definition of all outcomes should be provided. It is ideal if less objective outcomes are assessed blindly, that is the individual determining the outcome does not know whether the patient has a potential prognostic factor.

Where do I find the information?

The **Methods** section should provide a clear definition or explicit criteria for each outcome, and whether determination is blinded to prognostic factors will be found in either the **Methods** or **Results** sections.

This paper: Yes ☐ No ☐ Unclear ☐

Comment:

- Thirty-day mortality:
death for any reason within the first 30 days
after their procedure.

4. If subgroups with different prognoses are identified, did adjustment for important prognostic factors take place?

What is best?

A prognostic factor is a patient characteristic (e.g., age, stage of disease) that predicts the patient's eventual outcome. The study should adjust for known prognostic factors in the analysis so that results are distorted.

Where do I find the information?

The **Results** section should identify any prognostic factors and whether or not these have been adjusted for in the analysis. Also look at the tables and figures for evidence of this (e.g., there may be separate survival curves for patients at different stages of disease or for different age groups).

This paper: Yes ☐ No ☐ Unclear ☐

Comment:

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	30-D Mortality, %	Unadjusted		Adjusted	
		OR (95% CI)	P	OR (95% CI)	P
EVAR (n = 198)	15.7	1.0		1.0	
Open repair (n = 163)	37.4	3.2 (1.9–5.3)	<0.001	3.3 (1.4–7.5)	0.004
Age at operation					
<65 (n = 65)	9.2	1.0		1.0	
65–74 (n = 123)	21.1	2.6 (1.0–6.8)	0.044	2.6 (0.9–7.3)	0.075
75–84 (n = 138)	33.3	4.9 (2.0–12.2)	0.001	6.8 (2.5–18.6)	<0.001
85+ (n = 35)	40.0	6.6 (2.2–19.3)	0.001	10.5 (3.0–36.1)	<0.001
Sex					
Men (n = 310)	25.5	1.0		1.0	
Women (n = 51)	25.5	1.0 (0.5–2.0)	0.999	1.0 (0.4–2.2)	0.973
Type of rupture					
Contained (n = 237)	19.0	1.0		1.0	
Free (n = 104)	29.4	2.8 (1.7–4.6)	0.001	2.7 (1.4–5.1)	0.002
Fistula (n = 14)	14.3	0.7 (0.1–3.3)	0.663	1.0 (0.2–5.3)	0.992
Hemodynamics BP systolic < 80 mmHg					
No (n = 223)	20.6	1.0		1.0	
Yes (n = 138)	33.3	1.9 (1.2–3.1)	0.008	1.6 (0.9–2.9)	0.139
Anesthesia					
LA (n = 115)	13.0	1.0		1.0	
LA/GA (n = 78)	21.8	1.9 (0.9–4.0)	0.112	1.3 (0.4–3.8)	0.656
GA (n = 159)	34.6	3.5 (1.9–6.6)	<0.001	2.4 (0.9–6.8)	0.094
Other (n = 3)	33.3	3.3 (0.3–39.1)	0.338	6.0 (0.5–77.3)	0.170
AD					
No (n = 273)	22.0	1.0		1.0	
Laparotomy (n = 67)	31.3	1.6 (0.9–2.9)	0.109	1.2 (0.5–3.0)	0.668
Other (n = 15)	46.7	3.1 (1.1–8.9)	0.035	3.7 (0.9–14.1)	0.057
Clinic					
Zurich (n = 222)	23.9	1.0		1.0	
Örebro (n = 139)	28.1	1.2 (0.8–2.0)	0.375	0.9 (0.5–1.8)	0.803
Time period					
1998–2004 (n = 189)	28.6	1.0		1.0	
2005–2009 (n = 172)	22.1	0.7 (0.4–1.1)	0.159	1.0 (0.5–2.0)	0.967

AD indicates abdominal decompression; BP, blood pressure; CI, confidence interval; EVAR, endovascular aneurysm repair; GA, general anesthesia; LA, local anesthesia; OR, odds ratio.

- Open repair showed a statistically significant association with 30-day mortality compared with EVAR.
(unadjusted odds ratio[OR] = 3.2,
95% CI , 1.9-5.3 , $P < 0.001$)
- When adjusting for the other potential markers for 30-day mortality, no major change was seen.
(adjusted OR = 3.3,
95% CI , 1.4-7.5 , $P = 0.004$)

What are the results?

5. How likely are the outcomes over time?

There are several different ways of reporting outcomes of disease. Often they are reported simply as a rate (e.g., the proportion of people experiencing an event). Expressing prognosis as a rate has some advantages. It is simple, easily communicated and understood and readily committed to memory. Unfortunately, rates convey very little information and there can be important differences in prognosis within similar summary rates. For this reason survival curves are used to estimate survival of a cohort over time. It is a useful method for describing any dichotomous outcome (not just survival) that occurs only once during the follow-up period. The figure below shows the survival curves for three diseases with the same survival rate at 5 years. Notice that the summary rate obscures important differences for patients over time.

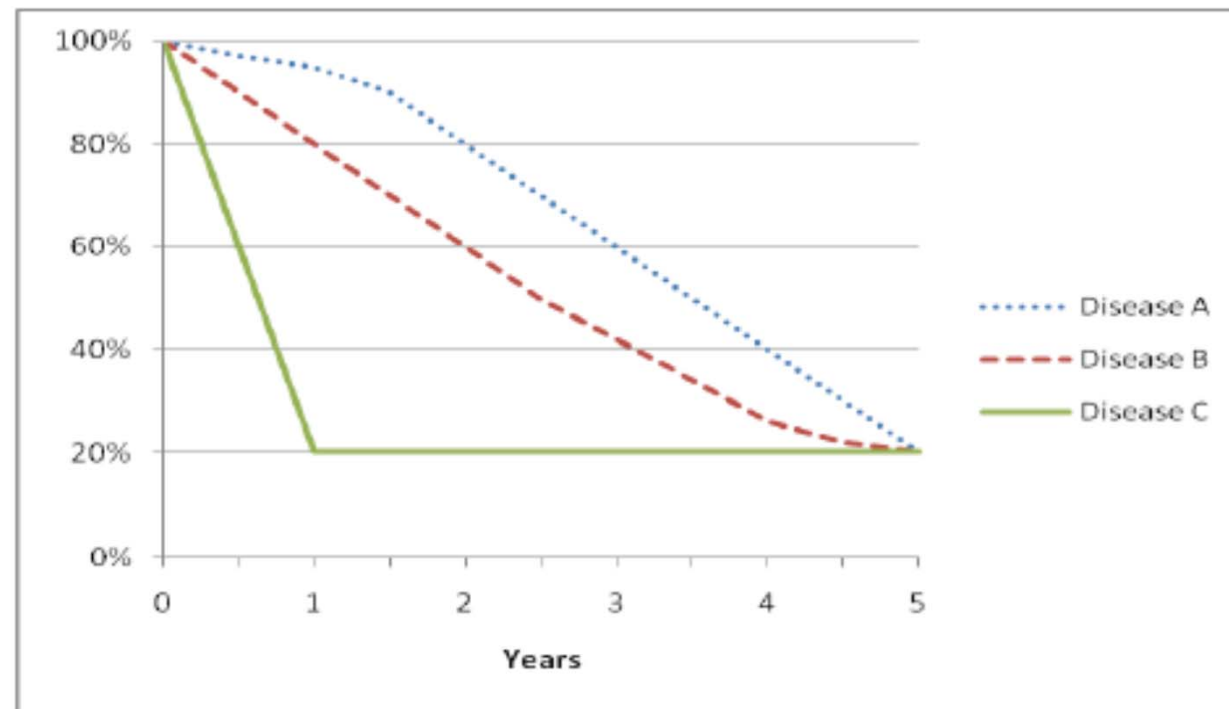


Figure. Five year curves for three different diseases.

6. How precise are the prognostic estimated?

To determine the precision of the estimates we need to look at the 95% confidence intervals (CI) around the estimate. The narrower the CI, the more useful the estimate. The precision of the estimates depends on the number of observations on which the estimate is based. Since earlier follow-up periods usually include results from more patients than later periods, estimates on the left hand side of the curve are usually more precise. Observations on the right or tail end of the curve are usually based on a very small number of people because of deaths, dropouts and late entrants to the study. Consequently, estimates of survival at the end of the follow-up period are relatively imprecise and can be affected by what happens to only a few people.

TABLE 3. Logistic Regression of 30-Day Mortality Comparing EVAR and Open Repair for Patients Operated On From Year 1998 to April 2009 (EVAR/OPEN)

	30-D Mortality, %	Unadjusted		Adjusted	
		OR (95% CI)	P	OR (95% CI)	P
EVAR (n = 198)	15.7	1.0		1.0	
Open repair (n = 163)	37.4	3.2 (1.9–5.3)	<0.001	3.3 (1.4–7.5)	0.004
Age at operation					
<65 (n = 65)	9.2	1.0		1.0	
65–74 (n = 123)	21.1	2.6 (1.0–6.8)	0.044	2.6 (0.9–7.3)	0.075
75–84 (n = 138)	33.3	4.9 (2.0–12.2)	0.001	6.8 (2.5–18.6)	<0.001
85+ (n = 35)	40.0	6.6 (2.2–19.3)	0.001	10.5 (3.0–36.1)	<0.001
Sex					
Men (n = 310)	25.5	1.0		1.0	
Women (n = 51)	25.5	1.0 (0.5–2.0)	0.999	1.0 (0.4–2.2)	0.973
Type of rupture					
Contained (n = 237)	19.0	1.0		1.0	
Free (n = 104)	39.4	2.8 (1.7–4.6)	<0.001	2.7 (1.4–5.1)	0.002
Fistula (n = 14)	14.3	0.7 (0.1–3.3)	0.663	1.0 (0.2–5.3)	0.992
Hemodynamics BP systolic < 80 mmHg					
No (n = 223)	20.6	1.0		1.0	
Yes (n = 138)	33.3	1.9 (1.2–3.1)	0.008	1.6 (0.9–2.9)	0.139
Anesthesia					
LA (n = 115)	13.0	1.0		1.0	
LA/GA (n = 78)	21.8	1.9 (0.9–4.0)	0.112	1.3 (0.4–3.8)	0.656
GA (n = 159)	34.6	3.5 (1.9–6.6)	<0.001	2.4 (0.9–6.8)	0.094
Other (n = 3)	33.3	3.3 (0.3–39.1)	0.338	6.0 (0.5–77.3)	0.170
AD					
No (n = 273)	22.0	1.0		1.0	
Laparotomy (n = 67)	31.3	1.6 (0.9–2.9)	0.109	1.2 (0.5–3.0)	0.668
Other (n = 15)	46.7	3.1 (1.1–8.9)	0.035	3.7 (0.9–14.1)	0.057
Clinic					
Zurich (n = 222)	23.9	1.0		1.0	
Örebro (n = 139)	28.1	1.2 (0.8–2.0)	0.375	0.9 (0.5–1.8)	0.803
Time period					
1998–2004 (n = 189)	28.6	1.0		1.0	
2005–2009 (n = 172)	22.1	0.7 (0.4–1.1)	0.159	1.0 (0.5–2.0)	0.967

AD indicates abdominal decompression; BP, blood pressure; CI, confidence interval; EVAR, endovascular aneurysm repair; GA, general anesthesia; LA, local anesthesia; OR, odds ratio.

7. Can I apply this valid, important evidence about prognosis to my patient?

The questions that you should ask before you decide to apply the results of the study to your patients are:

- Is my patient so different to those in the study that the results cannot apply?
- Will this evidence make a clinically important impact on my conclusions about what to offer to tell my patients

- Patient undergoing EVAR without abdominal decompression showed a more than 5-fold decreased mortality risk compared with open repair without abdominal decompression
- Whereas for the patients requiring abdominal decompression (abdominal compartment syndrome) there was no decreased mortality benefit of EVAR over open repair.

Practice

Grades of Recommendation

A	consistent level 1 studies
B	consistent level 2 or 3 studies or extrapolations from level 1 studies
C	level 4 studies or extrapolations from level 2 or 3 studies
D	level 5 evidence or troublingly inconsistent or inconclusive studies of any level

Grade B recommendation (inconsistent or limited evidence)

NNT

E (EVAR) 268	C (OSR) 163
EE $17+31 = 48$	CE 61
EN $53+167 = 220$	CN 102

- $EER = EE/(EE + EN) = 48/268 = 17.9\%$
- $CER = CE/(CE + CN) = 61/163 = 37.4\%$
- $ARR = EER - CER = 17.9\% - 37.4\% = -19.5\%$
(-0.195)
95% confidence interval [CI],
-0.282 to -0.108
- $NNT = 1/ARR = 1/19.5\% = 5.13$

- RR (relative risk)
= $EER/CER = 17.9\%/37.4\% = 47.9\%$
95% CI, 0.35-0.66
- RRR (relative risk reduction)
= $ARR/CER = -19.5\%/37.4\% = \underline{-52.1\%}$
95% CI, 34%-65%

- A few RCTs are ongoing ,such as the Immediate Management of the Patient with Ruptured Aneurysm:
=> Open Versus Endovascular repair(IMPROVE)trial
data from RCTs are not yet available.

Audit

Step 1: Asking 1.我有提出任何臨床問題嗎？ 2.我提出的是結構完整的問題？	有 是
Step 2: Acquire 1.我知道在我的臨床領域中現有的最佳證據來源？ 2.在搜尋方面我變得更有效率？	有 是

Step 3: Appraisal

1.對我而言，應用此研究證據之評讀指引
變得更簡單？

2.我是否盡全力做評讀了？

是
是

Step 4: Practice

1. 我盡力將審慎評估之結果融入診療中？

2. 為了適用於我的病人，我在調整一些嚴格
評讀的度量值(機率、NNT等)方面越來越精
準及有效率？

是

是

Thank you for listening!!