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Ten year follow-up of patients treated with transcatheter aortic valve implantation

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Disclosures

Centre for Heart Valve Innovation
St. Paul's Hospital, Vancouver

Speaker's name : Janarthanan Sathananthan

☑ I have the following potential conflicts of interest to declare:

Receipt of honoraria or consultation fees: Edwards Lifesciences

Speaking fees: Edwards Lifesciences

Why this study?

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- The long term performance of transcatheter heart valves is poorly understood
- There are no reports of long term follow-up of TAVI patients to 10 years
- As TAVI expands to lower risk patients, durability is of increasing importance

What did we study?

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Study cohort:

- Patients with ≥10 years survival following TAVI
- Index TAVI procedure between 2005 - 2009
- Native aortic or aortic VIV TAVI

Outcomes

1. Rate of reintervention and structural valve deterioration
2. Quality of life

How was the study executed?

Structural valve deterioration

- As per EAPCI consensus statement on standardized definitions of structural deterioration and valve failure*
- Recent echocardiogram performed >8 years after procedure date. In-hospital or home visit

Quality of life

- Telephone/in-person delivered interview with patient, family member or caregiver

*Capodanno D et al, Standardized definitions of structural deterioration and valve failure in assessing long-term durability of transcatheter and surgical aortic bioprosthetic valves: a consensus statement from the European Association of Percutaneous Cardiovascular Interventions (EAPCI) endorsed by the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS). Eur J Cardiothorac Surg. 2017 Sep 1;52(3):408-417.

What are the essential findings?

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Between 2005 - 2009, 287 patients underwent TAVI with 19 patients (6.6%) surviving 10-years post procedure.

Baseline and procedural characteristics at time of TAVI

Baseline characteristic (n=19)	
Age (years)	78.2 ± 11.0
Age (years) at 10 years follow-up	88.5 ± 11.2
Gender (female)	73.7%
Hypertension	73.7%
Diabetes mellitus	10.5%
Peripheral vascular disease	26.3%
Renal failure (GFR <60cc/min)	31.6%
Atrial fibrillation	42.1%
Previous myocardial infarction	42.1%
Previous stroke	10.5%
COPD	21.1%
Permanent pacemaker	5.3%
Previous cardiac surgery	15.8%
Porcelain aorta	26.3%
STS score >8	42.1 %

Procedural characteristics	
THV type	Edwards SAPIEN (89.5%) Cribier Edwards (10.5%)
Device size	
• 23mm	47.4%
• 26mm	52.6%
Access	
• Transfemoral	73.7%
• Transapical	26.3%
General anesthesia	100%
Native valve	84.2%
Valve-in-valve	15.8%

What are the essential results?

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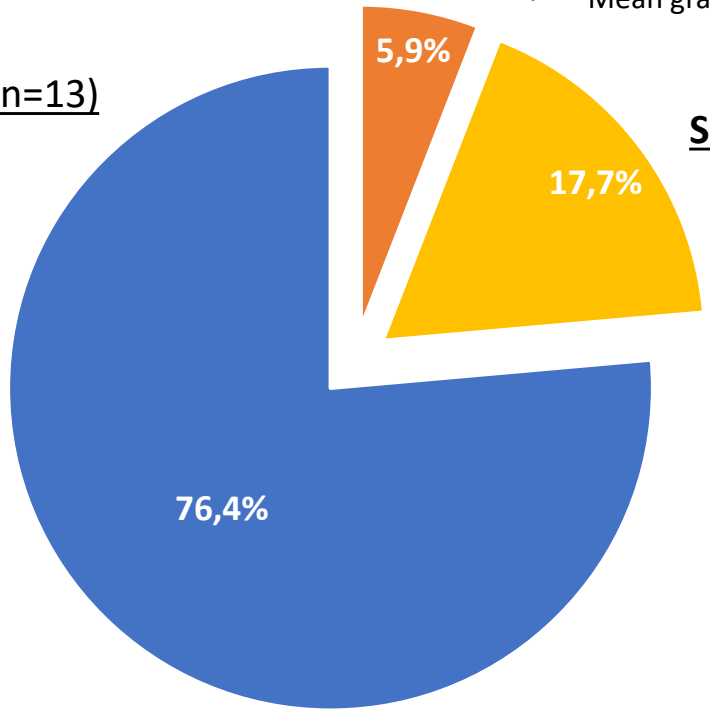
Moderate SVD (n=1)

- Mean gradient 32mmHg, Mild AR

Normal THV function (n=13)



Severe SVD (n=3)

- Two patients had reintervention for severe SVD: Redo TAVI (n=1) and SAVR (n=1)
- A third patient had severe SVD with a mean gradient 21mmHg and severe AR

Mean echo follow-up:
9.8 ± 1.0 years

Redo TAVI Patient

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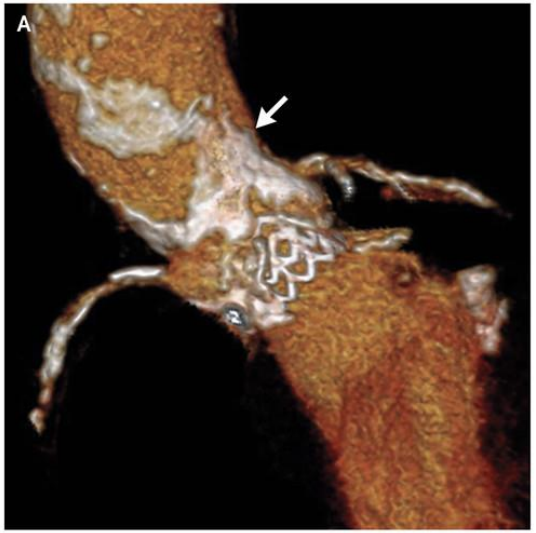

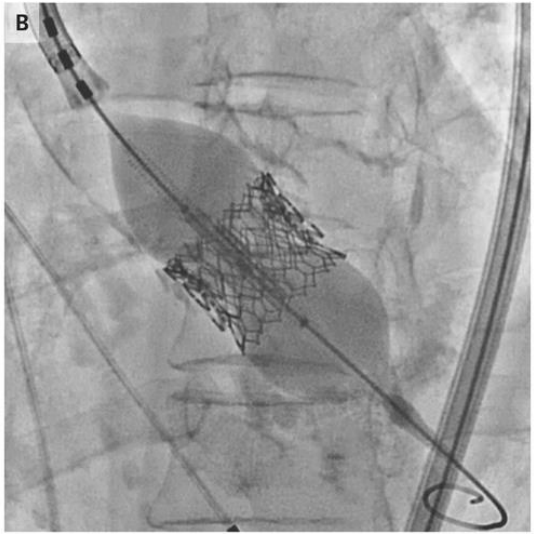

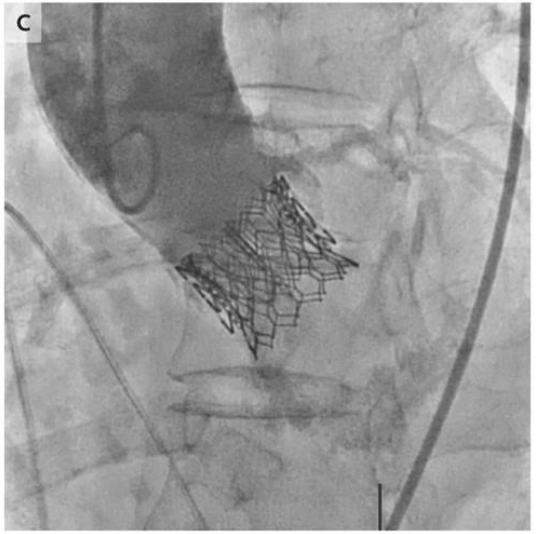

14mmHg → **14mmHg**

10 years later

Murdoch et al, NEJM

What are the essential results?

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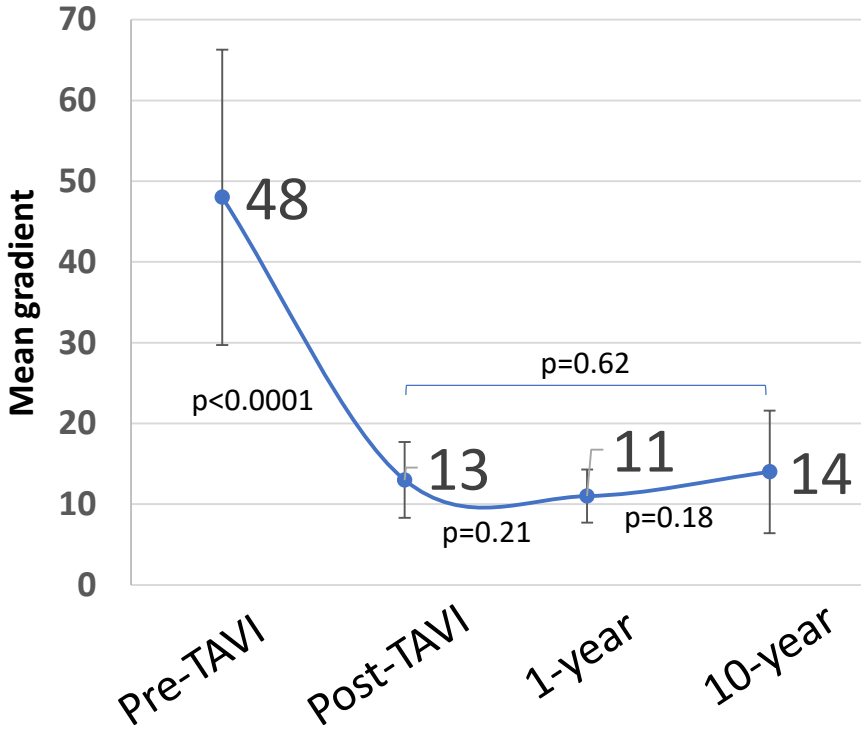
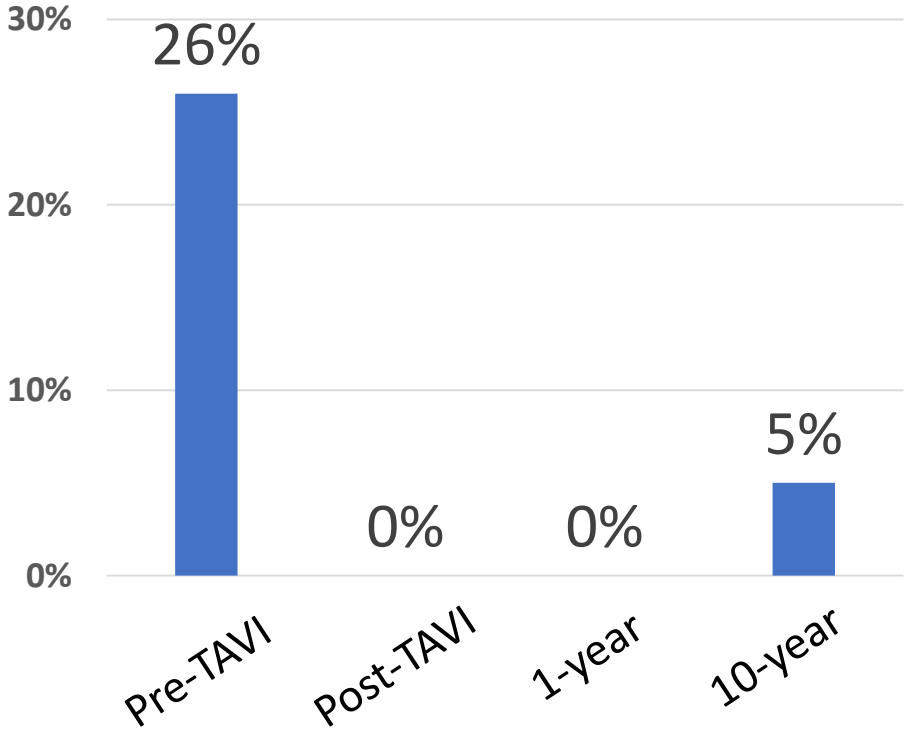
Mean Gradient



Transvalvular aortic regurgitation ≥moderate



What are the essential results?

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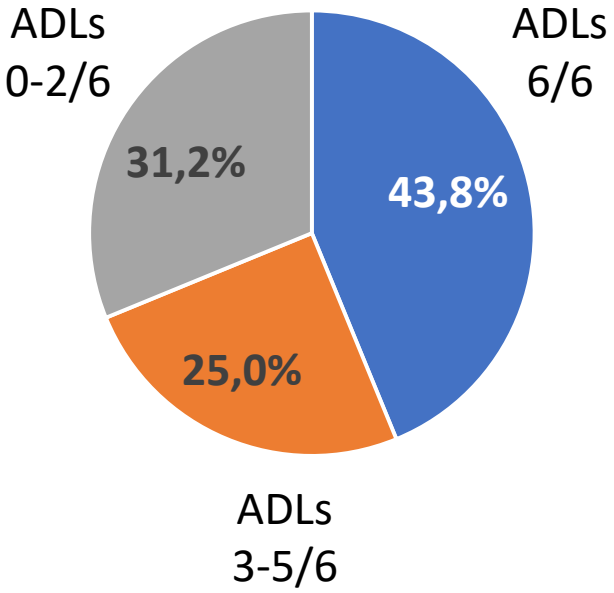
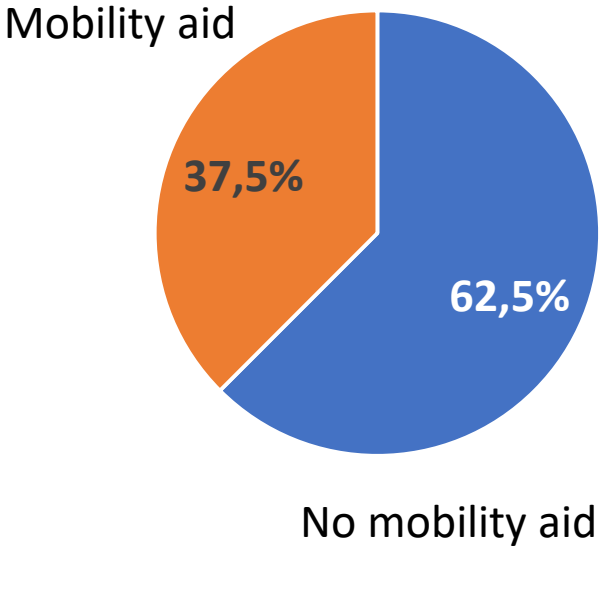
Quality of life variables



Activities of daily living



Mobility

Why is this important?

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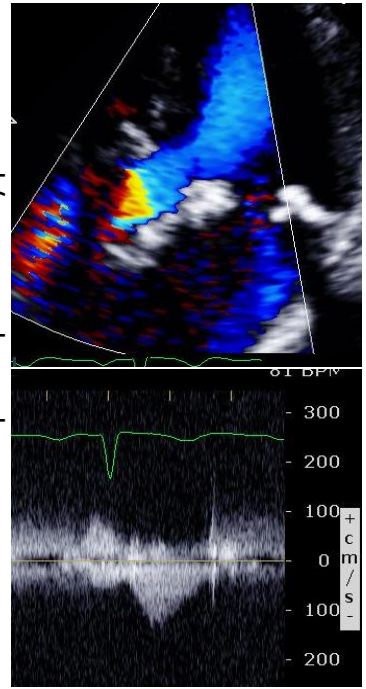
- First ten year report of patients following TAVI
- This study provides important insights into the long term durability of transcatheter heart valves
- Durability will be an important consideration as TAVI expands to lower risk patients



Consent for photo provided by patient

- Mrs GM. 102 years old. Independent ADLs
- Echo 11 years post TAVI: mean gradient 7mmHg, trivial PVL

Accelerated wear testing to 25 years

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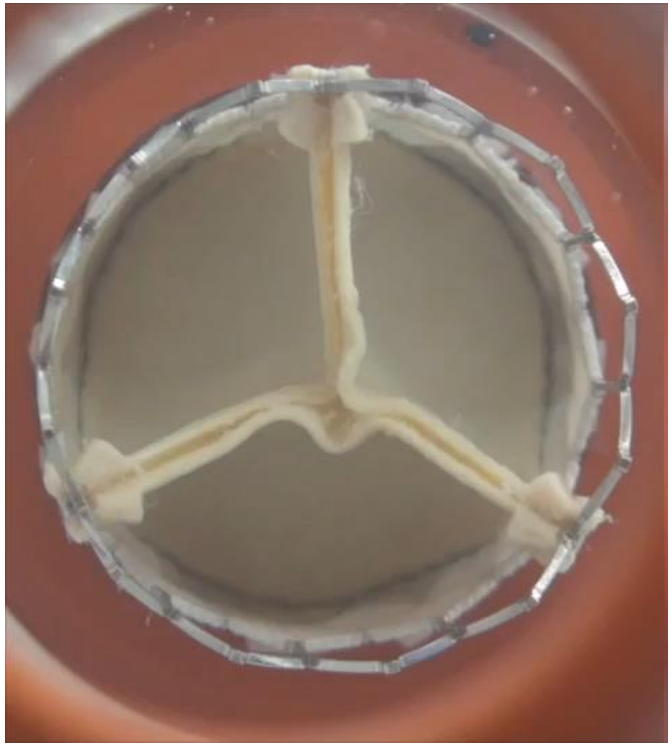
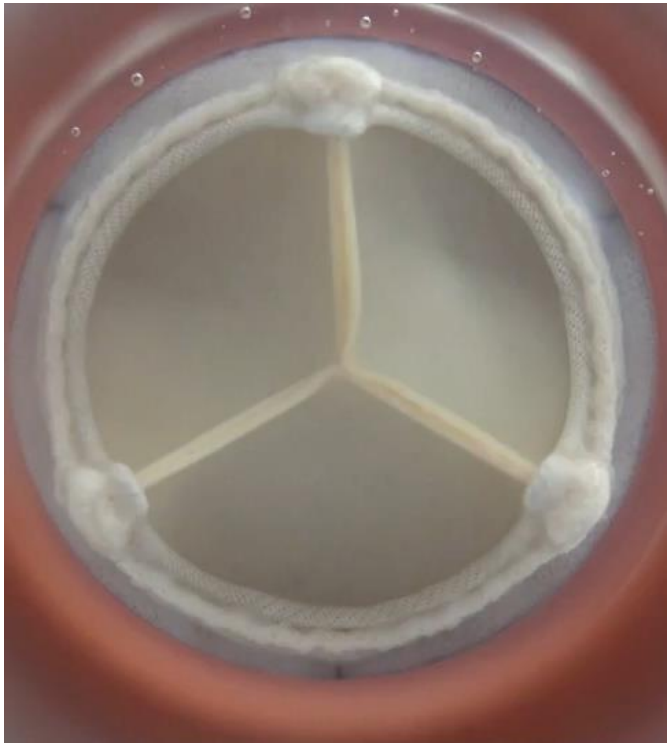


S3



Magna Ease

Sathananthan et al

The essentials to remember

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Why?

- The long term performance of transcatheter heart valves is unknown

What?

- We identified patients with ≥10 years survival following TAVI

How?

- In-hospital/home visit echocardiograms and telephone interviews for quality of life assessment

What are the results?

- In 19 patients with 10 year survival, 76.5% had freedom from moderate/severe SVD and 89.5% had freedom from reintervention. Majority of patients had indicators of reasonable quality of life.

Why is this important?

- Provides important insights into the long term durabilty of transcatheter heart valves, and patients self-reported derived benefits