

COME EVOLV^E IL LAVORO DEL CARDIOCHIRURGO IN TEMPO DI TAVI

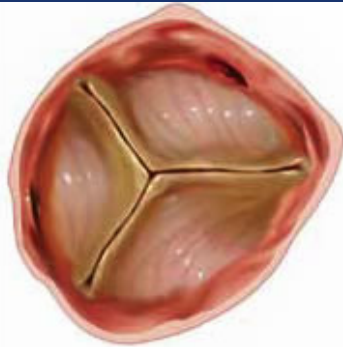
È giusto prendere decisioni cliniche e porre indicazione cardiocirurgica “programmando” una probabile futura procedura? Il trattamento “ibrido” ha senso?

F. Alamanni, MD



AORTIC STENOSIS

Epidemiology



Normal Valve



Stenotic Valve

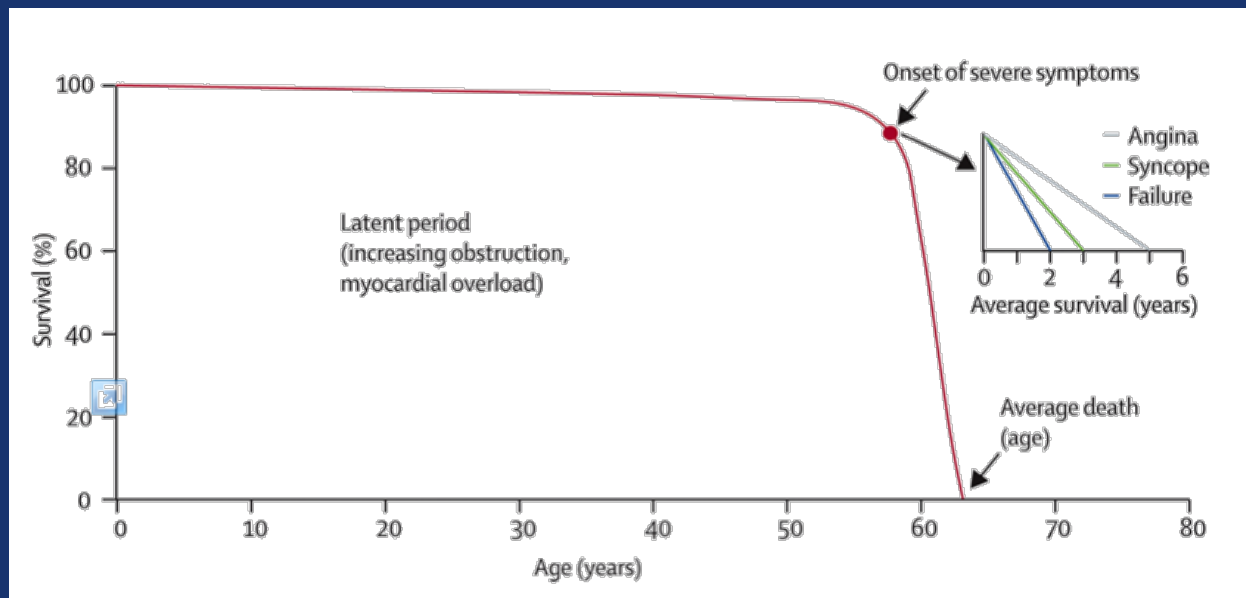
Aortic Stenosis (AS) prevalence is 4-5% in people over 75 years old.

There are more than 300,000 people operated for severe AS worldwide.

More than 30% of all patients with symptomatic severe AS are not referred to or have contraindications for current surgical valve replacement.

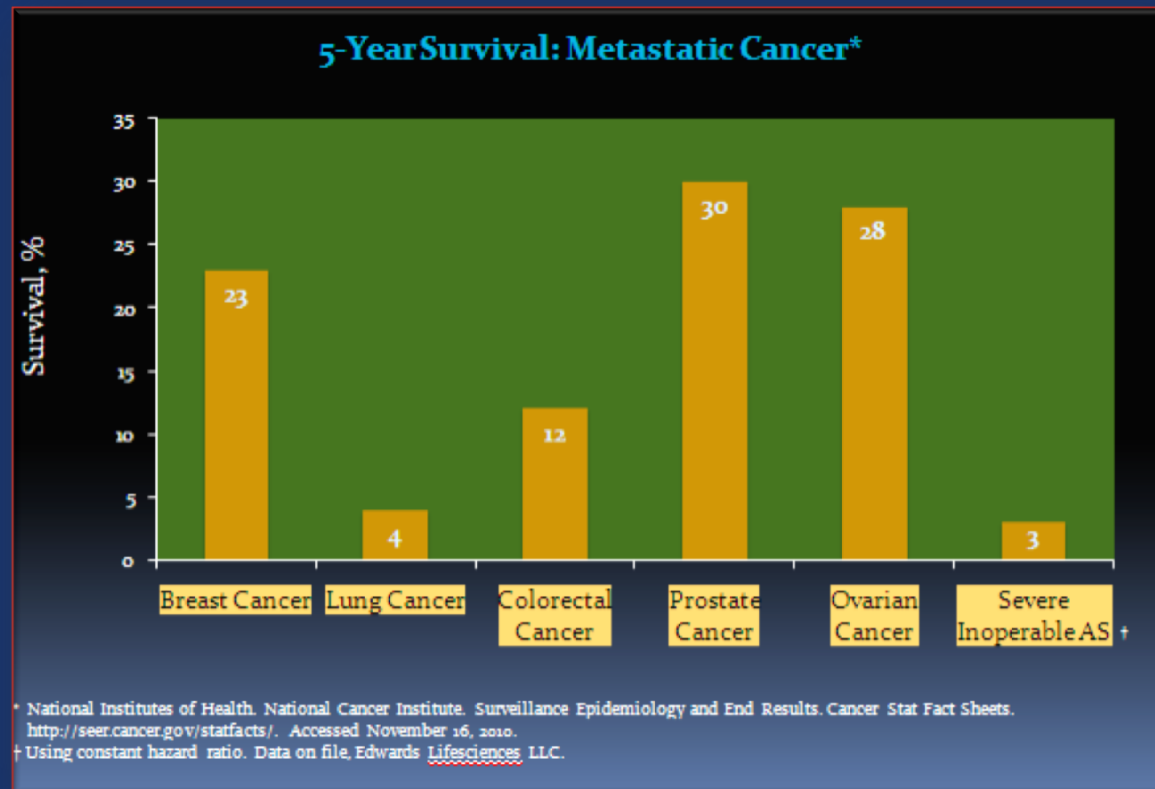
RISKS OF UNDERTREATMENT

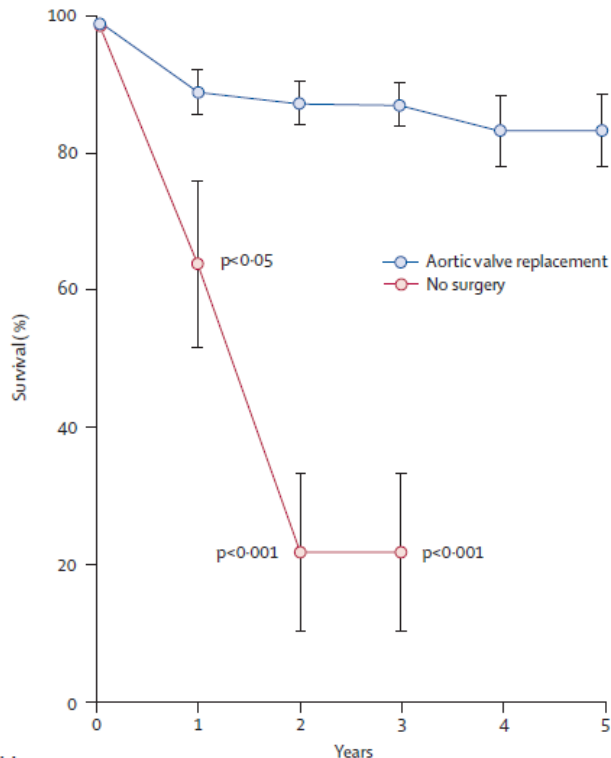
- Not surgically treated patients have a reduced survival than surgically treated patients.
- 1-year, 2-years and 5-years survival rates in AVR patients is 87, 78 and 68% vs 52, 40 and 22% in not-surgically treated patients.
- “Undertreatment” mortality rate in severe symptomatic aortic stenosis is 50% at 2-years.



- Circulation 2011;123:887–895

5-YEARS SURVIVAL RATE → 15-50%





	0	1	2	3	4	5
Aortic valve replacement	125	87	51	35	9	0
No surgery	19	8	2	1	0	5

The difference in mortality rate between surgically-treated symptomatic patients with severe aortic stenosis and untreated patients is one of the most strong evidence in medicine.

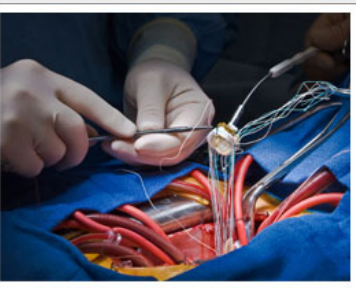
Carabello, Lancet 2009

Figure 5: Mean survival of patients with symptoms of aortic stenosis
Adapted with permission from Schwartz and colleagues.⁶⁷

?



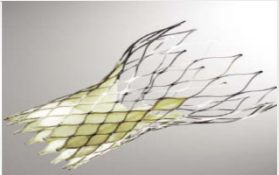
AVR



TAVI



EDWARDS SAPIEN
Courtesy of Edwards Lifesciences,
Irvine, California



CoreValve ReValving System
Courtesy of Medtronic Inc,
Irvine, California



Medical therapy

Asymptomatic patients?

The benefits of early valve replacement in asymptomatic patients with severe aortic stenosis

Morgan L. Brown, MD,^a Patricia A. Pellikka, MD,^b Hartzell V. Schaff, MD,^a Christopher G. Scott, MS,^c Charles J. Mullany, MD,^a Thoralf M. Sundt, MD,^a Joseph A. Dearani, MD,^a Richard C. Daly, MD,^a and Thomas A. Orszulak, MD^a

J Thorac Cardiovasc Surg 2008;135:308-15

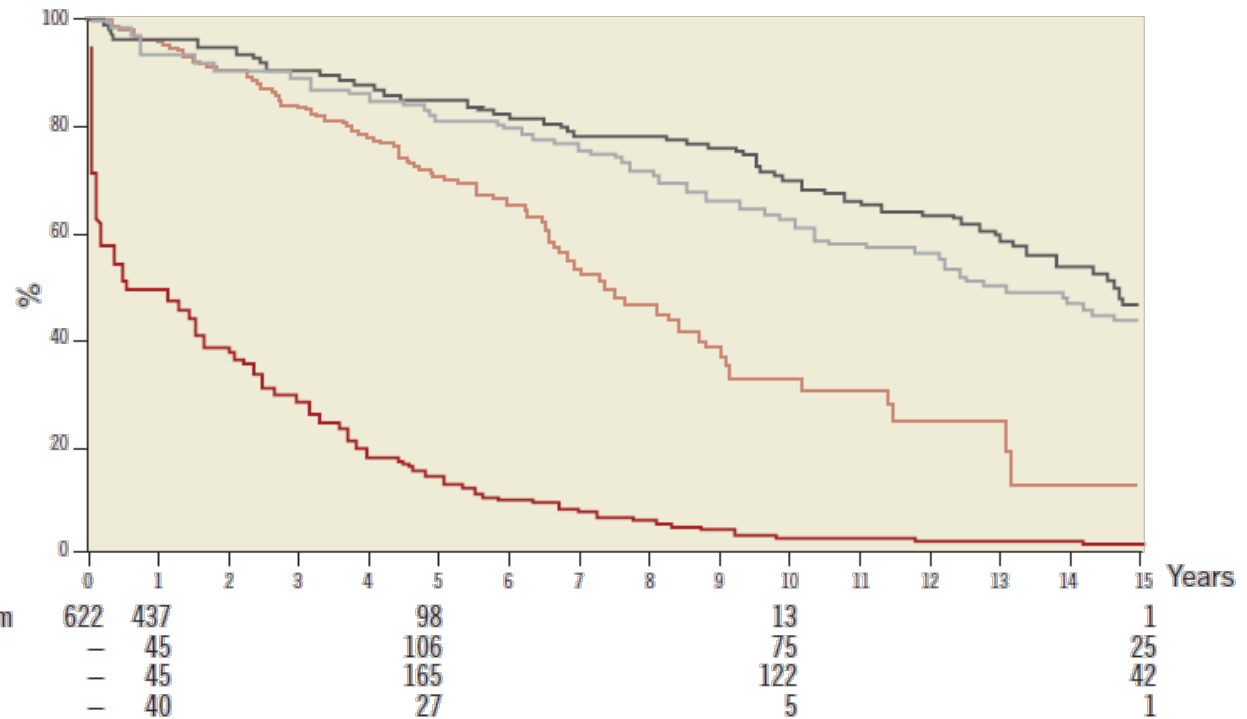
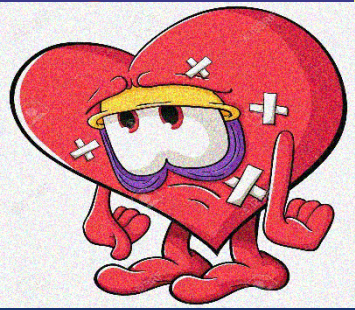


Figure 2. Among patients with severe asymptomatic aortic valve stenosis, survival was best in patients who had valve replacement while asymptomatic. (Figure from Brown ML et al, J Thorac Cardiovasc Surg. 2008;135:308-15. Reproduced with permission from Elsevier Limited, Oxford, United Kingdom)



SEVERE AORTIC STENOSIS IN ASYMPTOMATIC PATIENTS

- **Great care in risk/benefits evaluation**
- **Recommended:**
 - ↓FE (not related to other causes)
 - Pathologic Stress-test (especially in case of developing symptoms)
 - Arterial pressure reduction
- **“Should be considered”**
 - Low risk patients with peak velocity >5.5 m/s
 - Low risk patients with calcific aortic valve and rapidly increasing peak velocity ≥ 0.3 m/s/year.
- **“May be considered”**
 - Low risk patients with one of that following:
 - Strong \uparrow BNP
 - \uparrow Mean gradient >20 mmHg under stress
 - Severe LV hypertrophy without history of high arterial pressure



Is the asymptomatic patient really asymptomatic?

Too strictly conservative guidelines?

Is right to not refer to surgery low risk patients waiting for future surgery?

Without comorbidities is right to wait...

... for patient to be older and more compromised?

Younger patients ... The big problem!





The Right Time





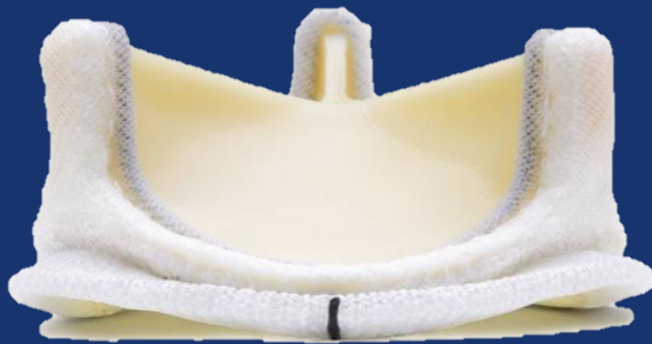
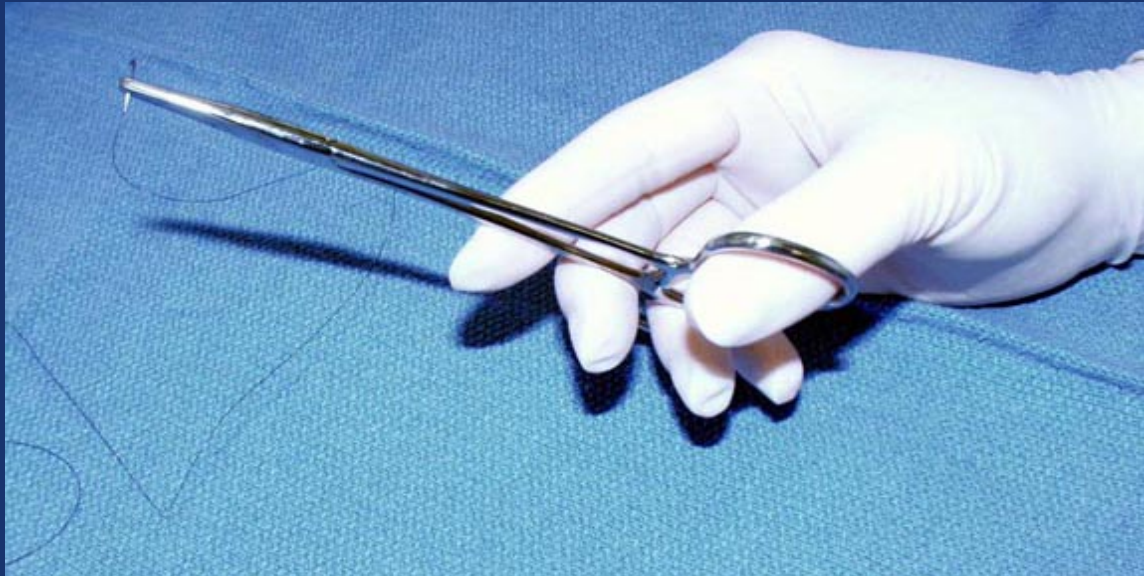
Traditional AVR

State Of The Art

AVR is the actual
GOLD STANDARD



- about 300.000 operations/yr
- More than 40 years of clinical experience
- Prostheses are reliable
- Predictable and low risks
- Long term results available

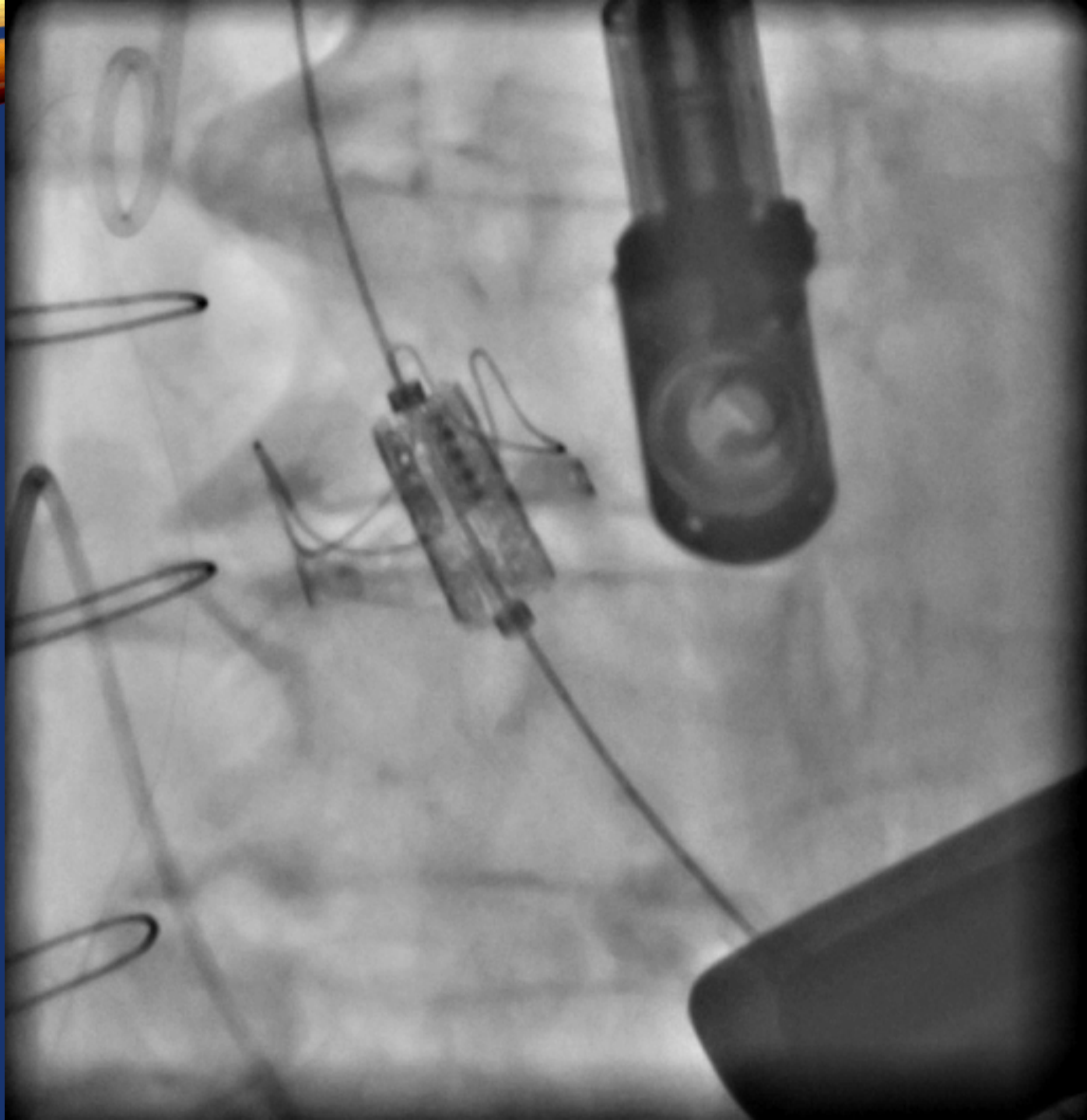


INR?!





TAVI



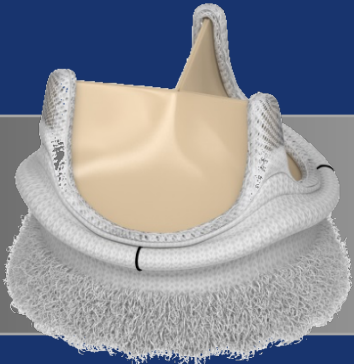
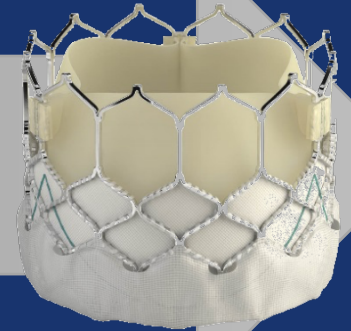
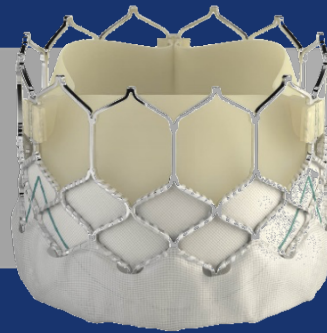
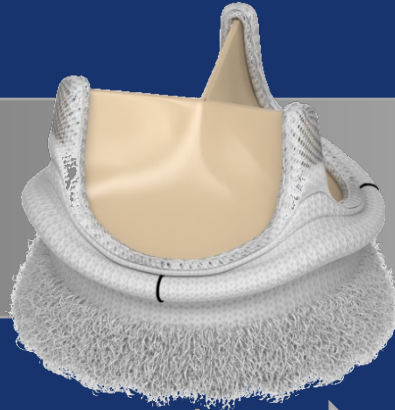
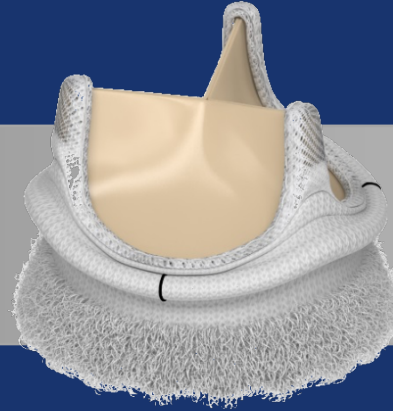
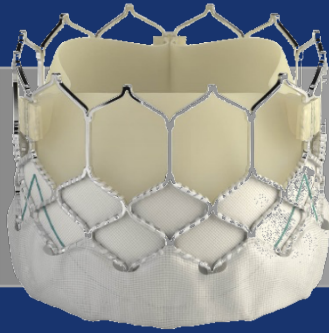
**ASYMPTOMATIC
PATIENT**

YOUNG PATIENT



PLAN REDO SURGERY

AGE and CRITICAL ISSUES





- Planning REDO surgery:
 - Less invasives strategies to prevent surgical adherences
 - In case of planned traditional REDO surgery avoid sutureless valves ?
 - PPM in Valve in Valve procedure
 - Share your strategy with patients!



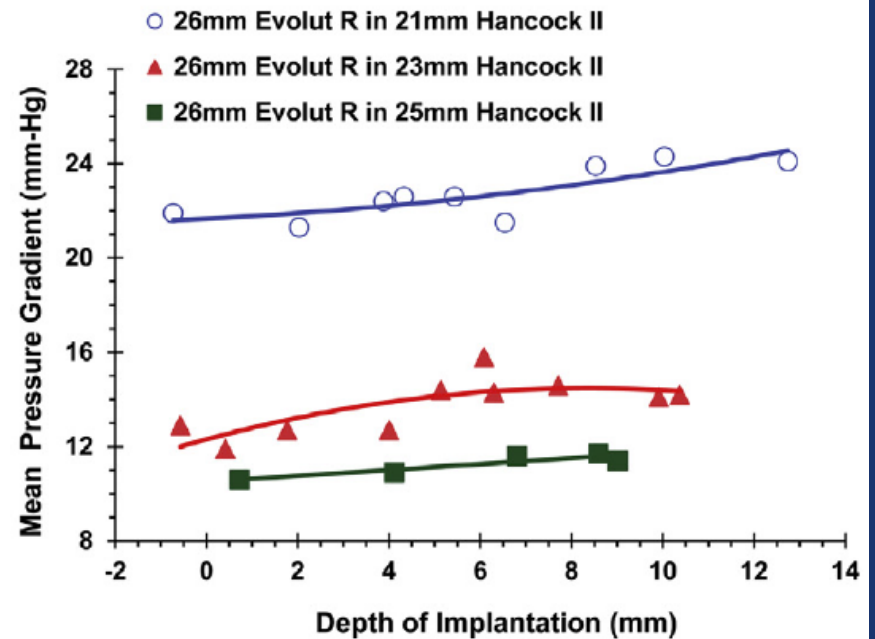
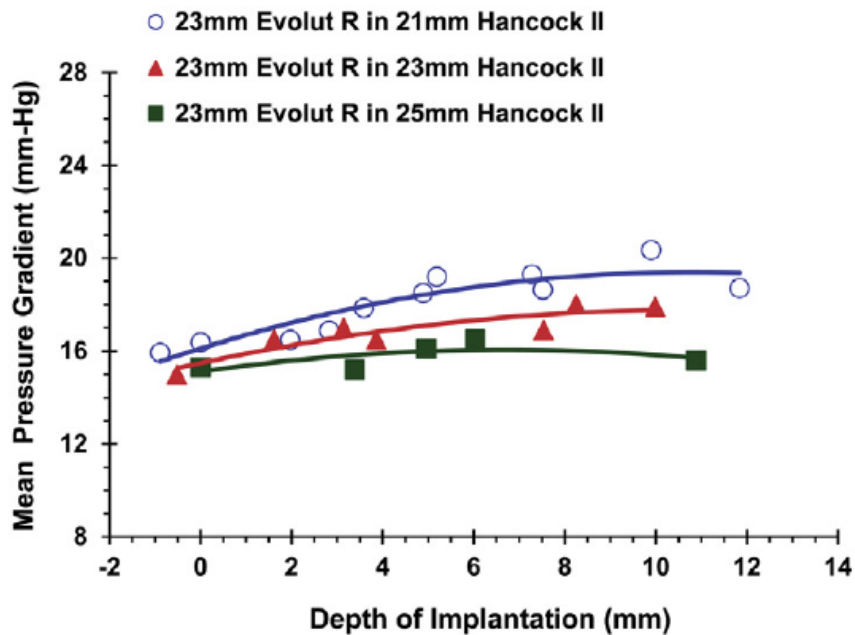
VALVE in VALVE

- High residual gradients are an Achilles heel of aortic VinV procedures
- Incidence of high gradients (mean gradient $>20\text{mmHg}$) reported in 28% of VinV
 - until 58% in smaller prosthesis $<20\text{mm}$ true internal diameter
- Incomplete expansion of the TAVI due to a size mismatch resulting in higher residual gradient
- Patients with smaller surgical valve size should not be considered for VinV if redo surgery is feasible



Effect of transcatheter aortic valve size and position on valve-in-valve hemodynamics: An in vitro study

Ali N. Azadani, PhD,^a Michael Reardon, MD,^b Matheus Simonato,^c Gabriel Aldea, MD,^d Georg Nickenig, MD,^e Ran Kornowski, MD,^f and Danny Dvir, MD^g



Sutureless/RDV

Pro

Cons

↓CPB and Xclamp

Haemodynamics

Mini-invasive approach

Redo surgery

PVL

Less adherences

Not easy to remove

TAVI in less risk patients?



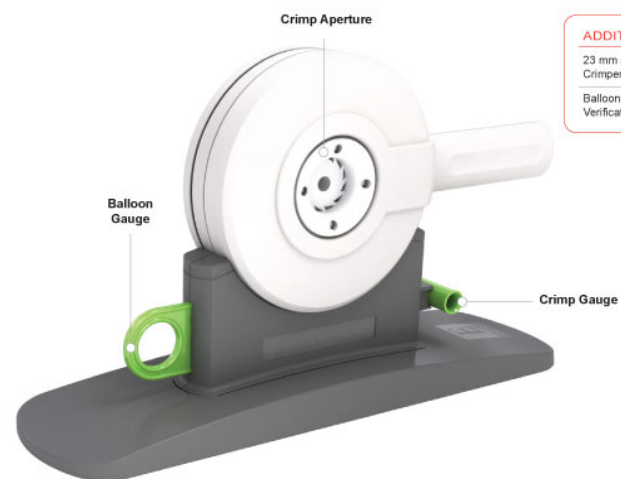
- A new therapeutic perspective

A



DURABILITY

CRIMPER



ADDITIONAL SPECIFICATIONS

23 mm and 26 mm Single-use Valve Crimpers

Balloon and Crimp Gauges for Sizing Verification

Long-Term Outcomes After Transcatheter Aortic Valve Implantation

Insights on Prognostic Factors and Valve Durability
From the Canadian Multicenter Experience

Josep Rodés-Cabau, MD,* John G. Webb, MD,† Anson Cheung, MD,† Jian Ye, MD,†
Eric Dumont, MD,* Mark Osten, MD,‡ Christopher M. Feindel, MD,‡ Madhu K. Natarajan, MD,§
James L. Velianou, MD,§ Giuseppe Martucci, MD,|| Benoît DeVarenes, MD,||
Robert Chisholm, MD,¶ Mark Peterson, MD,¶ Christopher R. Thompson, MD,† David Wood, MD,†
Stefan Toggweiler, MD,† Ronen Gurvitch, MD,† Samuel V. Lichtenstein, MD,† Daniel Doyle, MD,*
Robert DeLarochelière, MD,* Kevin Teoh, MD,§ Victor Chu, MD,§ Kevin Baine, MD,§
Kevin Lachapelle, MD,|| Asim Cheema, MD,¶ David Latter, MD,¶ Jean G. Dumesnil, MD,*
Philippe Pibarot, PhD,† Eric Horlick, MD‡

Quebec City and Montreal, Quebec; Vancouver, British Columbia; and Toronto and Hamilton, Ontario; Canada

Is this true
in young
pts?

- 42 ±15 months of follow-up
 - Approximately one-half of the patients who underwent TAVI procedure because of high or prohibitive surgical risk profile died at a mean follow-up of 3.5 years.
 - Late mortality was due to noncardiac comorbidities in more than one-half of patients.
 - No clinically significant deterioration in valve function was observed throughout the follow-up period.

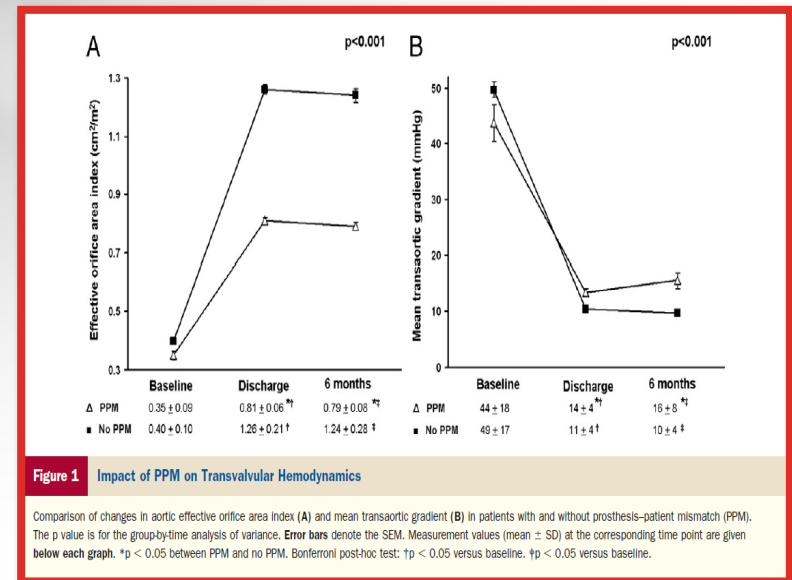
J Am Coll Cardiol 2012;60:1864–75

Hemodynamic and Clinical Impact of Prosthesis–Patient Mismatch After Transcatheter Aortic Valve Implantation

See Hooi Ewe, MBBS,*† Manuela Muratori, MD,‡ Victoria Delgado, MD, PhD,* Mauro Pepi, MD,‡ Gloria Tamborini, MD,‡ Laura Fusini, MS,§ Robert J. M. Klautz, MD, PhD,* Paola Gripari, MD,‡ Jeroen J. Bax, MD, PhD,* Melissa Fusari, MD,‡ Martin J. Schalij, MD, PhD,* Nina Ajmone Marsan, MD*||

Leiden and Utrecht, the Netherlands; Singapore; and Milan, Italy

Relationship on durability and sizing Prosthesis Patient Mismatch





How unravel this
Gordian knot?



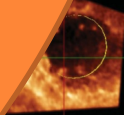
Centro Cardiologico
Monzino

Patient-Focused Multidisciplinary Heart Team approach

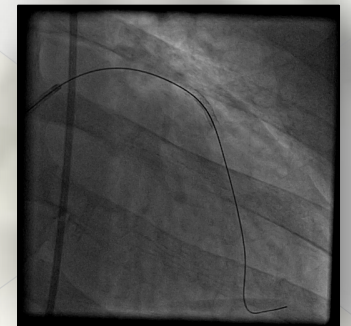
**PATIENT
CHOICE**



Cardiologist



st



HEART TEAM



HEART OPERATIVE TEAM



CONCLUSIONS

- Aortic valve stenosis = KILLER
- Select together with the patient an ideal tailored strategy:
 - biological vs mechanical prosthesis
- Always keep in mind PPM
- A biological strategy needs a reasoned planning
 - In case of planned VinV choose the right size in order to avoid **FUTURE** PPM
 - In case of planned surgical redo
 - THINK TO REDO:
 - avoid sutureless/RDV
 - prefer minimal invasive approach
 - easy surgical technique;