

Type 2 Endoleaks Intra op embolisation How I do it, What are my results! Dr D. Fabre, Dr C. Angel



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Disclosure

Speaker name:

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I do not have any potential conflict of interest

At risk patients!





The result !





Background

CONTROVERSIES & UPDATES^{CA} IN VASCULAR SURGERY JANUARY 22-24 2015

	EVA	R	Open R	epair		Risk Ratio	Risk Ratio	
Study or Subgroup	Events	Total	Events	Total	Weight	IV, Random, 95% CI Year	IV, Random, 95% CI	
Panel (A) Short-term r	mortality							
Lottman	1	57	1	19	5.0%	0.33 [0.02, 5.07] 2004 -		
Soulez	0	20	0	20		Not estimable 2005		
OVER	1	444	10	437	8.7%	0.10 [0.01, 0.77] 2009		
DREAM	2	173	8	178	15.6%	0.26 [0.06, 1.19] 2010		30 davs
EVAR1	9	543	24	539	64.2%	0.37 [0.17, 0.79] 2010		
ACE trial	2	150	1	149	6.4%	1.99 [0.18, 21.68] 2011		
Subtotal (95% CI)		1387		1342	100.0%	0.35 [0.19, 0.64]	◆	
Total events	15		44					
Heterogeneity: Tau ² = 0	0.00; Chi ²	= 3.68	, df = 4 (P	= 0.45)	; I ² = 0%			
Test for overall effect: Z	2 = 3.42 (F	P = 0.0	006)					
Panel (B) Intermediate	e-term m	ortality	/					
Soulez	2	20	1	20	1.9%	2.00 [0.20, 20.33] 2005		
OVER	31	444	43	437	36.5%	0.71 [0.46, 1.10] 2009		2 vears
EVAR1	26	626	45	626	33.5%	0.58 [0.36, 0.92] 2010		L your
DREAM	20	173	18	178	23.1%	1.14 [0.63, 2.09] 2010	—	
ACE trial	5	150	3	139	5.0%	1.54 [0.38, 6.34] 2011		
Subtotal (95% CI)		1413		1400	100.0%	0.78 [0.57, 1.08]		
Total events	84		110					
Heterogeneity: Tau ² = 0	0.02; Chi ²	= 4.81	, df = 4 (P	= 0.31)	; l ² = 17%			Maria Carta da
Test for overall effect: Z	z = 1.48 (F	P = 0.1	4)					
Panel (C) Long-Term	mortality							
Soulez	8	20	5	20	2.8%	1.60 [0.63, 4.05] 2005	+	
DREAM	58	173	60	178	27.7%	0.99 [0.74, 1.33] 2010	+	> 2 1/05
EVAR1	151	626	161	626	64.7%	0.94 [0.77, 1.14] 2010	📫 🎽	> 3 yea
ACE trial	17	150	12	149	4.8%	1.41 [0.70, 2.84] 2011	+	
Subtotal (95% CI)		969		973	100.0%	0.99 [0.85, 1.15]	•	
Total events	234		238					
Heterogeneity: Tau ² = 0	0.00; Chi ²	= 2.29	, df = 3 (P	= 0.52)	; I ² = 0%			
Test for overall effect: Z	z = 0.17 (F	P = 0.8	7)					IN the set
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Figure 2. All-Cause Mortality

(A) Pooled mortality rates reported at 30-day post-procedure follow-up. (B) Cumulative outcomes reported at intermediate follow-up (up to 2 years after procedure). (C) Cumulative outcomes reported at follow-up of at least 3 years after procedure. CI = confidence interval(s); N = intravenous; OSR = open surgical repair; other abbreviations as in Figure 1.

EVAR / Open Metanalysis JACC 2012 www.cacvs.org

Background



• Open repair (OR) was the reference treatment for AAA

No lumbar arteries ligation during EVAR



Aneurysm opening is the main difference between EVAR or OR

Background



Why should we prevent type II Endoleak?

Vascular Medicine

Predictors of Abdominal Aortic Aneurysm Sac Enlargement After Endovascular Repair

Andres Schanzer, MD; Roy K. Greenberg, MD; Nathanael Hevelone, MPH; William P. Robinson, MD; Mohammad H. Eslami, MD; Robert J. Goldberg, PhD; Louis Messina, MD

Background—The majority of infrarenal abdominal aortic aneurysm (AAA) repairs in the United States are performed with endovascular methods. Baseline aortoiliac arterial anatomic characteristics are fundamental criteria for appropriate patient selection for endovascular aortic repair (EVAR) and key determinants of long-term success. We evaluated compliance with anatomic guidelines for EVAR and the relationship between baseline aortoiliac arterial anatomy and post-EVAR AAA sac enlargement.

Methods and Results—Patients with pre-EVAR and at least 1 post-EVAR computed tomography scan were identified from the M2S, Inc. imaging database (1999 to 2008). Preoperative baseline aortolilac anatomic characteristics were reviewed for each pathor. But eleiting in the review on the problem of the were to a variable, and the problem of the were to a variable. Therefore, morphologic D has erfect increase on model with the matrix and the primary study outcome was post-EVAR AAA sac enlargement (>5-mm diameter increase). In 10 228 patients undergoing EVAR, 59% had a maximum AAA diameter below the 55-mm threshold at which intervention is recommended over surveillance. Only 42% of patients had anatomy that met the most conservative definition of device instructions for use; 69% met the most liberal definition of device instructions for use. The 5-year post-EVAR rate of AAA sac enlargement was 41%. Independent predictors of AAA sac enlargement included endoleak, age ≥80 years, aortic neck diameter ≥28 mm, aortic neck angle >60°, and common iliac artery diameter >20 mm.

Conclusion—In this multicenter observational study, compliance with EVAR device guidelines was low and post-EVAR aneurysm sac enlargement was high, raising concern for long-term risk of aneurysm rupture. (Circulation. 2011;123:2848-2855.)

Key Words: abdominal aortic aneurysm
endovascular procedures
graft

Endoleak = Independant factor for aneurysm Enlargement



Persistent Type II Endoleak

•Actual level: 8% to 28% at one year

•Eurostar register: 22.2% (1818 / 8165)

•Treatment recommanded if aneurysm enlargement 17% of cases



Zhou al. Outcomes and significance of delayed endoleaks after EVAR JVS 2014

Midterm outcomes after treatment of type II endoleaks associated with aneurysm sac expansion

Independent predictors of type II endoleak:

- mural thrombus (p<0.001),
- patent lumbar arteries (p = 0.004),
- aneurysm length (p = 0.011)
- iliac artery length (p = 0.004).
- Aneurysm volume



Preoperative embolization of collateral side branches: a valid means to reduce type II endoleaks after endovascular AAA repair.

Embolization of side branches arising from an infrarenal AAA before EVAR:

- feasible
- diminished the incidence of type II endoleak
- improving long-term outcomes.

Bonvini R, Alerci M, Antonucci F, Tutta P, Wyttenbach R, Bogen M, Pelloni A, Von Segesser L, Gallino A. J Endovasc Ther. 2003



Intraoperative coils embolization during EVAR

- Limited to Patients with risk for type II endoleak
- No circumferential thrombus
- IFU guidelines



Terumo guide in the Aneurysm sac

Terumo guide within ilia















COIL EMBOLIZATION / First step





TERUMO GUIDE IN ANEURYSM SAC BEFORE CONTROLATERAL ILIAC LEG DEPLOYMENT **4Fr Introduceur**

COIL EMBOLIZATION / Second Step2015



AFTER CONTROLATERAL ILIAC LEG DEPLOYMENT USING MICROCATHETER / 10 TO 18 COILS (30 cm lenght)^{www.cacvs.org}

COIL EMBOLIZATION / Third ASCULAR SURGERY A 2015









Ballooning, angiographic control and microcatheter withdrawal www.cacvs.org



Coils just under angulated neck to avoid type I endoleak

Coils just under short neck to avoid type I endoleak





Controlled release around the prosthesis





CONTROVERSIES & UPDATES



Results



Midterm outcomes after treatment of type II endoleaks associated with aneurysm sac expansion Gallagher KA J Endovasc Ther. 2012

	N	%	CONTROVERSIES & UPDATES ^C IN VASCULAR SURGERY
Male Gender	74	89	JANUARY 22-24 2015
Eentale Gender	7	11	
Hypertension	83	100	
Hypercholest	73	88	
Diabetics	20	24	12.
Smoking	73	88	Car Car
CAD	57	69	S IDI
PTCA	39	47	XXXX/
CABG	9	11	18 X / N
EF<40%	19	23	
COPD	32	39	
Dialysis	2	2	
Recused for surgery.	30	36	K HANN
CAD, Coronary artery desease;	PTCA, Percutaneous Translumin	al Coronary angioplasty;	31/4×7/89/

CABG, Coronary artery Bypass graft; EF, Ejection Fraction; COPD, Chronic Obstructive

Pulmonary Desease.

Procedure / stentgraft 2009 - 2013

- Procedure
- 81 aorto bi-iliac EVAR
- 2 aorto uni-iliac EVAR with controlateral iliac occlusion
- Stentgraft:
- Talent 7/Zenith 4 /Gore 5 / Vascutek 1 Endurant 66
- Mean length aortic neck: 19 mm (range 9 to 35 mm).
- Mean max AAA diameter: 58.8 mm (range 49-92mm))
- 1.2% of type I Endoleak
- Treatment with covered stent extension for distal leak and one limb occlusion / In 2 cases at 6 months and 1 year



Marie Lannelongue's Experience (22-24 2015 2009 to 2013

Results 83 Patients with coils

- No complication related to coils embolization
- In hospital mortality 0%

1.2% (1/83) of type 2 Endoleak Results 104 Patients without coils

- No complication related to coils embolization
- In hospital mortality 0%

13% (13/104) of type 2 Endoleak / aneurysm growth



showed a significant decrease of the aneurysm diameter at 6 months (p=0,0001), one year (p=0,001) and two years (p=0,001).







Statistical regression of aneurysm size at 6 months

1 Month



6 Months

Patient 1

Patient 2







27 % of normal Aorta at 2 years





CONTROVERSIES & UPDATES





Results



Number of coils used for embolization: 12 (range 4-23)

Mean time for embolization: 12 minutes

Technical success: 100%.

Mean follow-up period after treatment: 24 months (range 6–53 months).

No procedure related complications and two secondary interventions for for one limb occlusion and for type I distal endoleak.



CCML 133,av de la Resistance 92350, Le Plessis Robinson Tél : 01 40 94 25 96



P12-37813003/2012-A01258-35



Type II Endoleak prevention during EVAR for at risk patient coil embolization

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Dr Frederic Cochennec coinvestigator



CCML 133,av de la Resistance 92350, Le Plessis Robinson Tél : 01 40 94 25 96





- Prospective randomized, interventional, comparative study
- 1 group with coil / 1 group control
- 100 patients
 - 2 years inclusion
 - 2 years follow-up
- Multicentric, 2 centers,
- ANSM authorization since 26/12/2012,
- SIGREC and clinical Trials.



Systematic coil embolization of the aneurysm sac during EVAR is clinically effective in preventing type II endoleak, with no complications.

This technique reliably achieves complete thrombosis of the aneurysm sac, even in patients with numerous patent aortic side branches, drastically reducing the rate of all endoleaks