

17° Meeting



**CardioLucca**  
Heart Brings Heart 2023

**Lucca, 22-24 Giugno 2023**  
Centro Congressi Auditorium San Francesco

**Francesco Saia**

*IRCCS Azienda Ospedaliero-Universitaria di Bologna  
Policlinico S. Orsola, Bologna*

**Quando la coronaropatia  
condiziona la scelta della TAVI**



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**Una risposta semplice a un problema complesso:**

**SEMPRE**



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# Valve Heart Disease guidelines



**Table 6** Clinical, anatomical and procedural factors that influence the choice of treatment modality for an individual patient

	Favours TAVI	Favours SAVR
<b>Concomitant cardiac conditions requiring intervention</b>		
Significant multi-vessel CAD requiring surgical revascularization <sup>d</sup>	-	+
Severe primary mitral valve disease	-	+
Severe tricuspid valve disease	-	+
Significant dilatation/aneurysm of the aortic root and/or ascending aorta	-	+
Septal hypertrophy requiring myectomy	-	+





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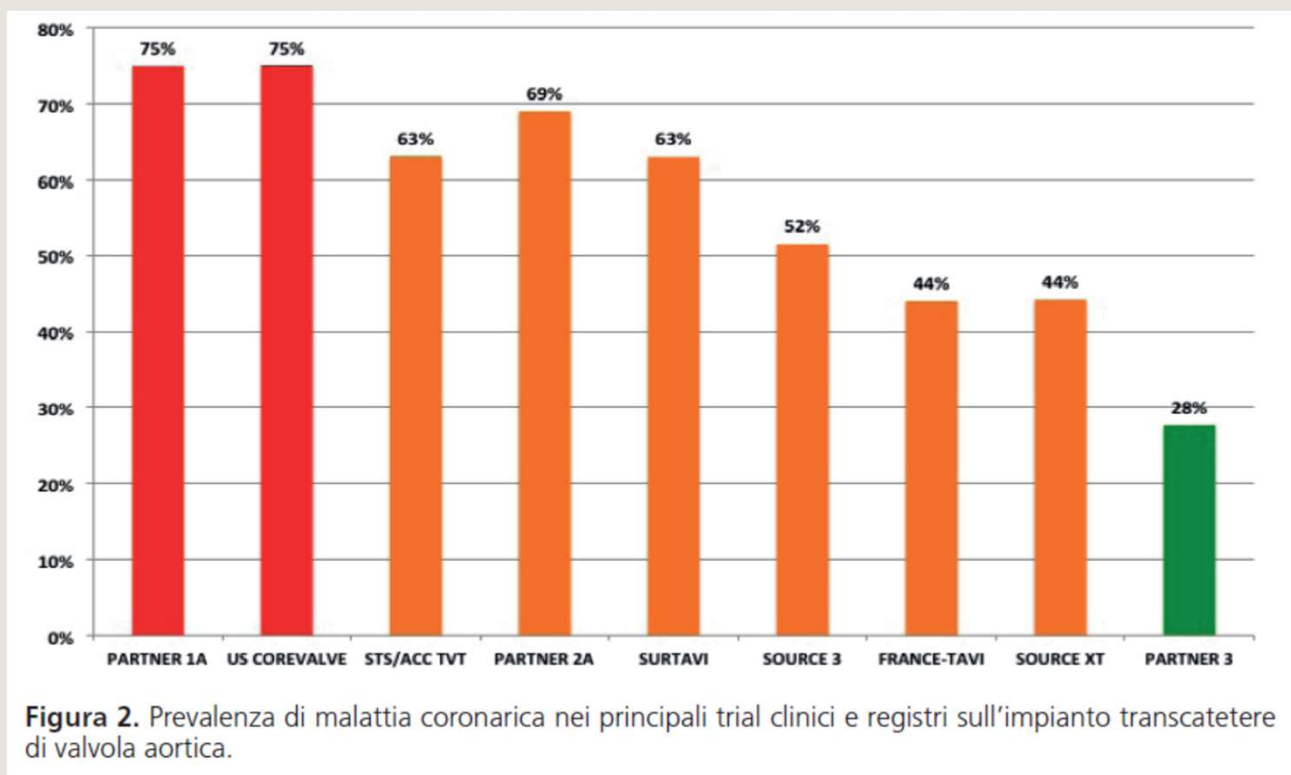
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## Prevalence of CAD in TAVI Patients

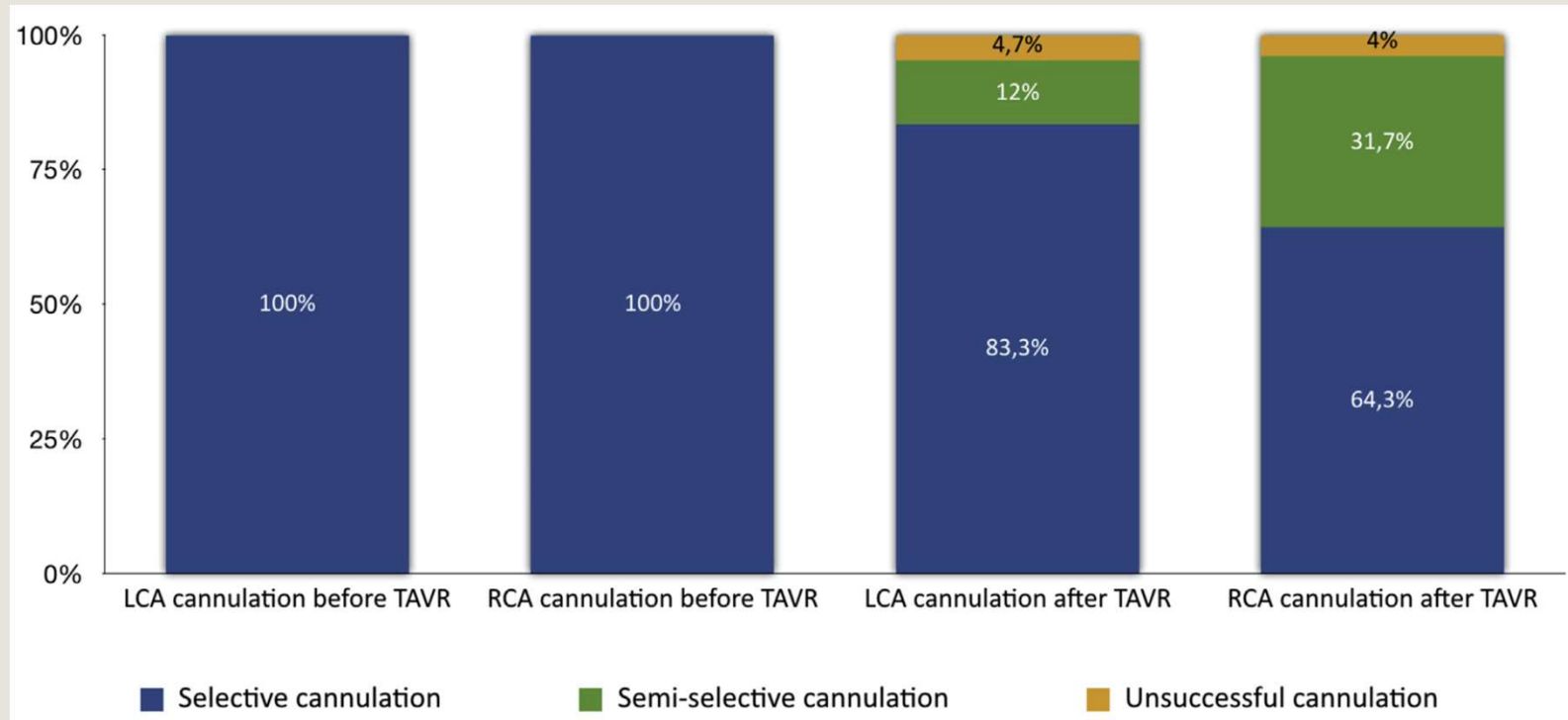




# The RE-ACCESS Study

**300 PATIENTS:**  
41% Evolut, 32% Sapien 3/Ultra, 24% Acurate-neo, 3% Portico

## CORONARY CANNULATION BEFORE AND AFTER TAVR





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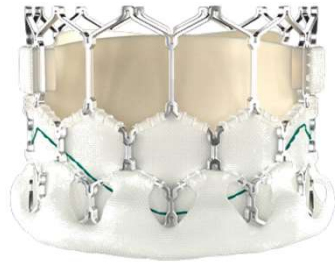
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# Current THV technology

## BALLOON-EXPANDABLE



**Sapien 3 / S3 Ultra**



**Myval**

## SELF-EXPANDING



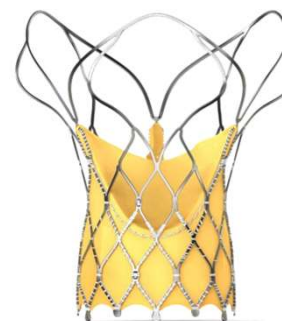
**Evolut Pro / Pro+**



**Portico / Navitor**



**Acurate Neo 2**



**Hydra (SMT)**



**Allegra (NVT)**



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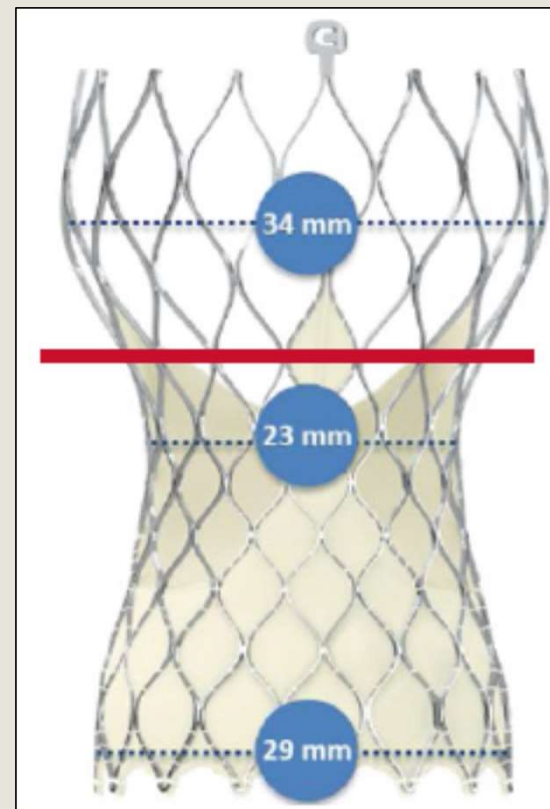
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## Not all self-expanding valves were created equal

### Evolut R 29 mm

<b>Frame Height (mm)</b>	45
<b>Skirt Height (mm)</b>	14
<b>Outflow (mm)</b>	34
<b>Center/Waist (mm)</b>	23
<b>Inflow (mm)</b>	29





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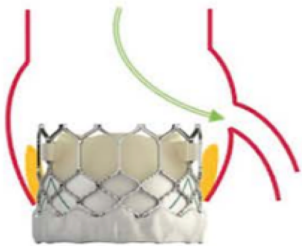
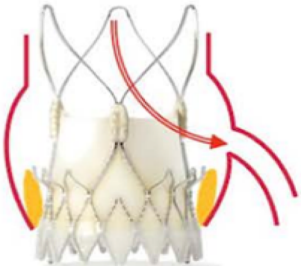
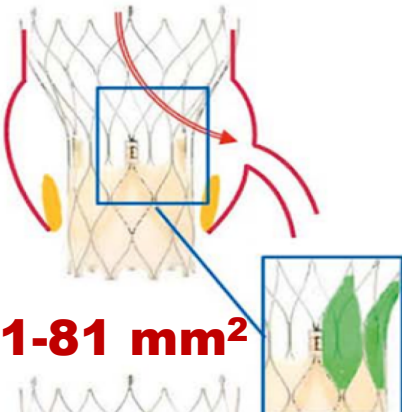
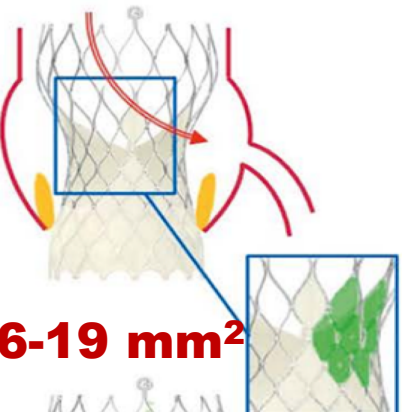
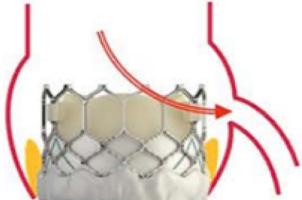
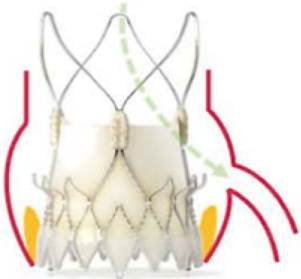
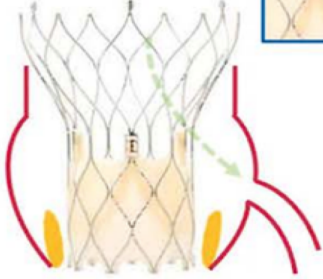
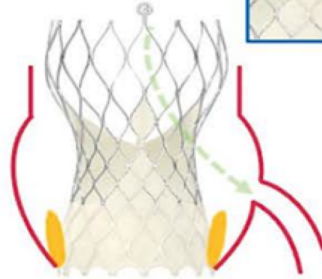
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# Not all THVs were created equal

Sapien 3	Acurate Neo	Portico	Evolut R
 <b>32-54 mm<sup>2</sup></b>	 <b>489-610 mm<sup>2</sup></b>	 <b>51-81 mm<sup>2</sup></b>	 <b>16-19 mm<sup>2</sup></b>
			

*Courtesy of G Tarantini*





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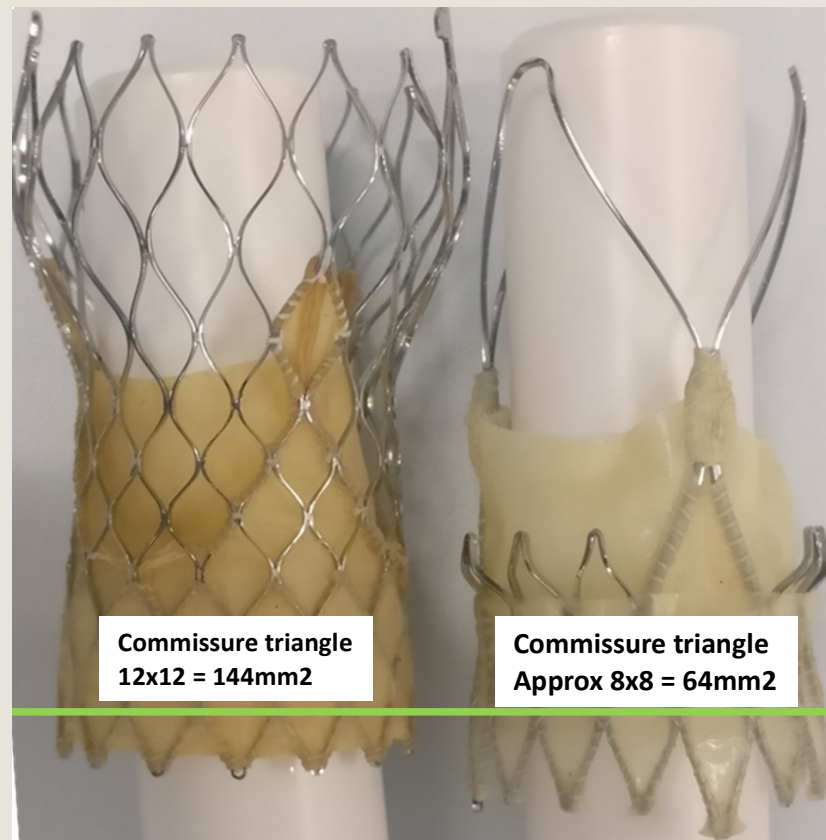
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## Area of the commissure triangle



*Courtesy of G Tarantini*



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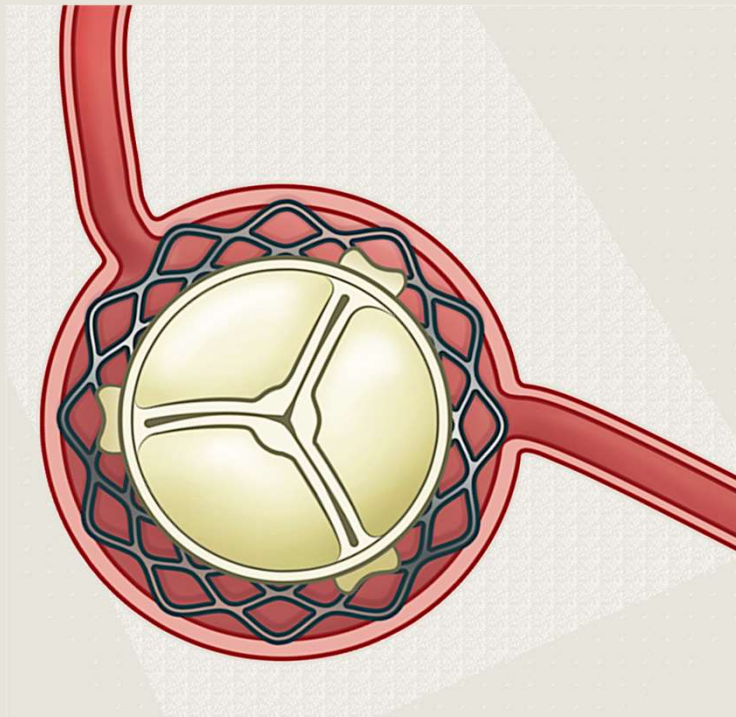
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## Maintaining coronary access: commissural alignment



COMMISSURAL ALIGNMENT



CORONARY OVERLAP



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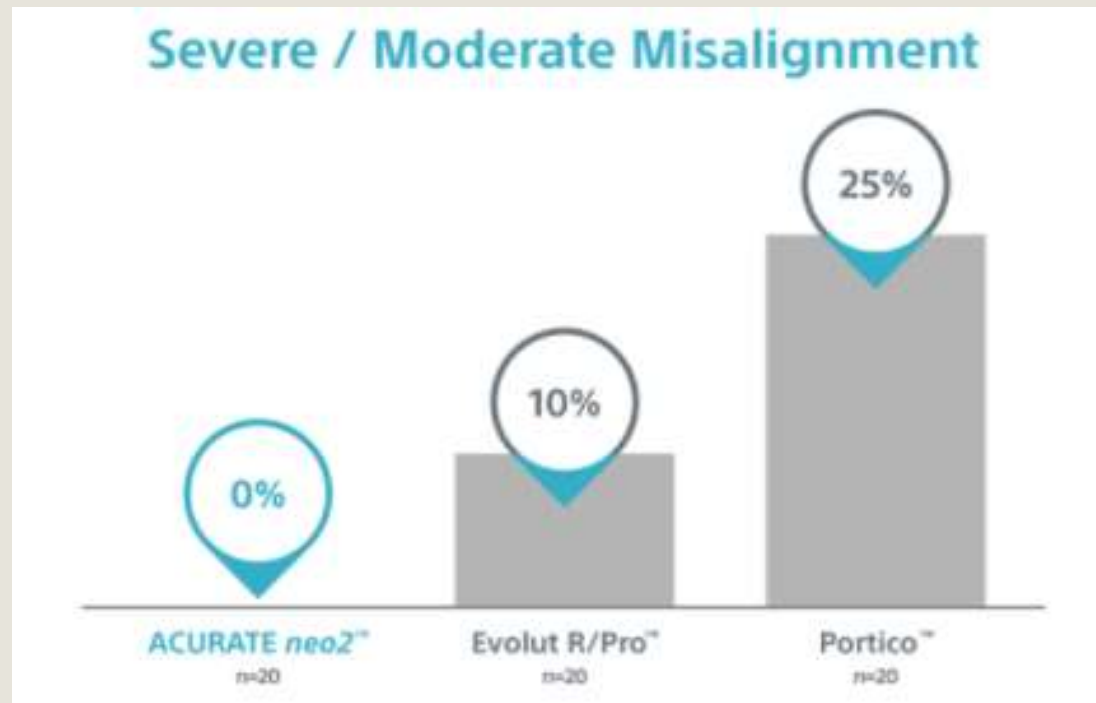


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# Achievement of commissural alignment

## COMALIGN



Bielauskas, G, et al. J Am Coll Cardiol 2021



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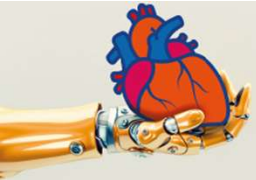


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# Commissural alignment and coronary access





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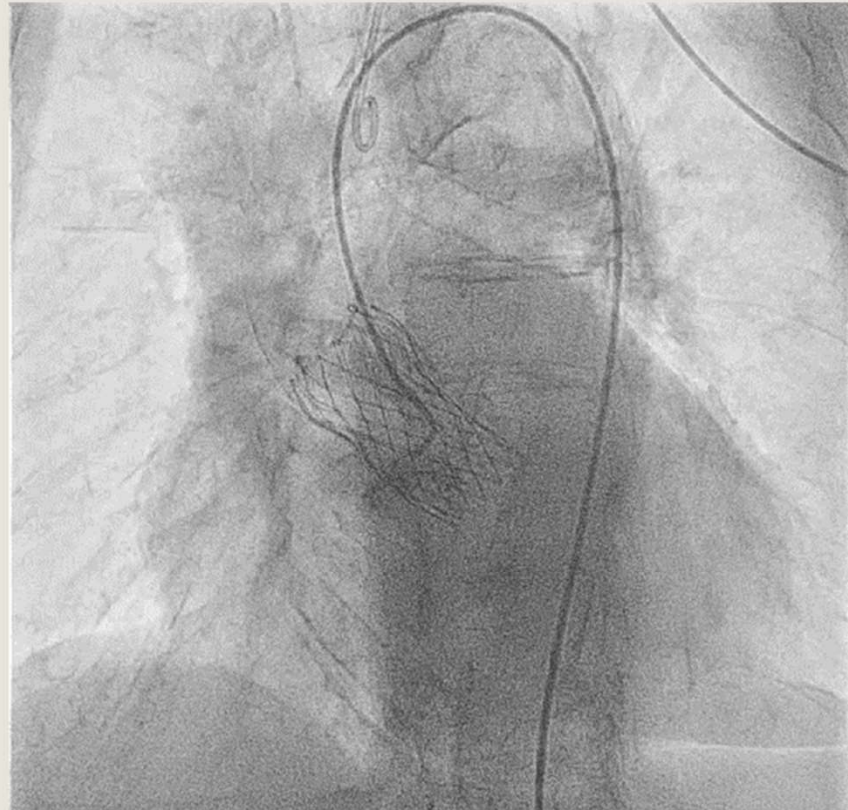
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## Coronary cannulation with the self-expanding Evolut THV





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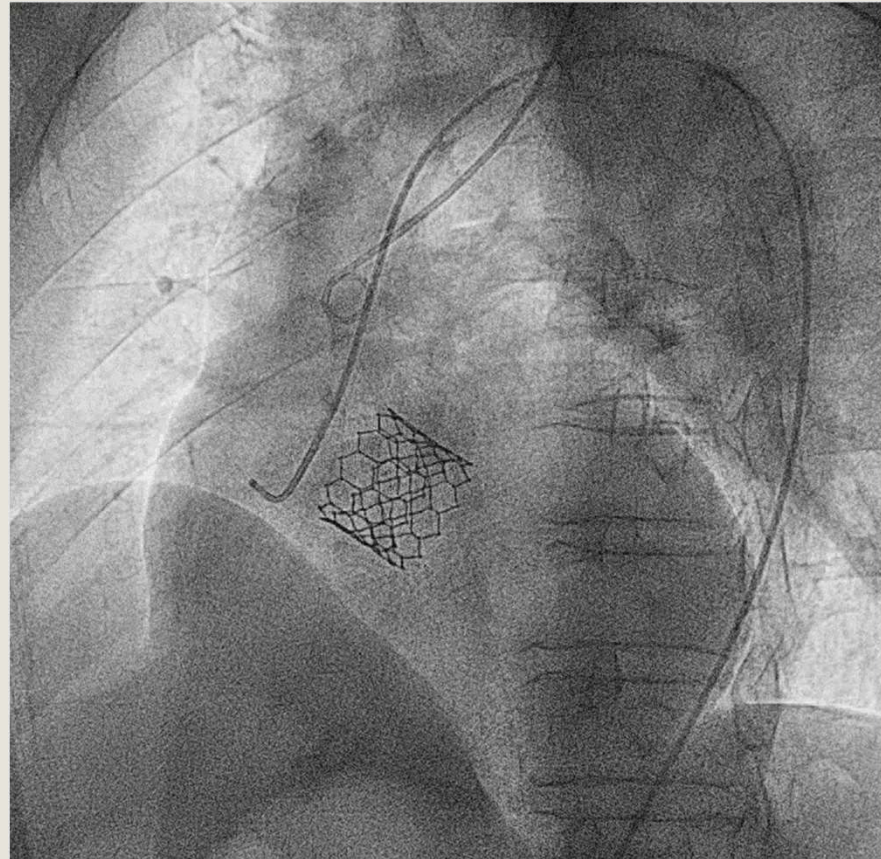
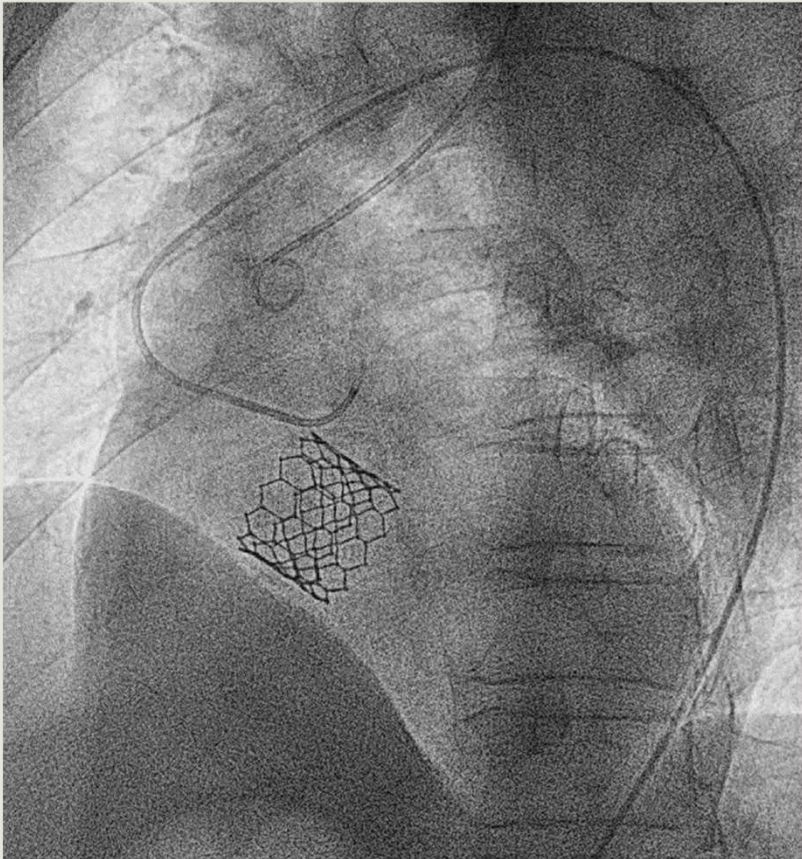
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## Coronary cannulation with the balloon-expandable Sapien THV





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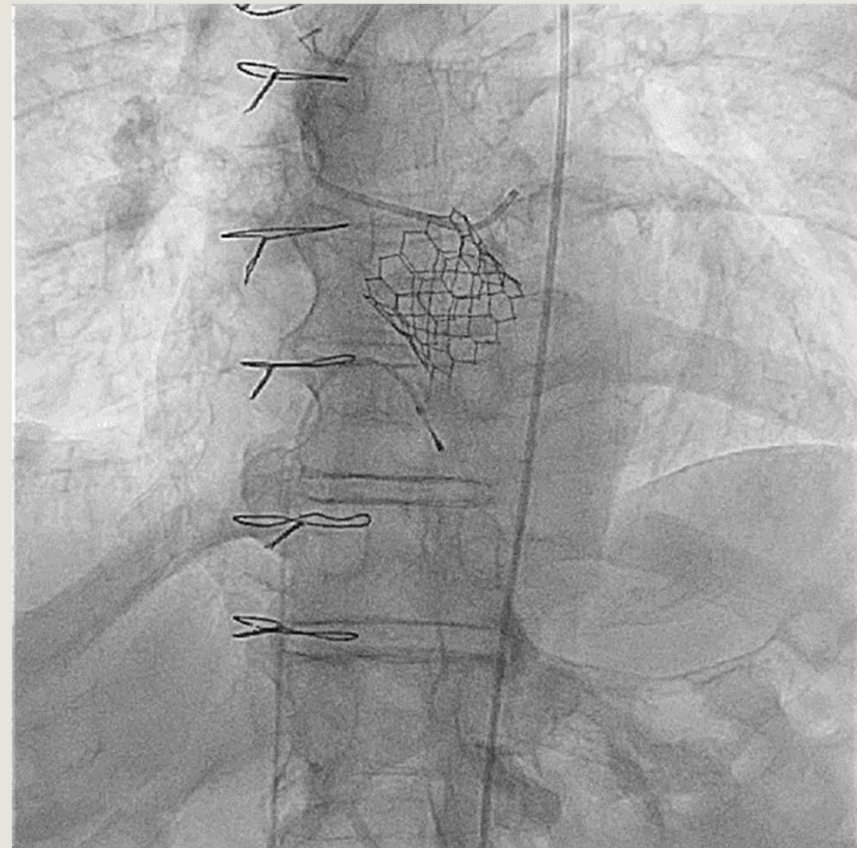
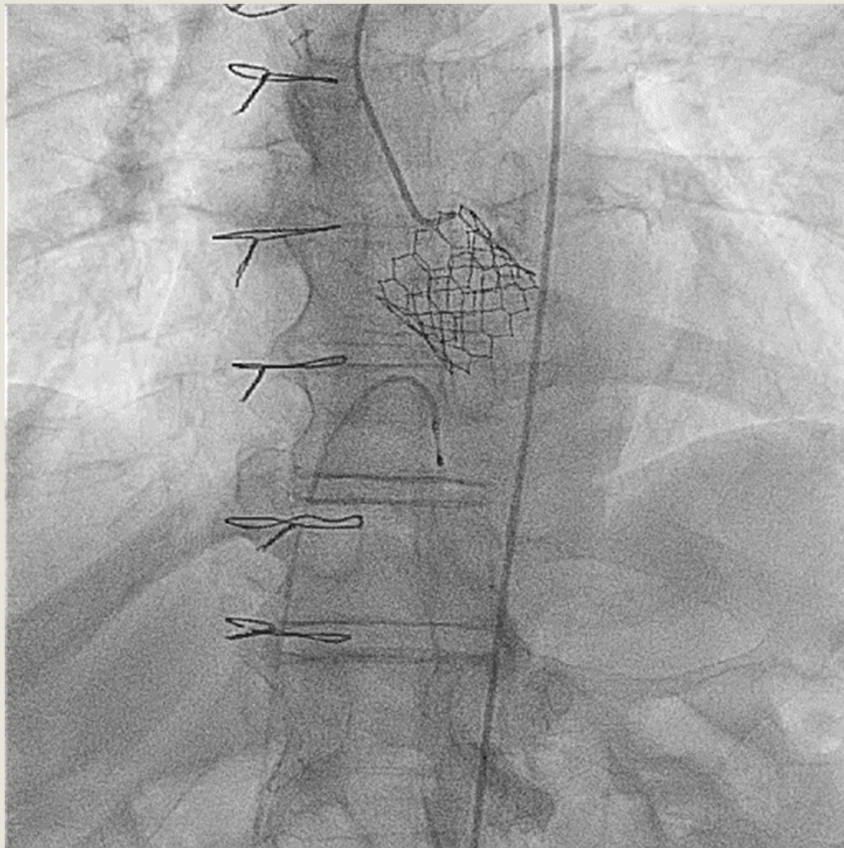
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## Balloon-expandable Sapien 3 THV and unfavorable anatomy





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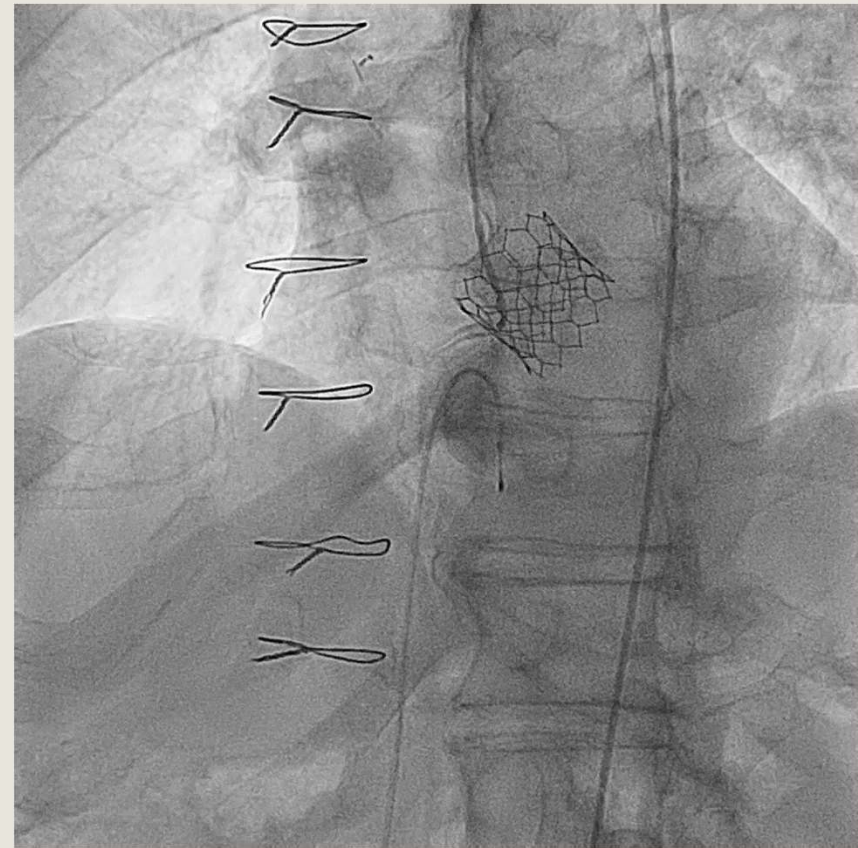
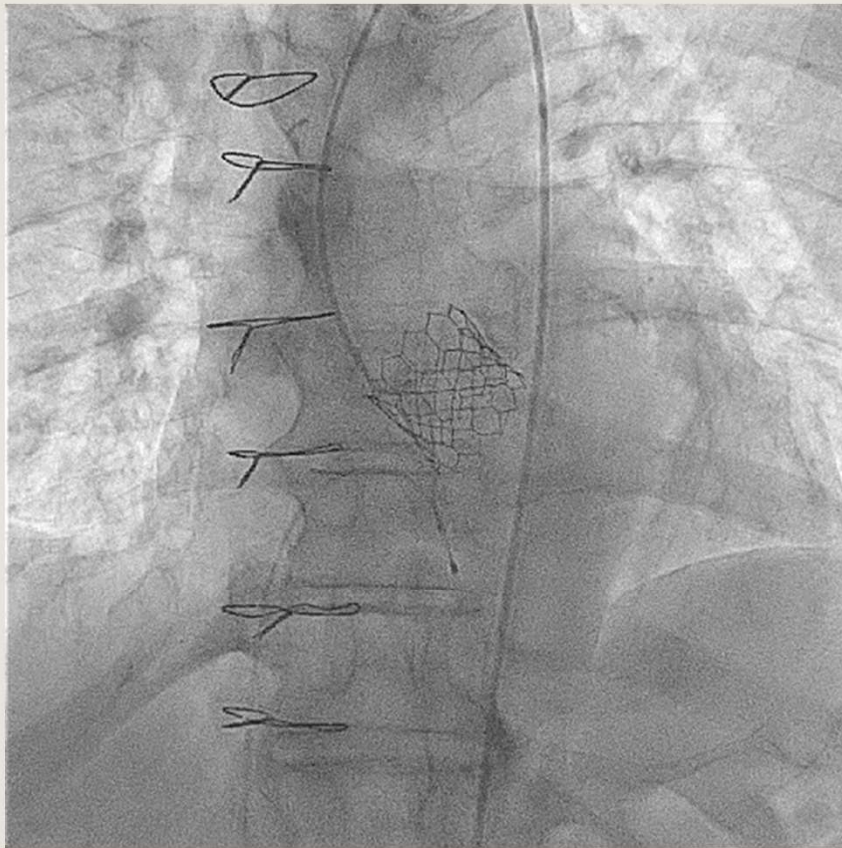
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## Balloon-expandable Sapien 3 THV and unfavorable anatomy







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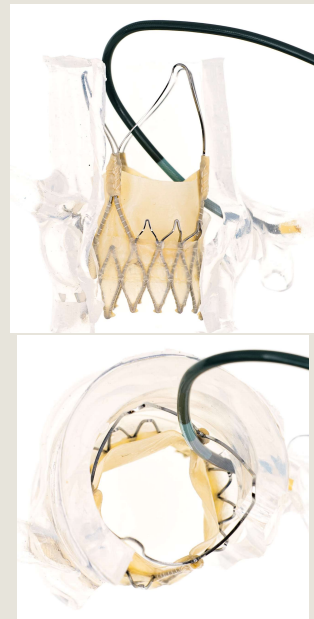
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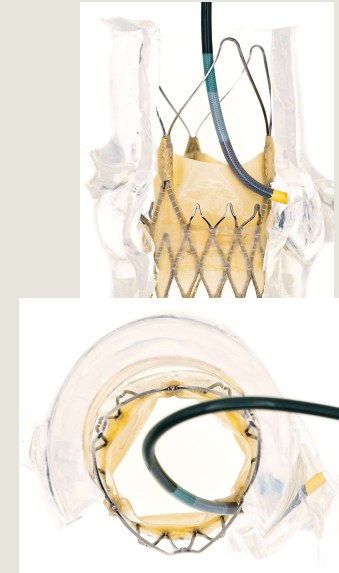
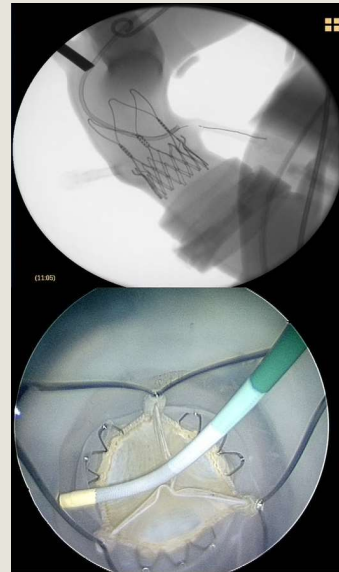
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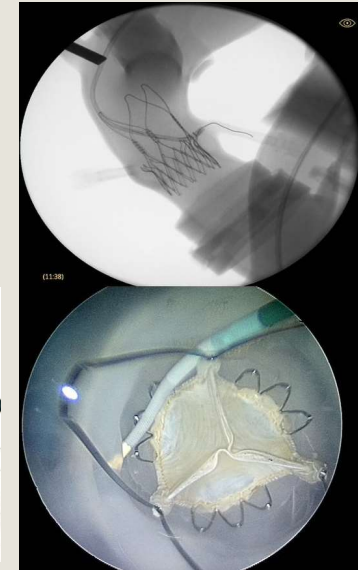
# Coronary cannulation with the self-expanding Acurate Neo2 THV



Open cells of the stabilization arches allow sufficient space to manipulate catheter



Catheter able to bypass commissural posts





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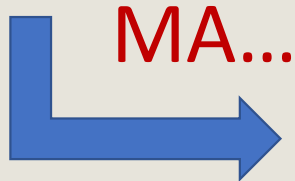


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## Una risposta semplice a un problema complesso:

# SEMPRE



MA...

1. In quali pazienti il problema del riaccesso coronarico è rilevante?
2. Non esiste solo il problema del riaccesso coronarico



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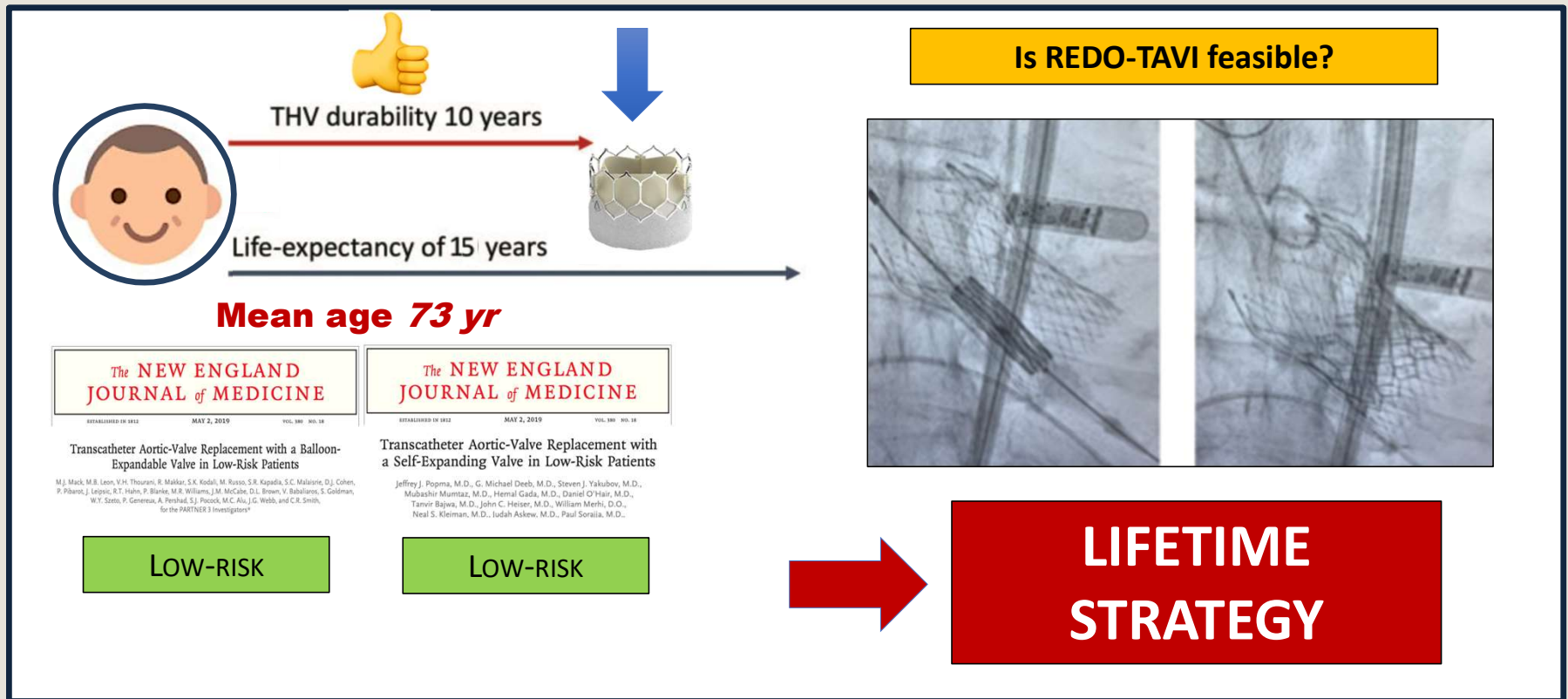
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## In quali pazienti il problema del riaccesso coronarico è rilevante?

1. Pazienti giovani (*Lifetime strategy*)
2. Pazienti con precedente PCI (rischio di ristenosi)
3. Pazienti con PCI post-TAVI pianificata o probabile
4. Pazienti con ACS



# TAVI durability and **repeatability**





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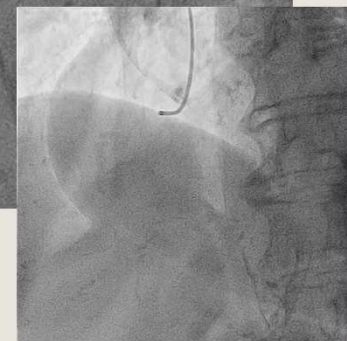
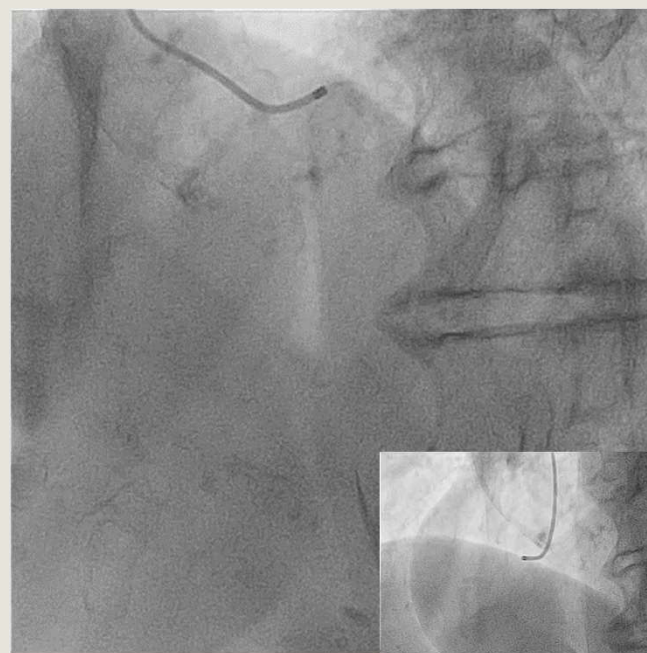
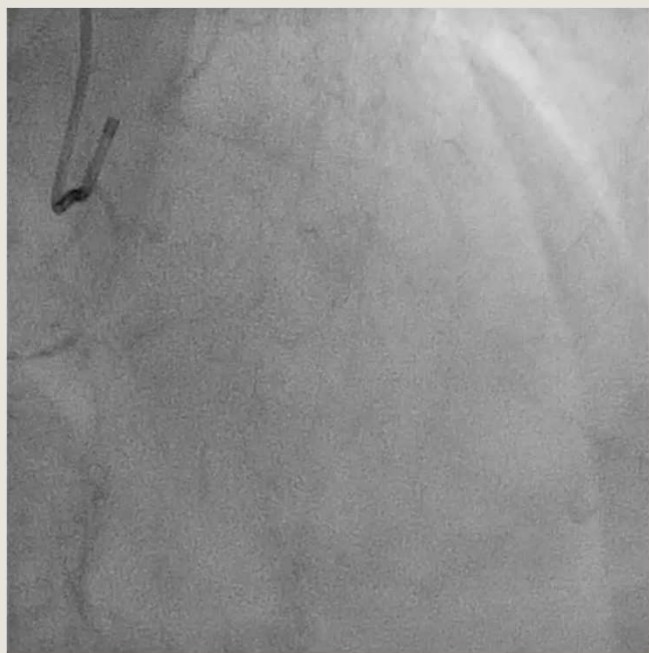
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## CORONAROGRAFIA PRE-TAVI





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## **PCI CON 2 DES TC-IVA E OSTIO CX**





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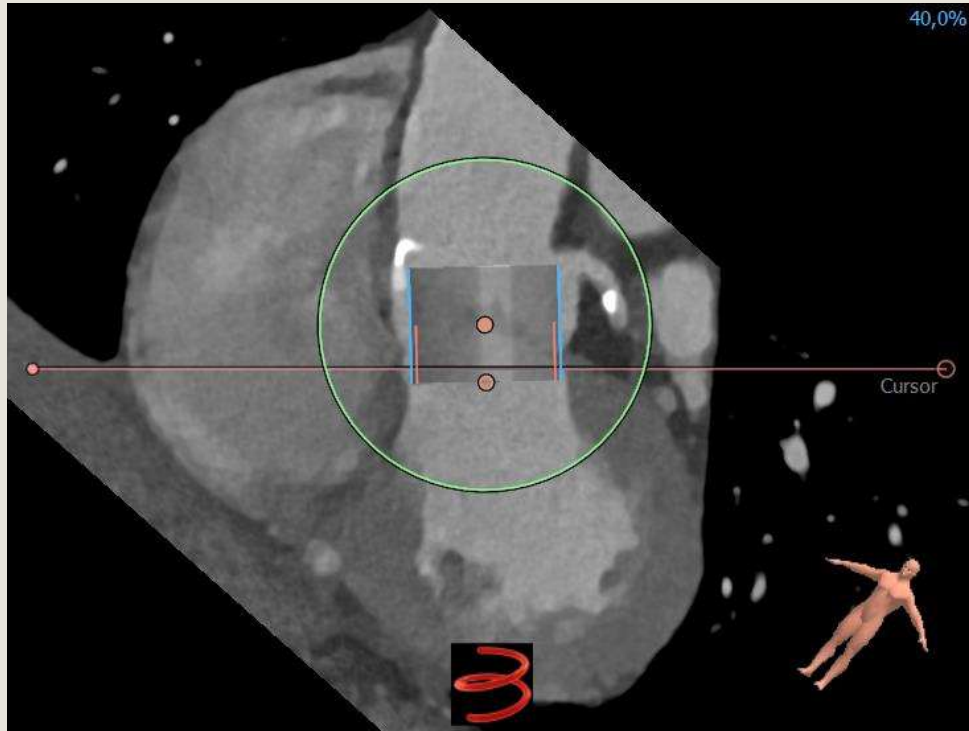
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## ANGIO TC PRE-TAVI





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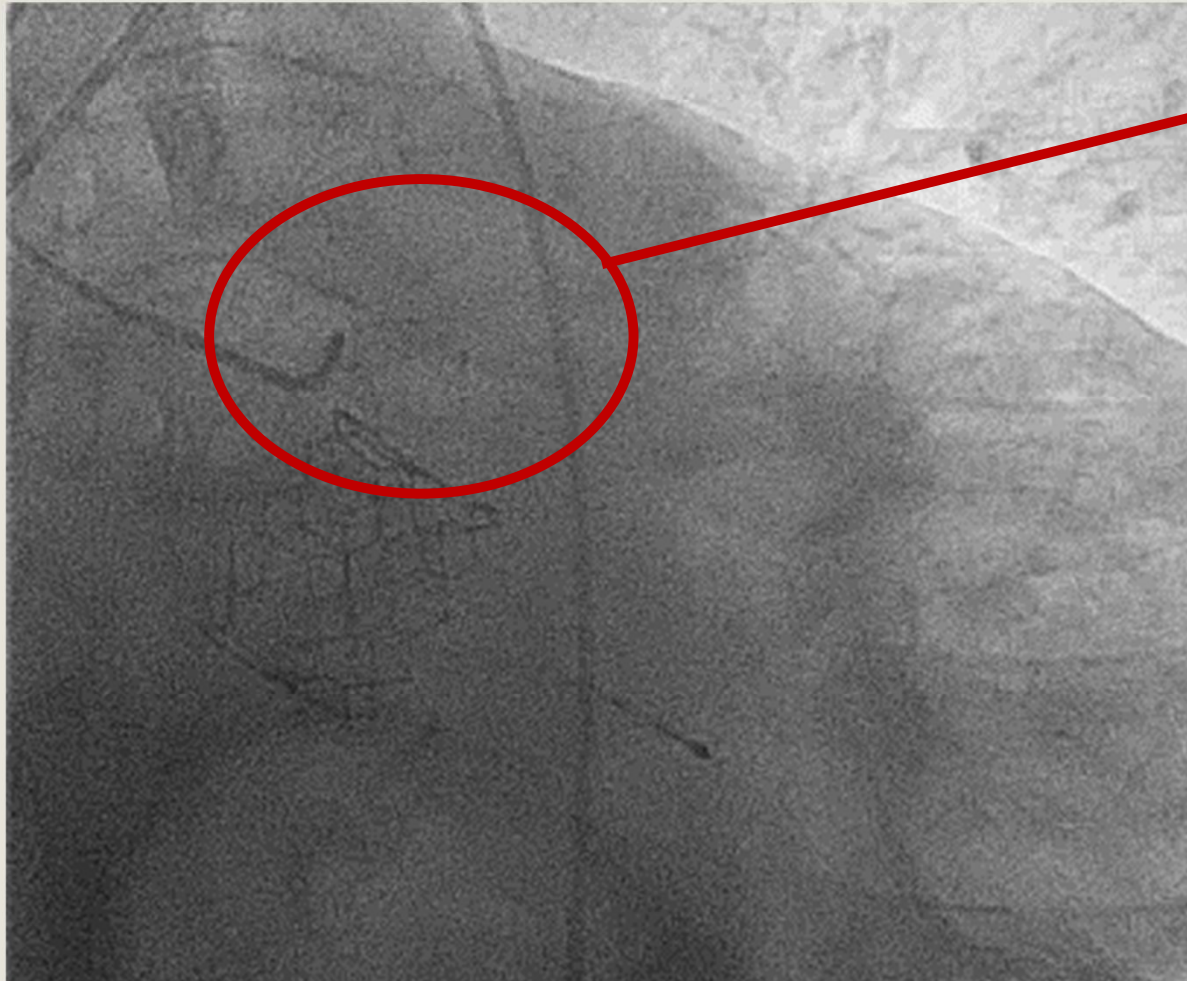
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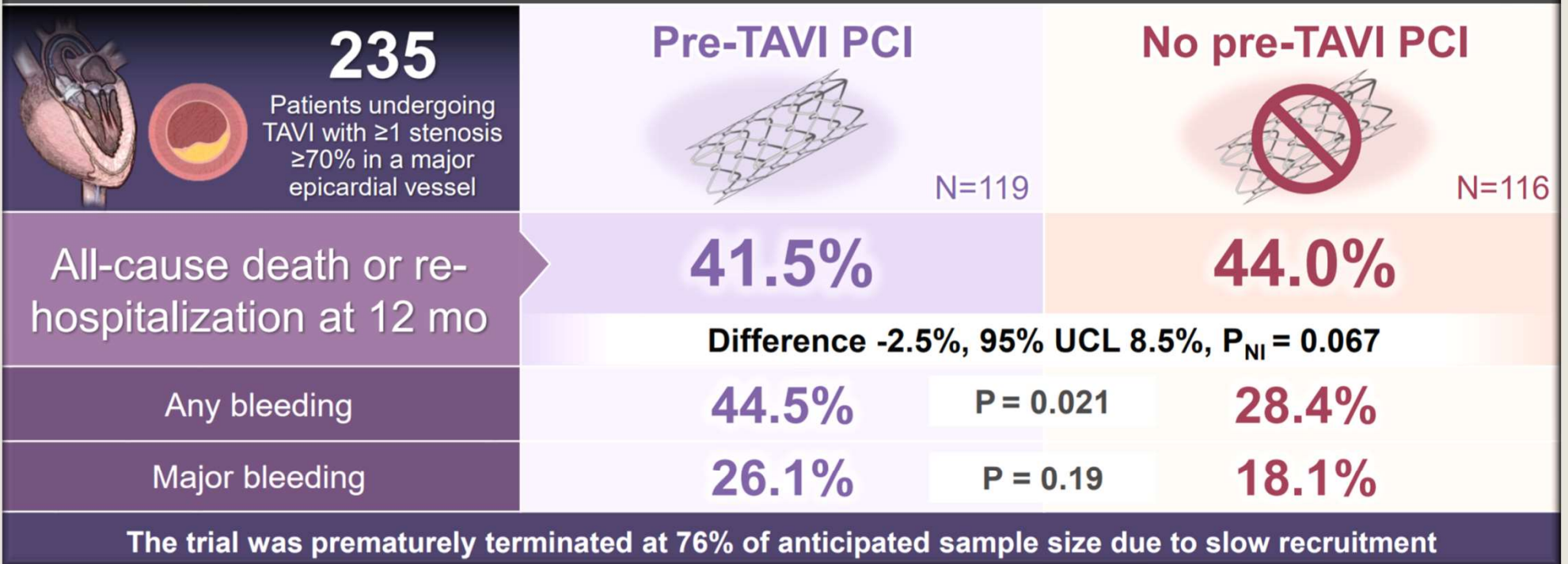
**BORDERLINE  
LM LESION**

**(CSA AT IVUS 6.1 MM<sup>2</sup>,  
PLAQUE BURDEN 60%)**

# ACTIVATION Trial

The percutaneous Coronary intervention prior to trans-catheter aortic Valve implantation trial

INVESTIGATOR-INITIATED, MULTICENTER, RANDOMIZED CONTROLLED STRATEGY TRIAL



**Exclusion criteria: recent ACS, LM disease, or CCS angina class III-IV**



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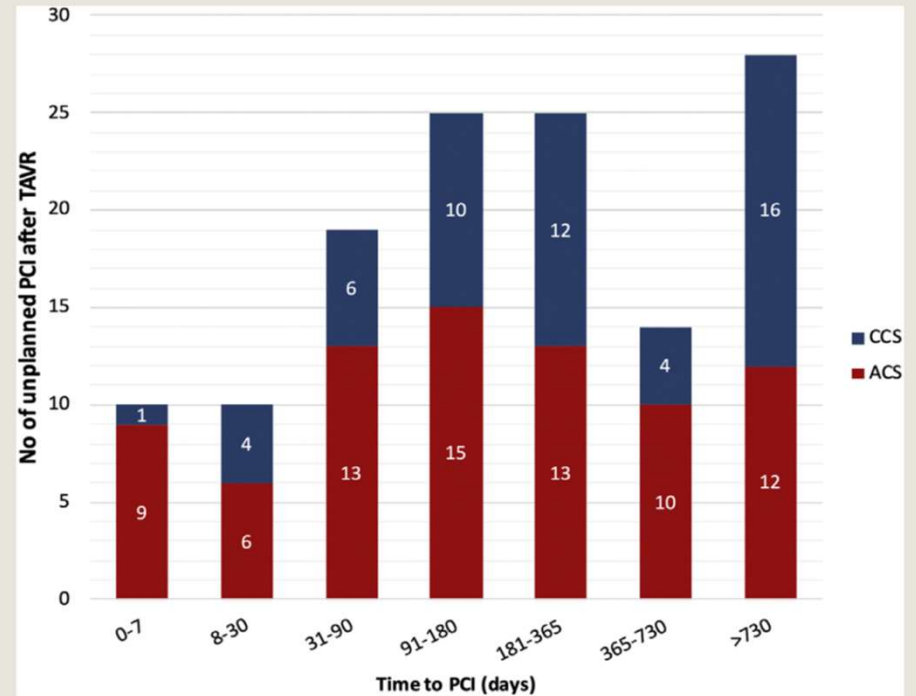
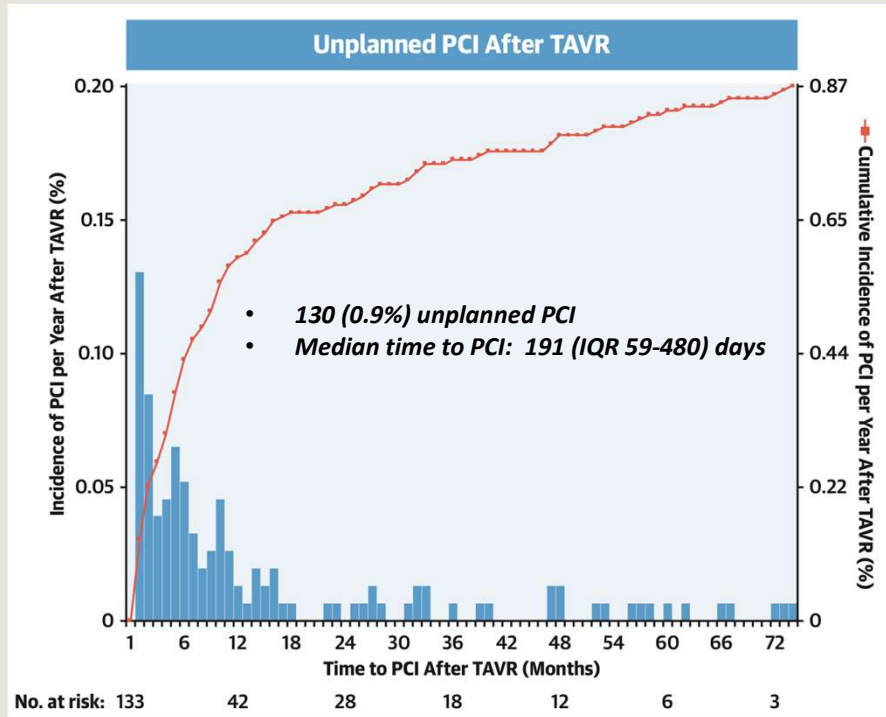


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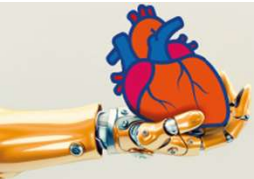
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# Unplanned PCI after TAVI

15,325 TAVI from 20 international centers – Prior coronary revascularization 70%

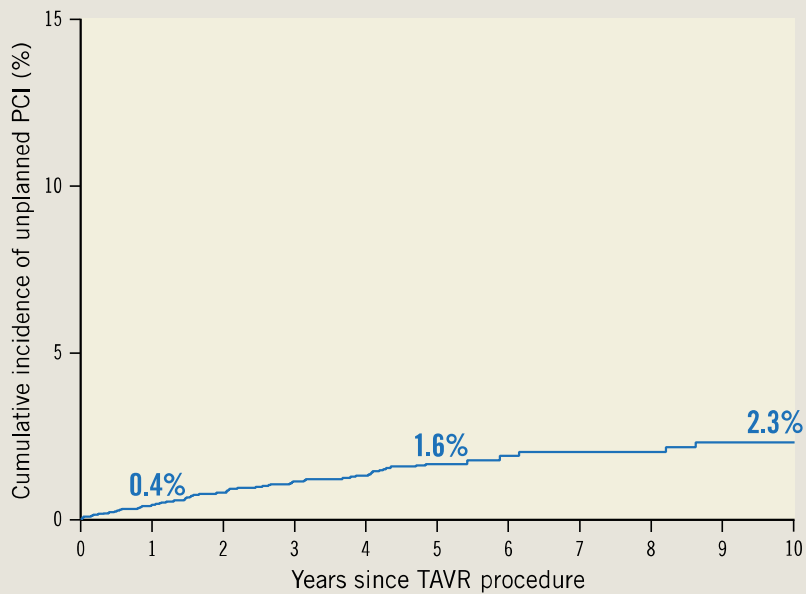


Stefanini G et al. JACC Cardiovasc Interv 2021



# Unplanned PCI after TAVI

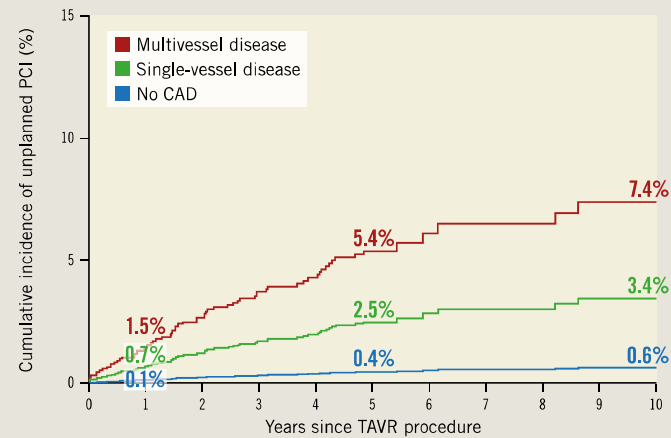
3,015 pts TAVI SINGLE-CENTER



Number at risk

3,015	2,238	1,641	1,343	908	597	178	124	97	68	43
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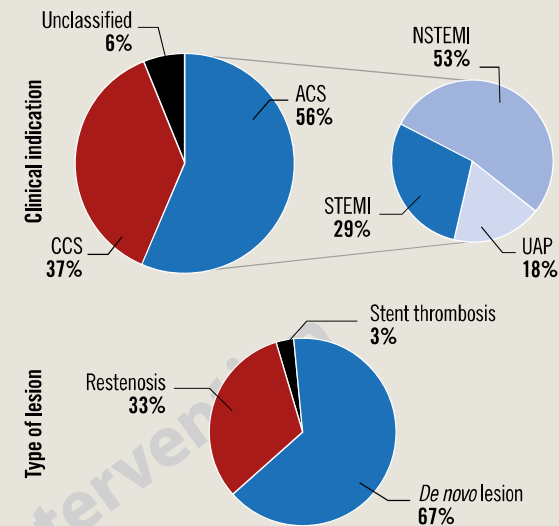
Cumulative incidence of unplanned PCI stratified by CAD



Number at risk

	1	2	3	4	5	6	7	8	9	10	
No CAD	1,218	892	644	530	352	229	64	46	36	25	16
1 VD	656	488	362	300	204	140	49	32	23	17	10
2 or 3 VD	1,141	858	635	513	352	228	65	45	38	26	17

Characteristics of unplanned PCI





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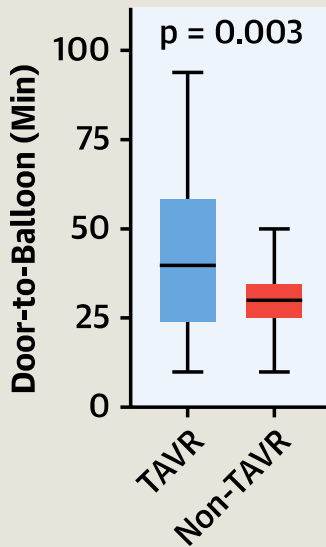
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# STEMI following TAVI

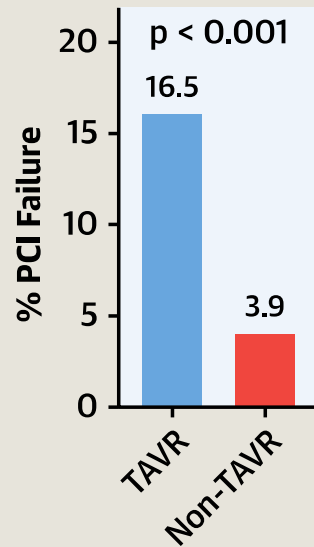
Previous CAD	82 (69.5)
Previous MI	34 (28.8)
Previous CABG	15 (12.7)
PCI	46 (39.0)
Complete revascularization	70 (59.3)

**118 patients from 38 centers (out of 42,252 TAVR, cumulative incidence of 0.3%)**

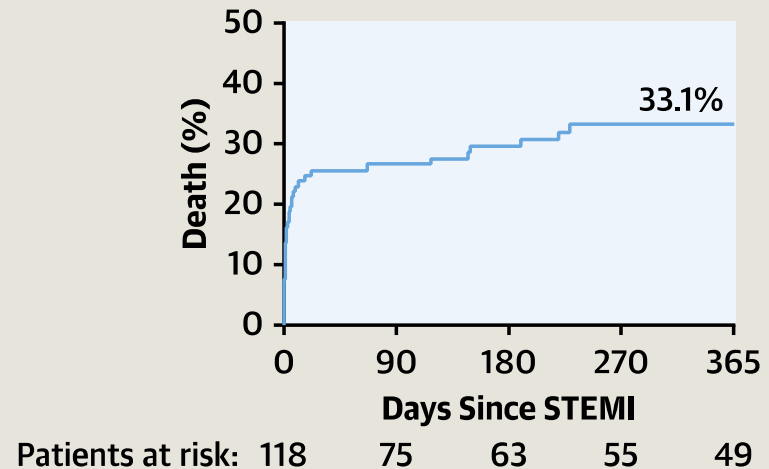
• 33% longer door-to-balloon time



• 4-fold higher PCI failure rate



• Poor clinical outcomes





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## **Additional characteristics influencing valve choice**

- Risk of LVOT injury
- Risk of Prosthesis-Patient Mismatch
- Risk of Permanent PM
- Complexity of vascular access
- Risk of PVL (and in relationship with anatomy and LV function)
- Other (e.g. costs, operator experience...)



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**GRAZIE**