Evolution of gender-related differences in outcome of EVAR

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Disclosure

Speaker name:

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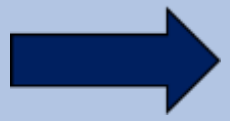
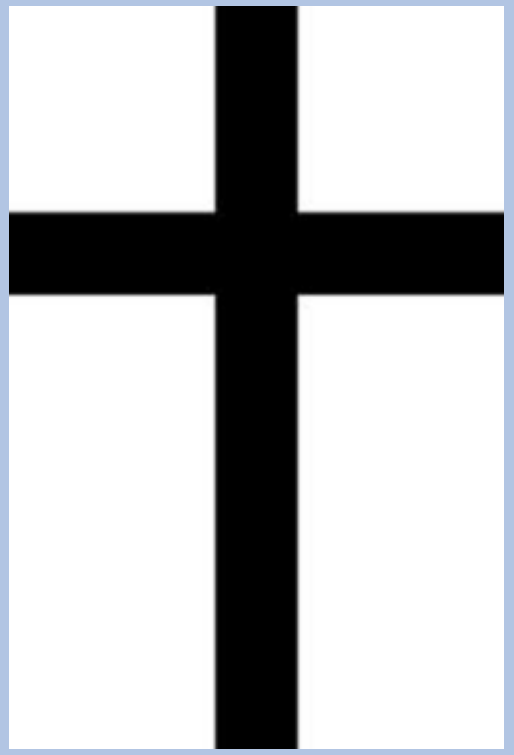
I have the following potential conflicts of interest to report:

- ☐ 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**





Gender differences in AAA

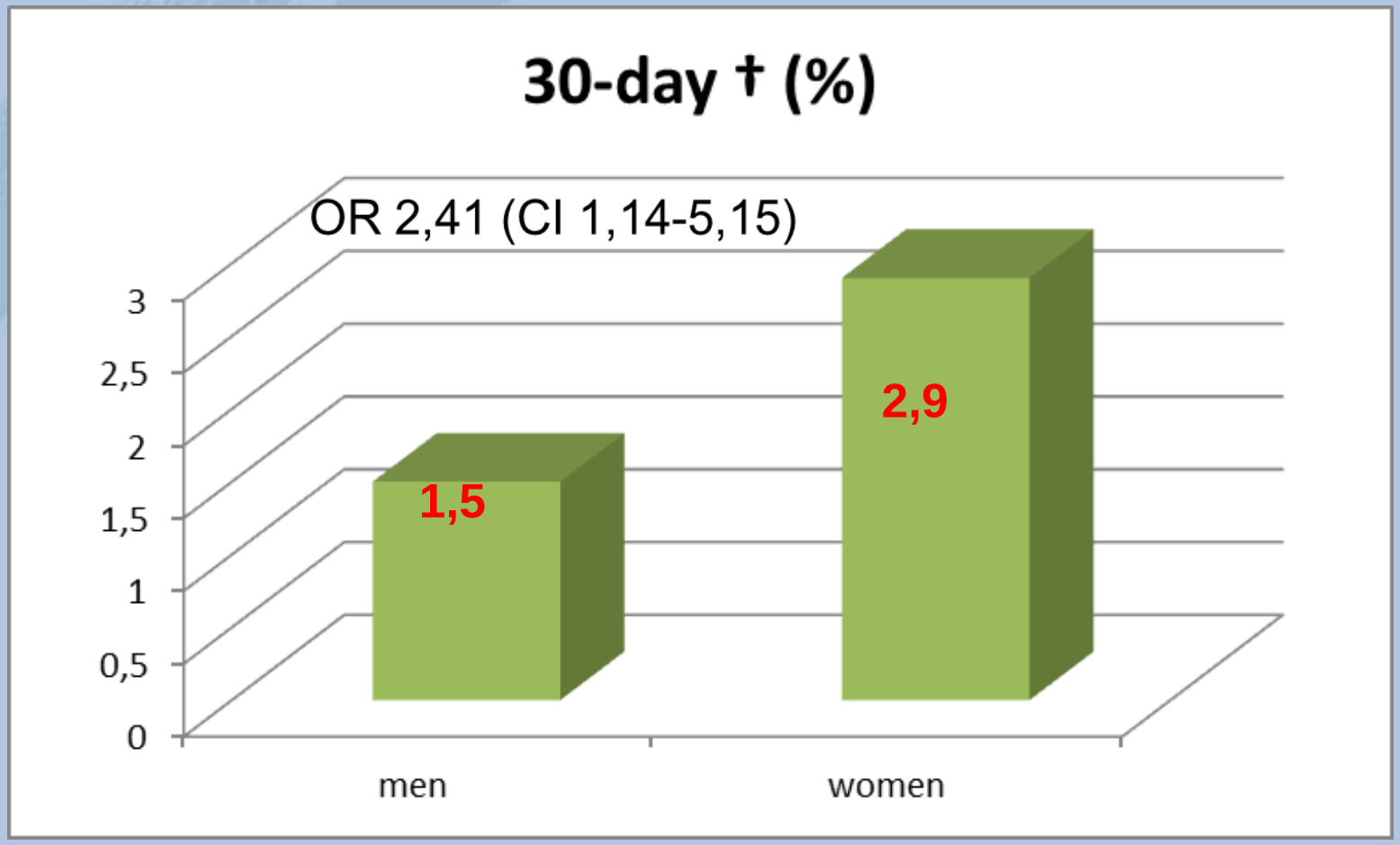
- ✓ **AAA has been thought to primarily affect men with a 4 to 1 male-to-female predominance**

- ✓ **However when they do, female AAA's**
  - ✓ **have a faster rate of aneurysm growth**
  - ✓ **Have a fourfold higher risk of rupture**
  - ✓ **Have a tendency to rupture at smaller diameter**
  - ✓ **Have a threefold higher mortality following rupture compared with men**

Whereas this may suggest that women should have a lower size treshhold for repair, many studies have shown that women have worse outcomes following endovascular repair of intact AAA

Meta-analysis, Grootenboer et al, BJS, 2010. **EVAR's between1995-2009 (first generation stentgrafts)**

N women = 1014 N men = 6910



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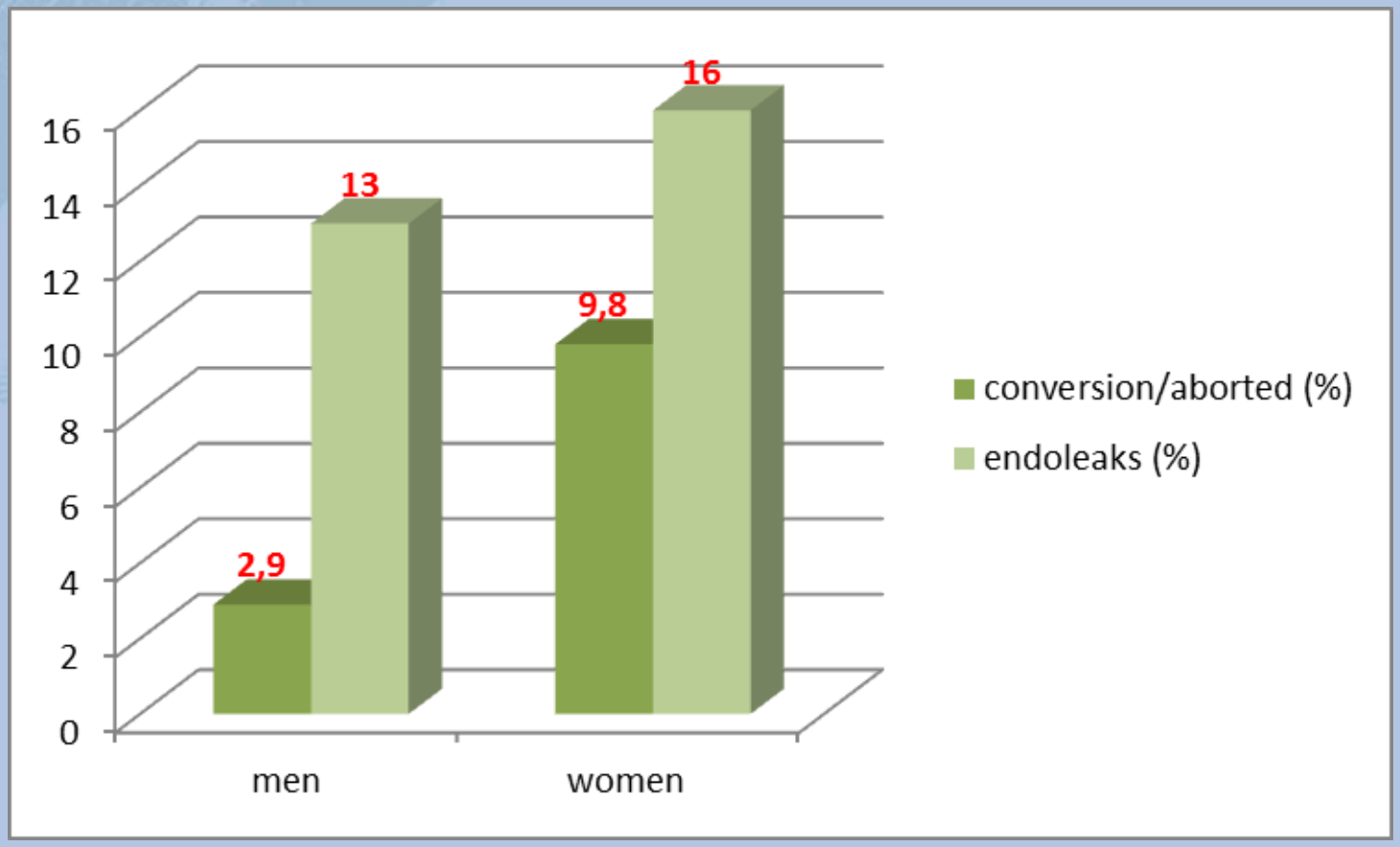
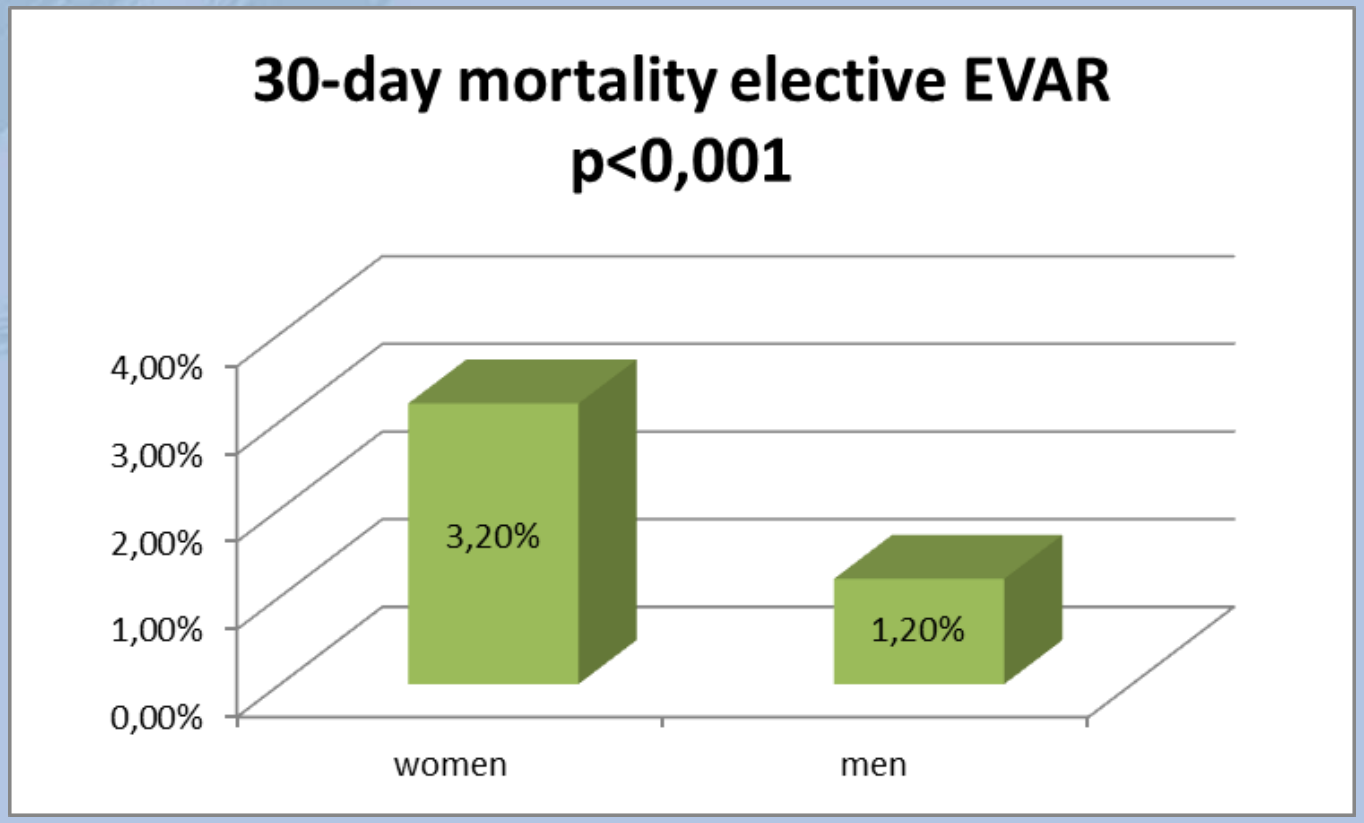
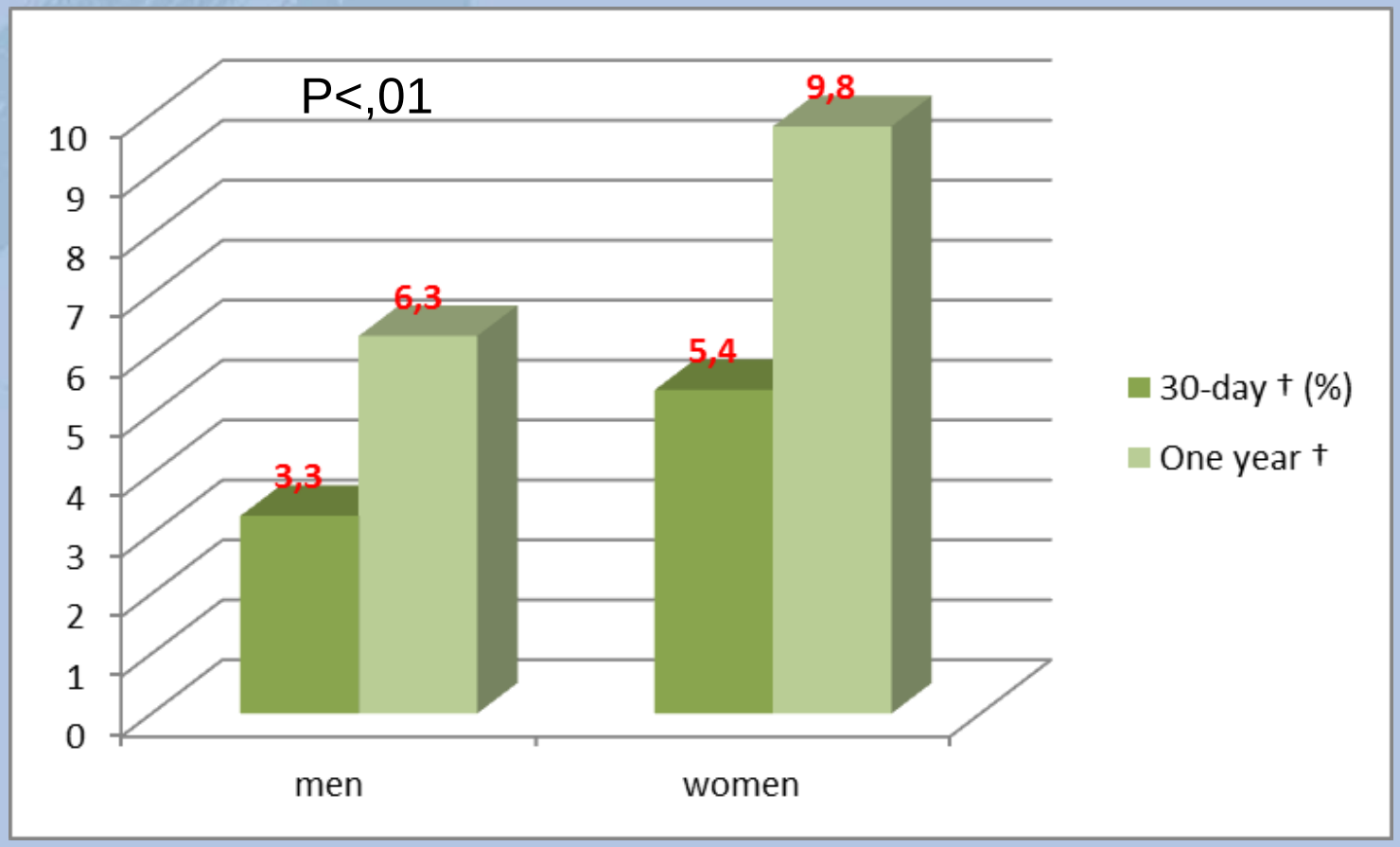


Deery et al, J Vasc Surg 2017
1048 women and 4727men with elective EVAR's
(2011-2014 second generation stentgrafts)



Deery et al, J Vasc Surg 2017
TEVAR for intact TAA,
2574 TEVAR's (women 40%) **between 2011-2015**



Cause of gender disparity remains elusive

Several hypothesis

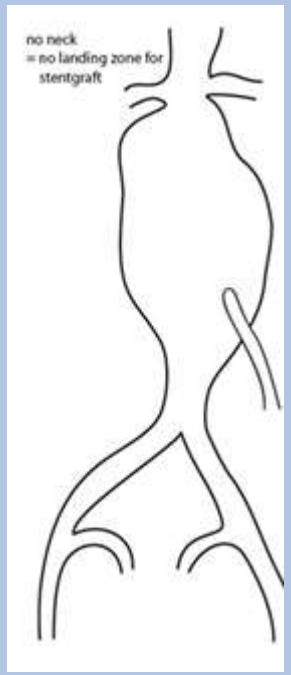
- ✓ **Up to menopause women are protected by hormones, leading to a slower progression of atherosclerosis. Thereafter they "catch up" and finally have higher incidence of CVD**

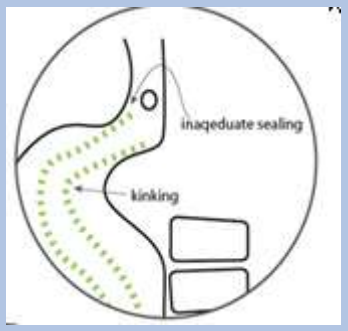
- ✓ **At time of presentation, women are older and have more underdiagnosed and undertreated comorbitities**

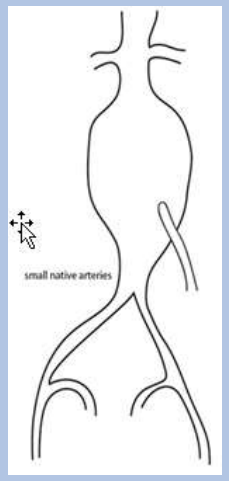
Women have more challenging anatomy

Women have more challenging anatomy

- ✓ Shorter and more angulated neck
- ✓ Smaller and more tortuous vessels
- ✓ Leading to less suitable AAA's for EVAR (6-13%)
- ✓ Leading to more complications (more conduit use and additional procedures)







Influence of gender on EVAR outcome with low-profile devices

Device	Manufacturer	Outer diameter (F)
Incraft	Cordis Corporation	14
Ovation	Endologix	14
Altura system	Lombard	14
Zenith TX2	Cook Medical	17
Nellix	Endologix	17
AFX	Endologix	17
Gore TAG	Gore & Associates	18
Zenith Alpha AAA	Cook Medical	18
Treovance	Bolton Medical	18
Endurant II	Medtronic	18
Relay NBS plus	Bolton Medical	19
Excluder	Gore & Associates	20,4
Valiant	Medtronic	22

LP Devices

- **Increase the number of female patients that are suitable for EVAR and TEVAR**

- **INNOVATION prospective multicenter trial (Cordis Incraft SYSTEM)°, Ovation international multicenter trial°°, Zenith Alpha low-profile system evaluation°°°**

  - Access vessel diameter of < 6 or 7mm
  - Tortuosity index of > 1,5mm

  - No higher incidence
    - limb occlusion
    - Endoleaks
    - Conversion to open repair
    - Mortality

° Torsello et al, J Vasc 2015
°° Mehta et al, J Vasc Surg 2014
°°°Sobocinski et al, 2015

Belgian National Register started on 1 January 2012

EVAR - TEVAR - FEVAR

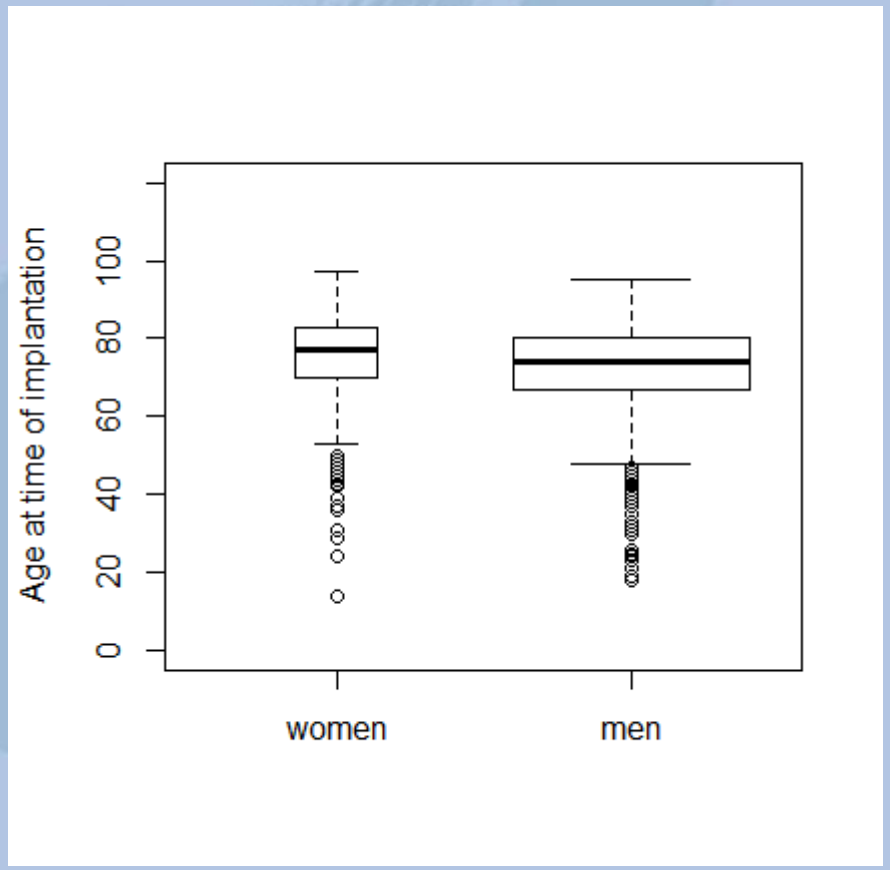
Number of interventions

	Number	%
Total patients	6162	
Total percutaneous interventions	**6409**	100,0
Patients with 2 or 3 interventions	247	4,0
Bifurcation	4632	72,3
Thoracal	676	10,5
Other abdominal & iliacal	599	9,3
Endoleak repair *	319	5,0
Fevar/Bevar	179	2,8
Hybrid endoprosthesis	4	0,1

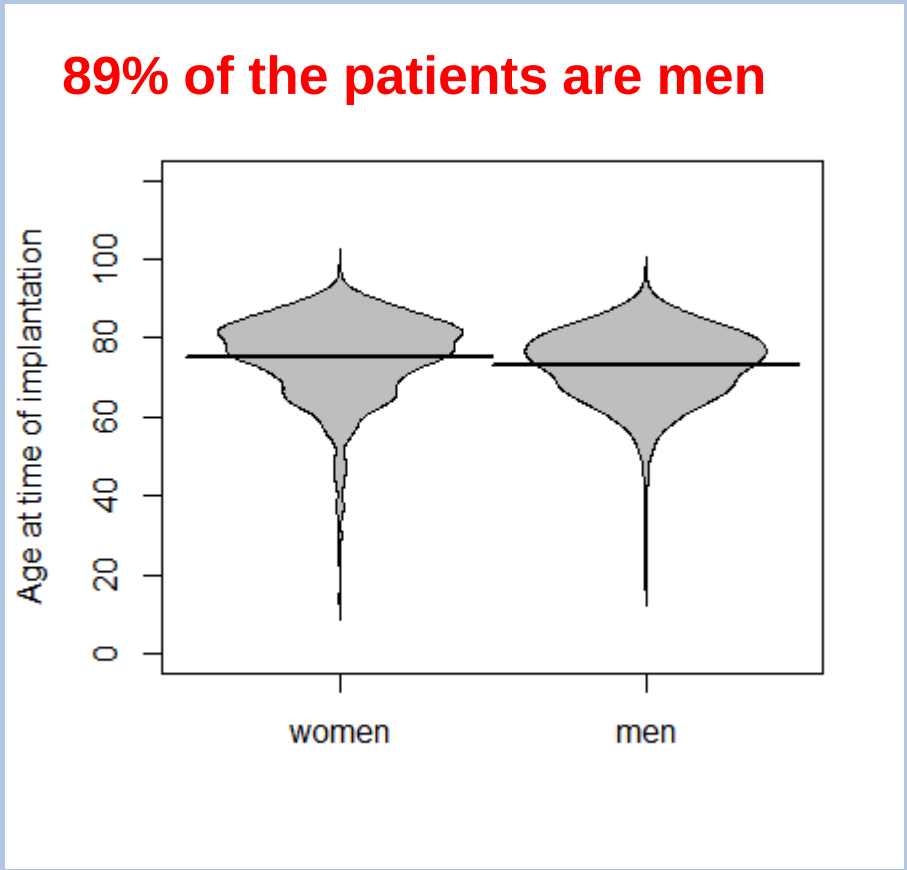
Belgian National Register started on 1 January 2012

EVAR – TEVAR - FEVAR

Age distribution



89% of the patients are men



Median

Men: 74

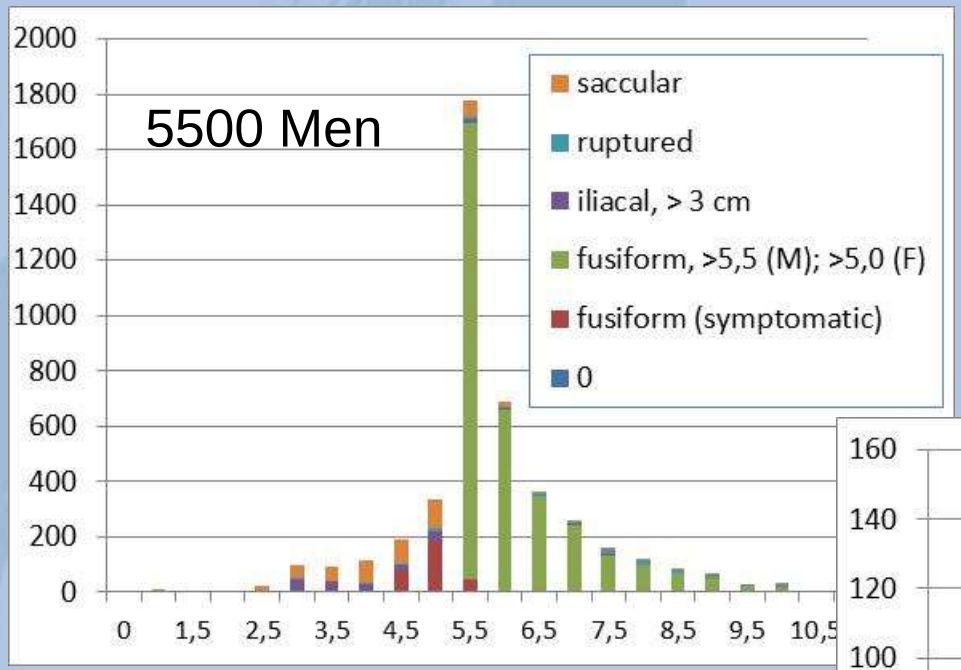
Women: 77

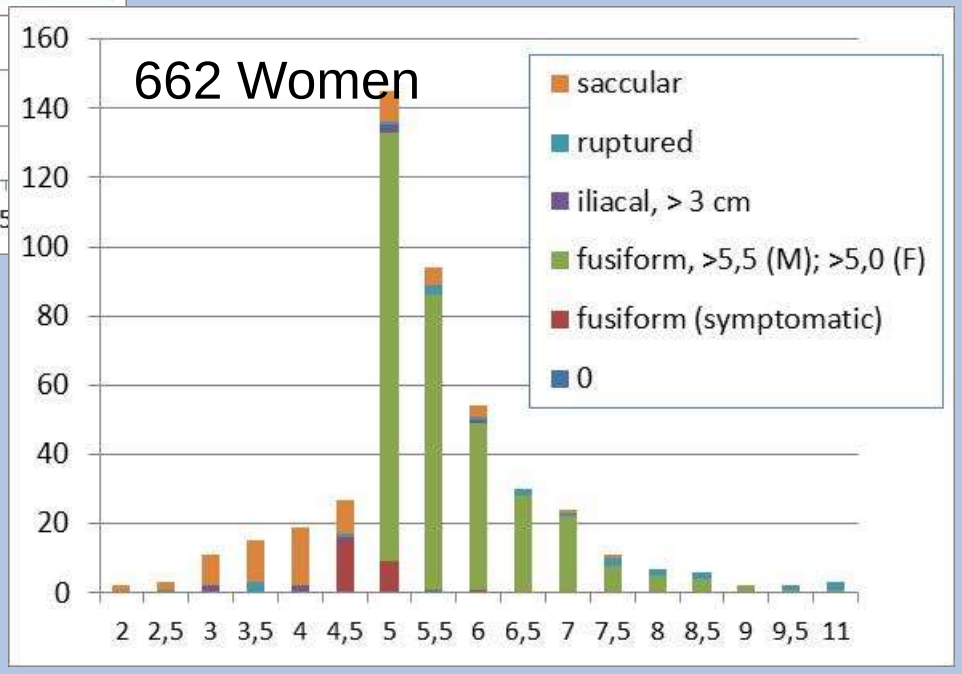
Mean

Men: 73,1

Women: 75,2

Belgian National Register started on 1 January 2012
EVAR – TEVAR –FEVAR
Indication





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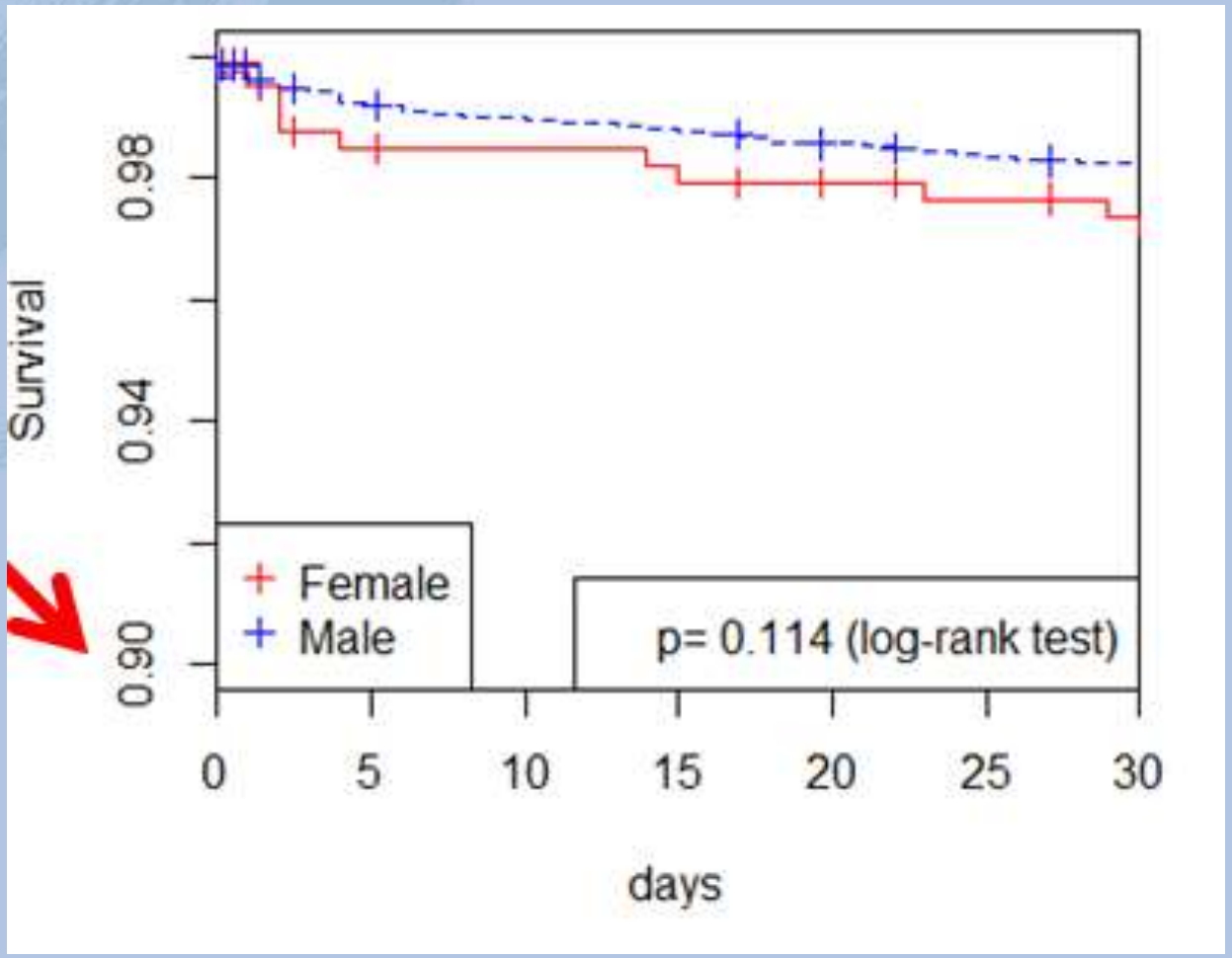
EVAR – TEVAR –FEVAR

30 day mortality EVAR



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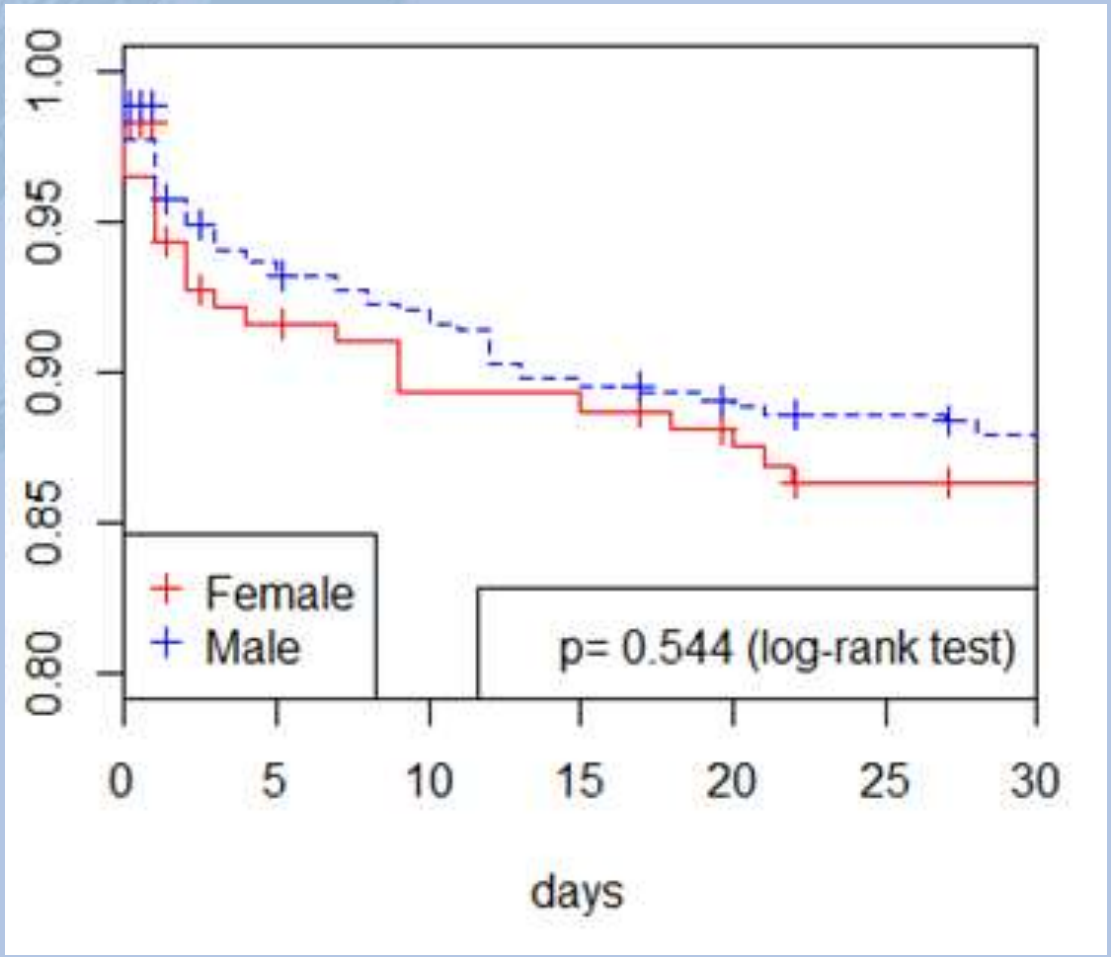
EVAR – TEVAR –FEVAR

30 day mortality TEVAR

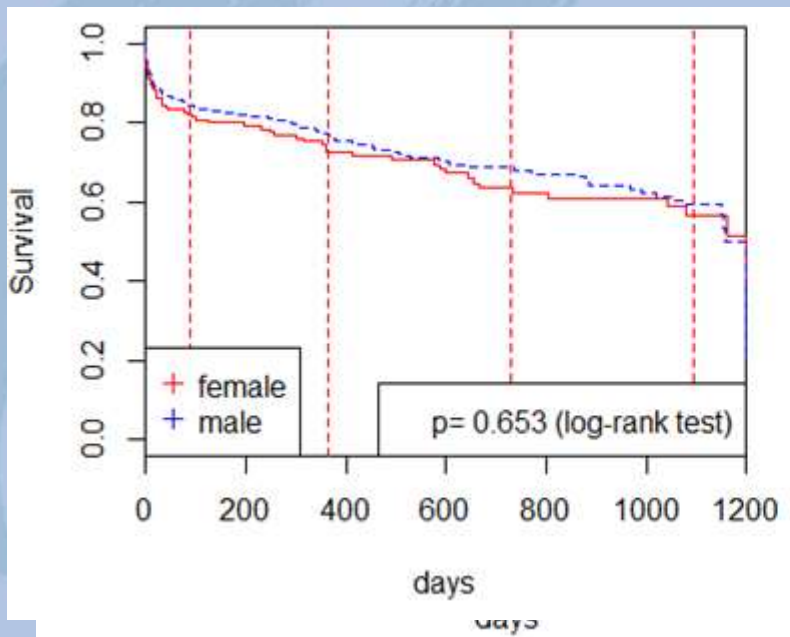


Belgian National Register started on 1 January 2012
EVAR – TEVAR –FEVAR

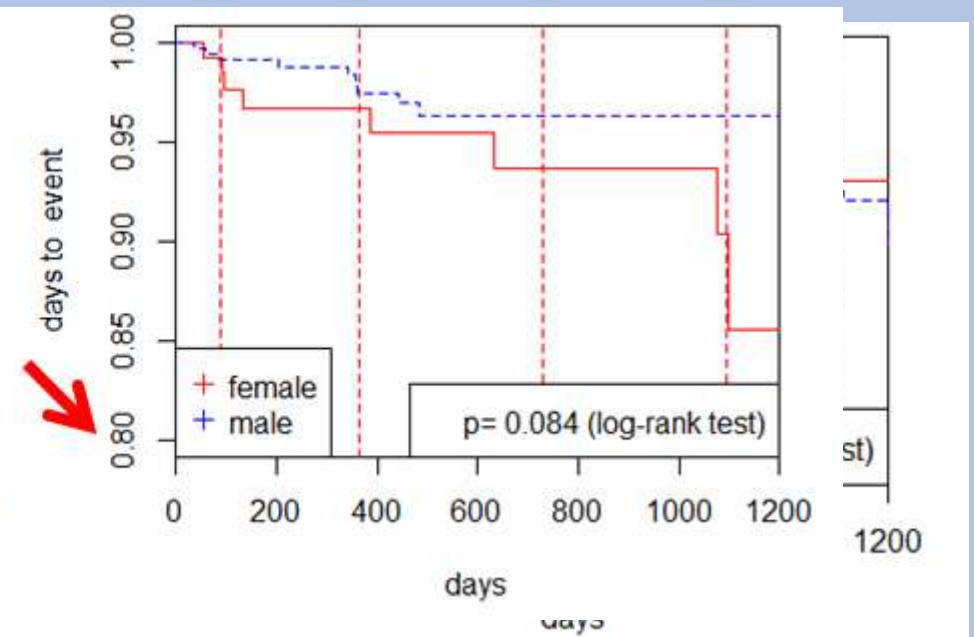
EVAR

TEVAR

Kaplan-Meier Survival curve



Kaplan-Meier curve to endoleak 1 or 3



Conclusion

Low-profile devices have the potential to change the way we plan EVAR's and TEVAR's.

The early results of LP devices are encouraging and demonstrate that favorable midterm outcomes can be achieved using low-profile technology in female patients with unfavorable iliac anatomy.

Further studies are required to substantiate these early results and to assess longer-term outcomes.

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