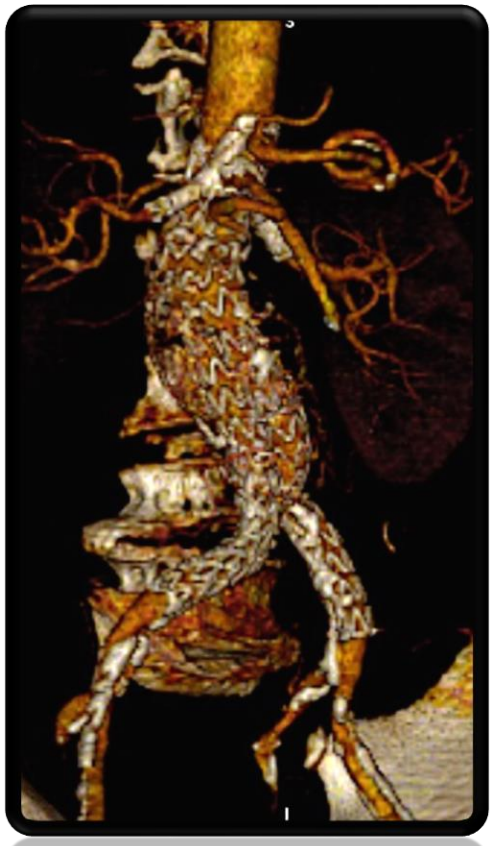
CRITICAL ISSUES 20TH INTERNATIONAL EXPERTS SYMPOSIUM in aortic endografting 2016

May 20 & 21, 2016 - BARRIÈRE HOTEL - LILLE - FRANCE



CHU Hôpitaux de Bordeaux

CG-EVAR
tips & tricks

Lille may 2016

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Disclosure of Interest

20TH INTERNATIONAL EXPERTS SYMPOSIUM
CRITICAL ISSUES
in aortic endografting 2016
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Speaker name: E Ducasse

- ~~I have the following potential conflicts of interest to report:~~
- ~~Consulting~~
- ~~Employment in industry~~
- ~~Shareholder in a healthcare company~~
- ~~Owner of a healthcare company~~
- ~~Other(s)~~

- **I do not have any potential conflict of interest**

- PRESENTAT

OK IS !

Patient selection is key

Patient at High-risk for OSR :

- ASA ≥ 2
- Hostile abdomen
- COPD
- BMI > 25
- Cardiac insufficiency

F-EVAR is the first choice :

- Safe
- Effective
- Good long-term results

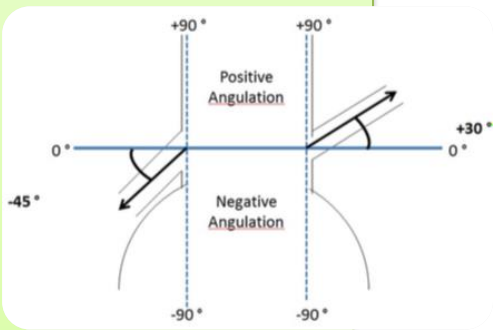
BUT some requirements need to be met...

- **Favorable anatomy** limited to EC/FDA approvals and manufacturer's IFUs :
  - Neck angulation <45º
  - Iliofemoral accesses compatible with 14-22F
  - Nb of fenestrations : 3 max (no more than 2 types)
  - Fenestration locations:
    - distance between fenestrations >5mm/2hrs of clock position
    - distance from graft's proximal edge ≥10-15mm
- **Manufacturing delays : 6-12 weeks**

Indications for CG-EVAR :

- **Life threatening aneurysms :**
  - Ruptured with **hemodynamically stable patient**
  - Symptomatic
  - Rapidly expanding
  - Diameter ≥ 70 mm*

- **Anatomical contraindications to F-EVAR including:**
  - History of prior aortic surgery with anastomotic pseudo-aneurysm
  - Type Ia EL after standard EVAR
  - Angulated neck
  - Hostile iliac access (diameter ≤ 7mm)
  - Tortuous anatomies
  - Downward angulation of target vessels ≤ -30°



*estimated annual risk of rupture > 30%, Moll et al. Eur J Vasc Endovasc Surg 2011

CG-EVAR advantages

- **Device adaptability**
- **Off-the-shelf availability for emergencies**
- **Possible use of low profile devices in hostile iliac access**
- **Low cost**
- **Reduced contrast volume**
- **Short procedure time**

CG-EVAR limits

- **Off-label :** inform patient and family, legal risk
- **Preferably ≤ 2 chimneys** to limit the risks of type Ia EL*
- **Absence of severe aortic arch angulation**
- **Long-term results awaited:** patency of target vessels? Type I EL through the gutters?**

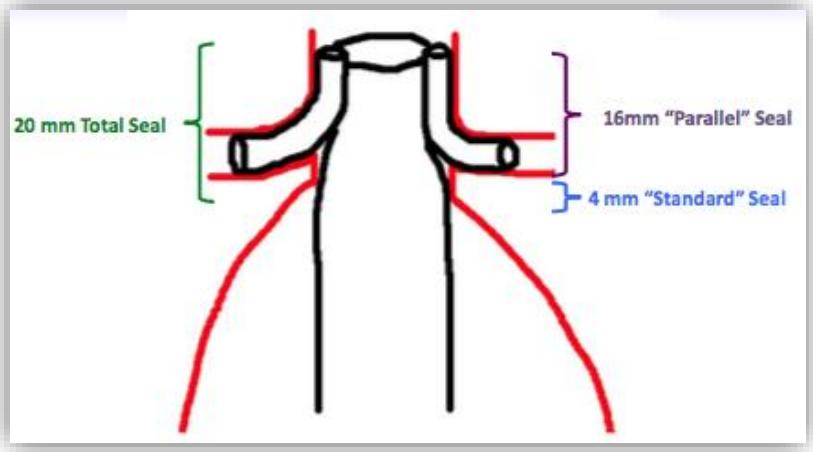
*Bruen et al. JVS 2011
**Katsargyris et al. J Endovasc Ther 2013

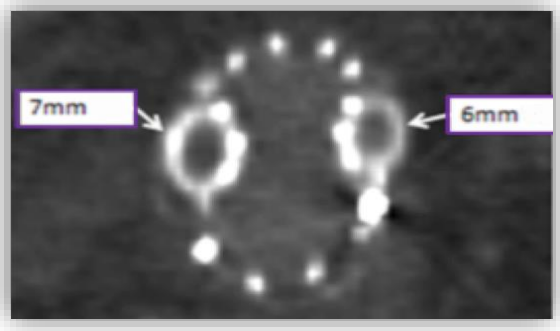
Quality imaging

- Pre-operative CTA mandatory
- Sizing is essential :
  - CG : 1mm oversizing
  - Aorta :

    Mean Aortic Diameter + ½ (CG diameters)
    = 25% oversizing
  - Landing zone ≥ 20mm

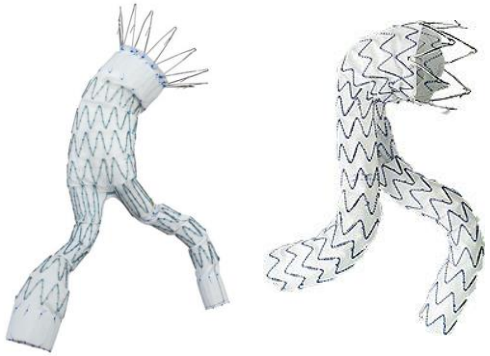
Minimal neck requirements





26 + ½ (6+7) = 32

Endograft Selection in our center



- Aortic grafts with suprarenal fixation
  - Zenith® (Cook)
  - Endurant® (Medtronic) for tortuous anatomies

- CGs = flexibility & length matter
  - Covered SESs :
    - Fluency® (Bard)
    - Viabhan® (Gore)

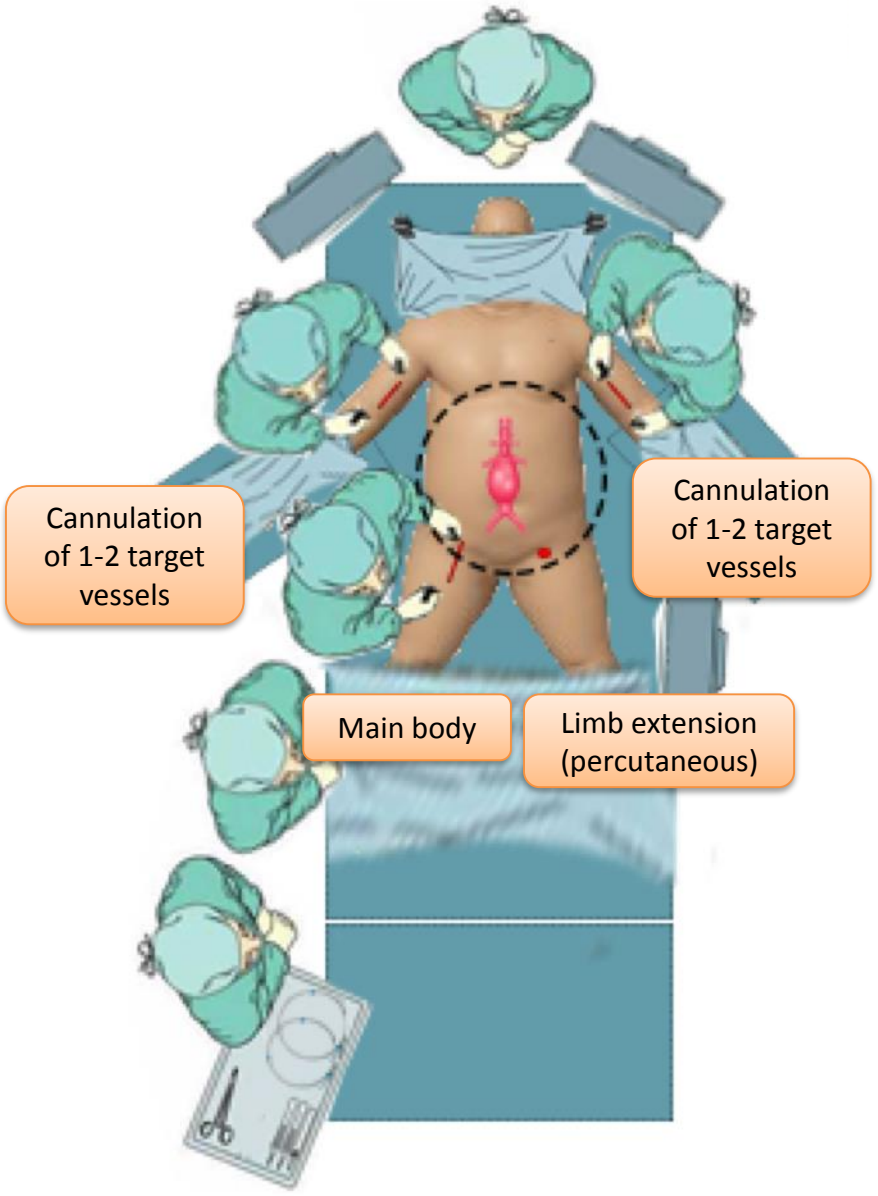
  - Bare SESs for "open" chimneys

  - Reinforced by bare SESs of same diameter and length
    - Neck diameter ≥ 16mm
    - Not too much radial force with aortic graft

  → **OR RISK OF STENT COMPRESSION**

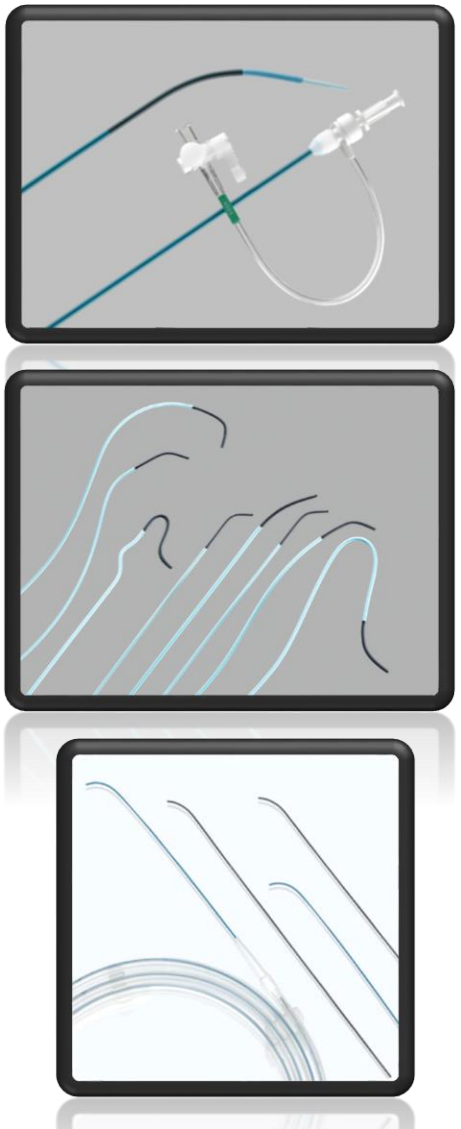
Installation

- General anaesthesia
- Systemic heparinization: 0.5mg/kg
- Multiple team
- Humeral access :
  - surgical approach
  - left+++
  - right if > 2 target vessels
- Femoral access :
  - 1 surgical/1 percutaneous
  - Or 2 percutaneous



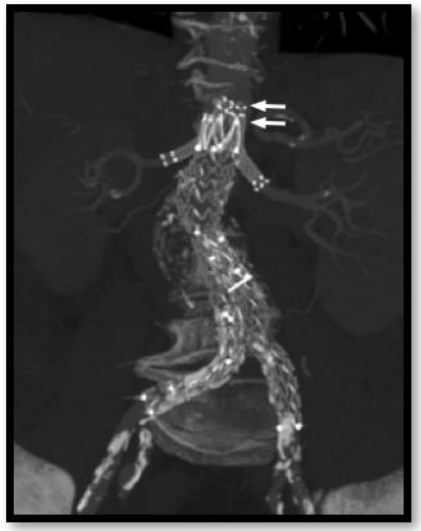
Sequence of deployment

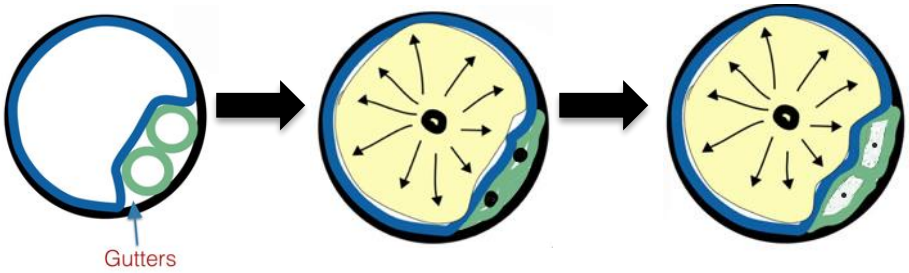
- Long sheaths positioned in the proximal abdominal aorta
- Cannulation of target vessels from brachial access with hydrophilic guidewire and guiding catheters
  - If necessary check position of CT/SMA in lateral view
- Guidewire changed for Rosen® (Cook) to provide support
- CGs are positioned but not delivered
- Aortic endograft is :
  - Positioned
  - Adjusted for parallax
  - And partially deployed (closed proximal stent)
- CGs are :
  - Deployed
  - Reinforced by a second SES
- Aortic graft is :
  - Entirely deployed
  - Dilated with latex balloon catheter
- Distal implantation similar to standard EVAR

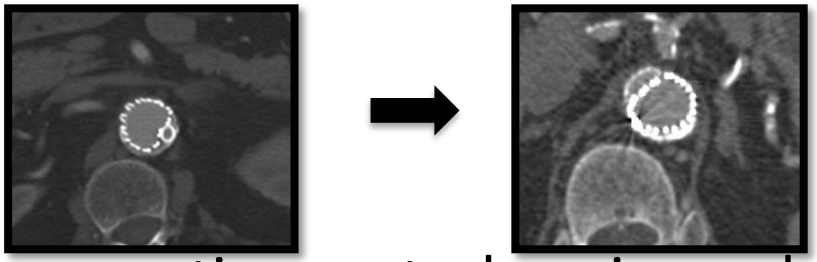


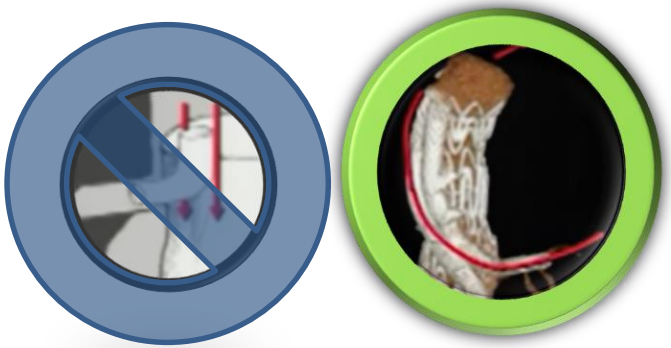
Minimize gutter leaks

- Landing zone ≥ 20mm
- **Spiralling chimney ≥ 10mm over proximal end of aortic graft**
- **No kissing balloon technique since we only use SESs :**









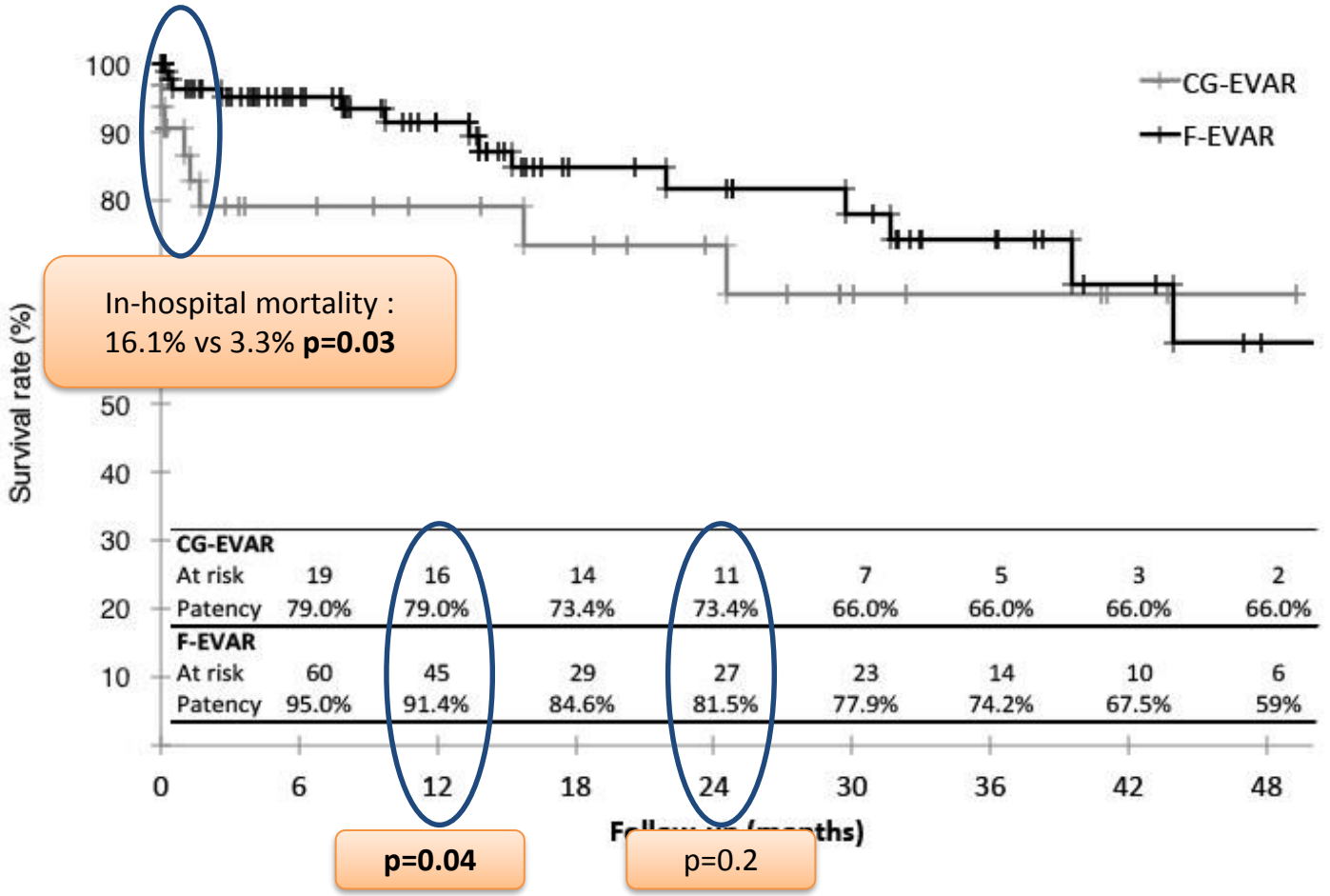
- Peroperative control angiography:
  - If early type Ia EL → new balloon inflation

Results of CG-EVAR vs F-EVAR in our center

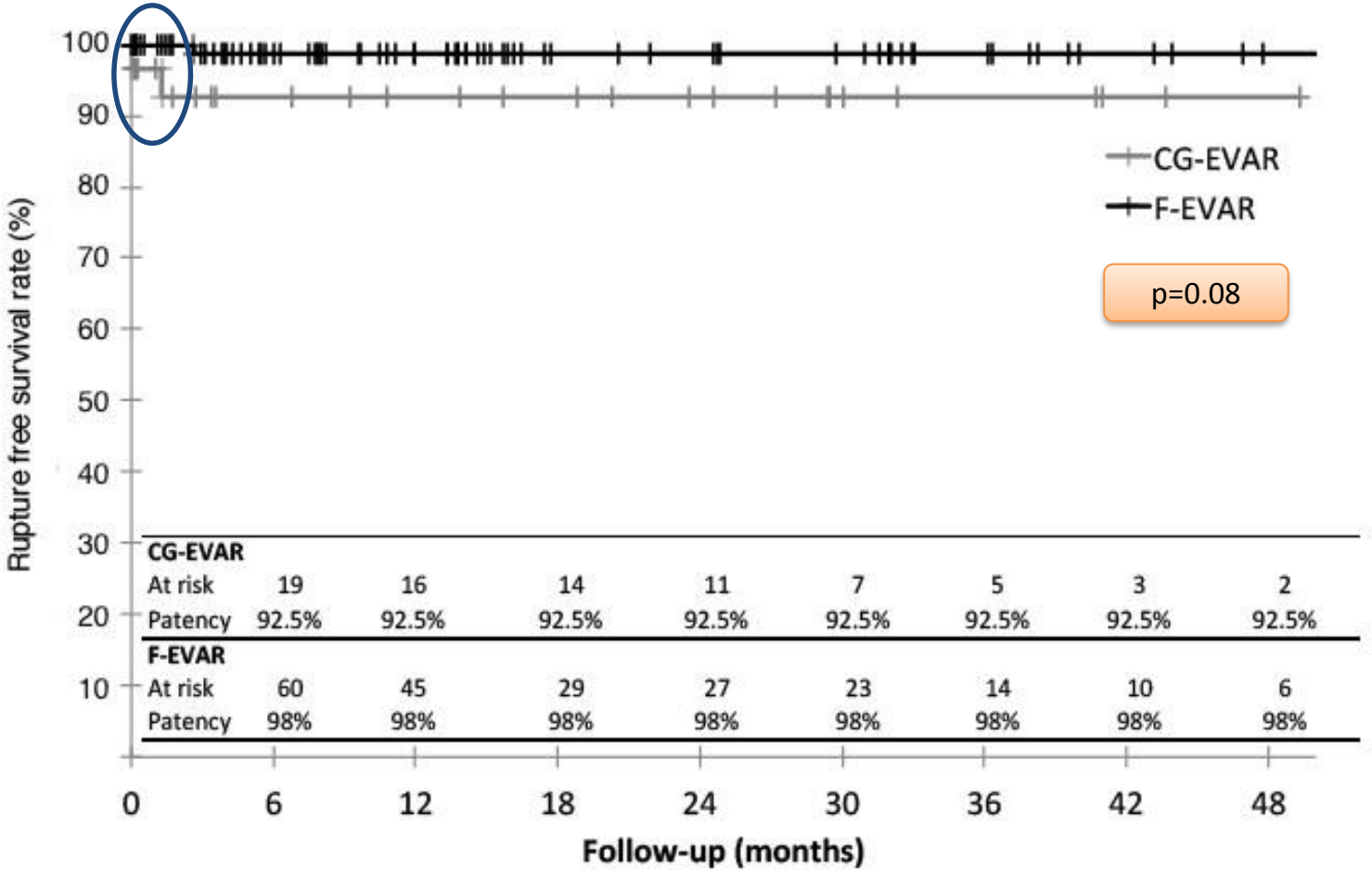
- **122 high risk-patients from January 2010-2015 :**
  - CG-EVAR : 42 target vessels
  - F-EVAR : 271 target vessels

Variables	CG-EVAR N = 32	F-EVAR N = 90	*p*
Men	27 (84.4)	88 (97.8)	**0.005**
Age (years)	75.3 ± 6.5	71.33 ± 8.20	**0.015**
CHD	12 (37.5)	33 (36.7)	0.94
Hypertension	25 (78.1)	72 (80.0)	0.82
Dyslipidemia	22 (68.8)	55 (61.1)	0.45
Diabetes	3 (9.4)	11 (12.2)	0.67
BMI ≥ 30	4 (12.5)	30 (33.3)	**0.025**
CVD	2 (6.3)	9 (10.0)	0.53
PAD	2 (6.3)	8 (8.9)	0.65
Chronic kidney disease	8 (25.0)	11 (12.2)	0.089
Hemodialysis	1 (3.1)	1 (1.1)	0.45
Prior aortic surgery	5 (15.6)	3 (3.3)	**0.017**
Current smoking	9 (28.1)	22 (24.4)	0.68
COPD	11 (34.4)	24 (26.7)	0.41
ASA	-	-	0.28
1	0 (0.0)	5 (5.5)	-
2	14 (43.7)	38 (42.2)	-
3	14 (43.7)	45 (50.0)	-
4	4 (12.5)	2 (2.2)	-
Emergency	4 (12.5)	0 (0.0)	**0.001**

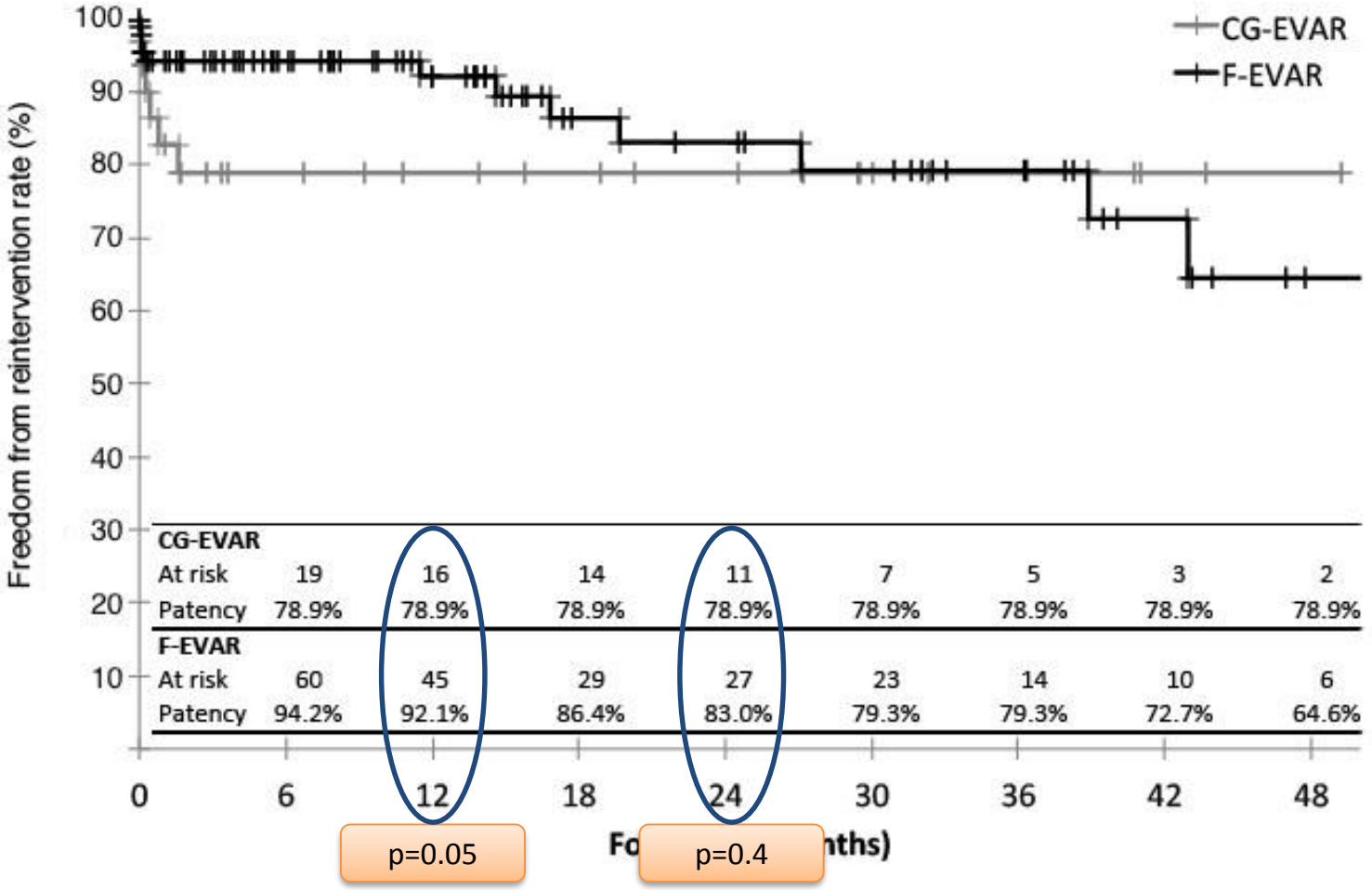
Survival rate (k-m)



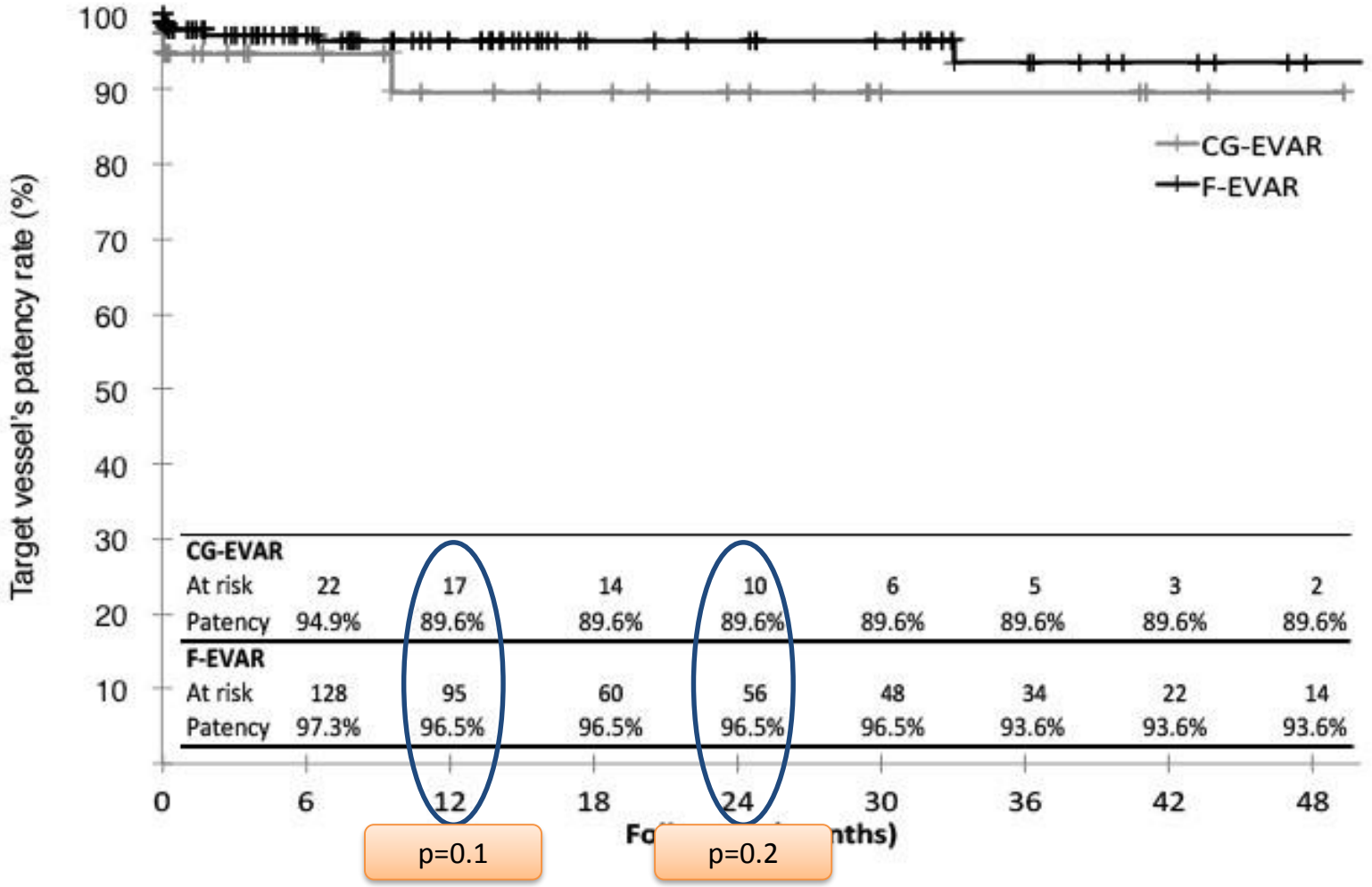
Freedom from rupture (K-M)



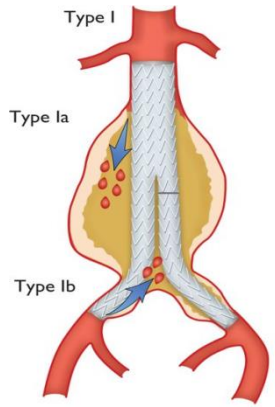
Freedom from reintervention (k-m)

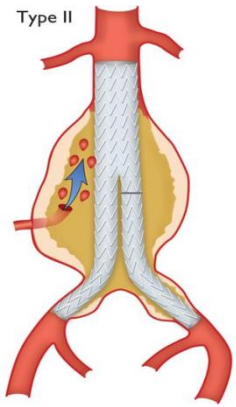


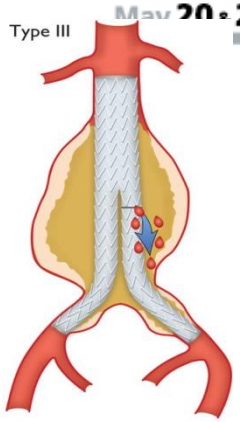
Stented target vessels' patency (k-m)



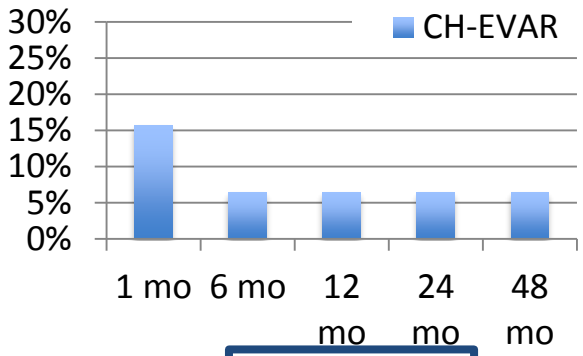
endoleaks



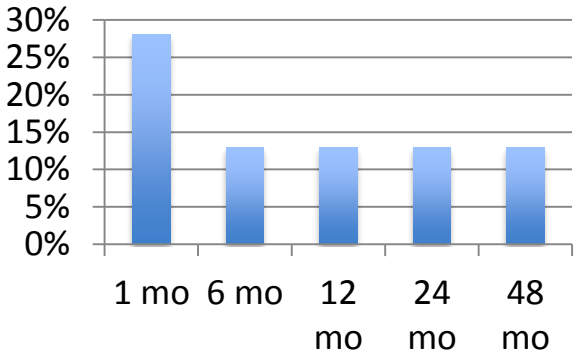




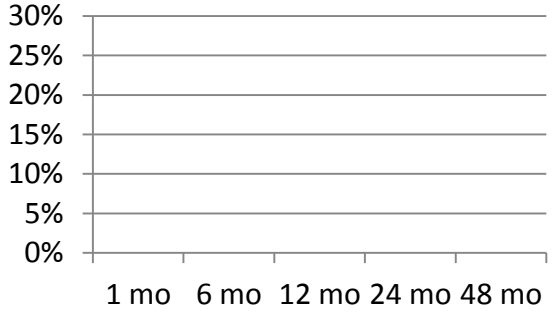
Type I EL



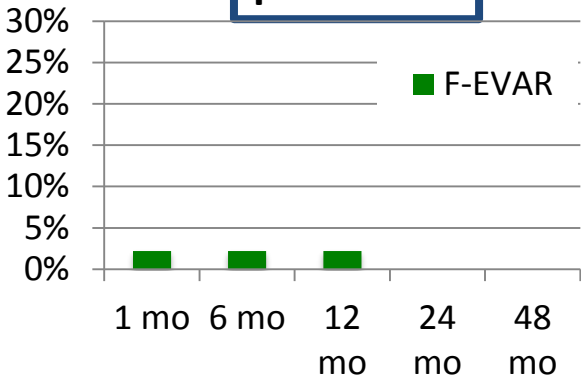
Type II EL



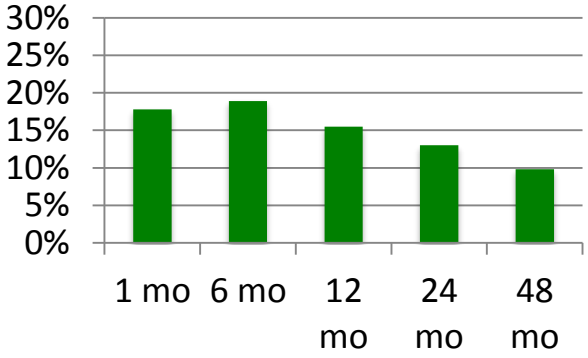
Type III EL



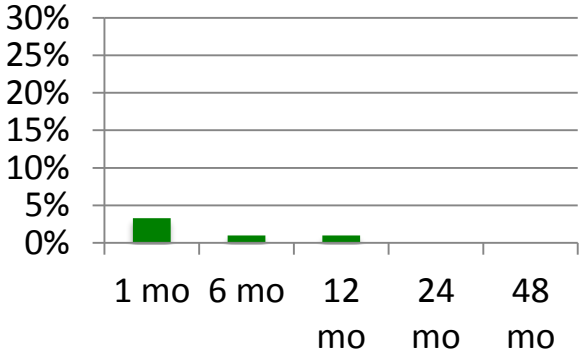
p = 0.06



p = 1

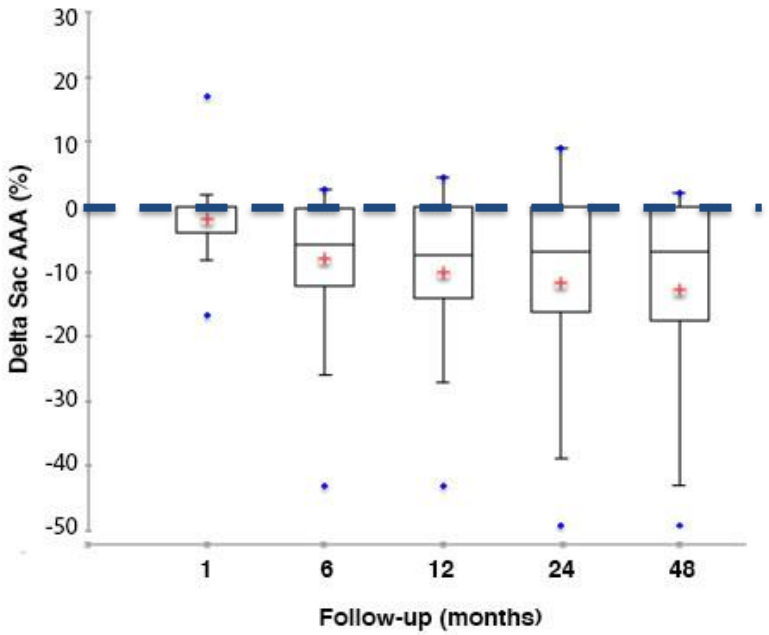


p = 0.4

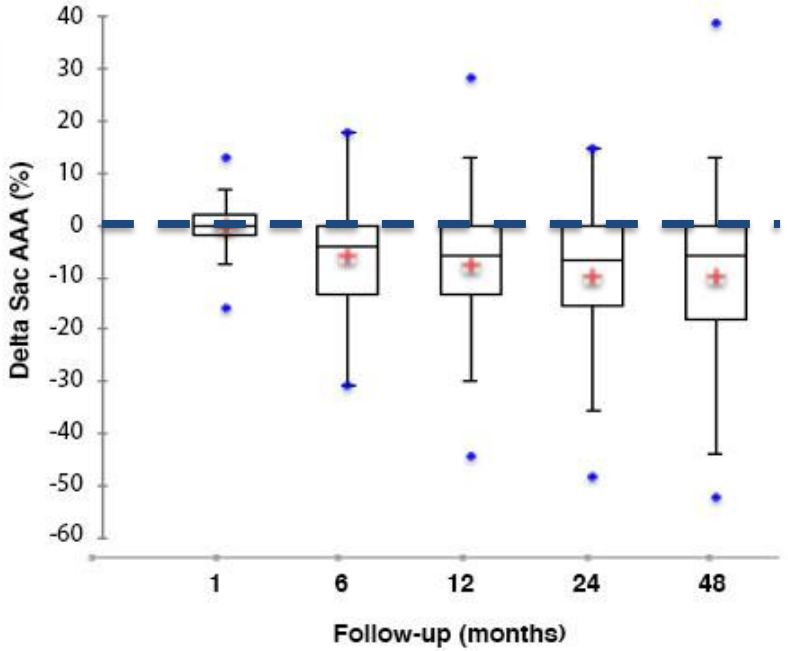


Aneurysm sac evolution

CG-EVAR



F-EVAR



- **1 mo vs. 48 mo :** p = 0.002 p < 0.0001
- **↘ in :** 83.3% 76.9% (p = 0.6)

Take home message

-
- Patient selection is key :
  - Life threatening aneurysms
  - Anatomical contraindications for F-EVAR
- Sizing is essential :
  - CG : 1mm oversizing
  - Mean Aortic Diameter + ½ (CG diameters) = 25% oversizing
  - Landing zone ≥ 20mm
- Installation is important:
  - Multi-team work
  - Left brachial access
- Good results in a high volume center:
  - Higher perioperative mortality/Lower 12-month survival
  - BUT elderly patients/symptomatic aneurysms → NS difference at 24 months
  - NS difference in target vessel's patency
  - More type I ELs without associated aneurysm sac increase

- CG-EVAR / F-EVAR = complementary strategies
- Both should remain in the armamentarium of physicians treating complex aortic aneurysms

Take home message

- Hence with expertise,
  - Enjoy the CHRIMPS,
  - Enjoy the Chimney,
  - And ….
    - **ENJOY THE PRAWNS !!!!**

- Thank you