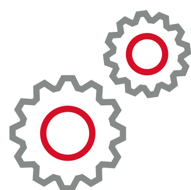
Clinical Summary

5-year outcomes comparing surgical versus transcatheter aortic valve replacement in patients with chronic kidney disease

Garcia S *et al. JACC Cardiovasc Interv.* 2021;14(18):1995 – 2005.

Study aim

To assess 5-year cardiovascular, renal, and bioprosthetic valve durability outcomes in patients with sAS and CKD who received SAVR or TAVI.[1]



Methods

A subgroup of patients at intermediate-risk with moderate and severe CKD (eGFR 45–59.9 mL/min/1.73 m^2 to eGFR 15–44.9 mL/min/1.73 m^2, respectively) from the PARTNER 2A Trial and PARTNER S3i Registry were analysed. The eGFR was calculated using the MDRD equation using creatinine values obtained prior to the SAVR or TAVI procedure.[1]

The primary endpoint was a composite of death, stroke, rehospitalisation and new haemodialysis (major adverse cardiovascular and renal events) 5 years after SAVR or TAVI with Edwards SAPIEN XT valve or Edwards SAPIEN 3 valve.[1] The five-year incidence of VARC-3 defined SVD, BVF and SVD-related BVF was the secondary endpoint.[1]

Results

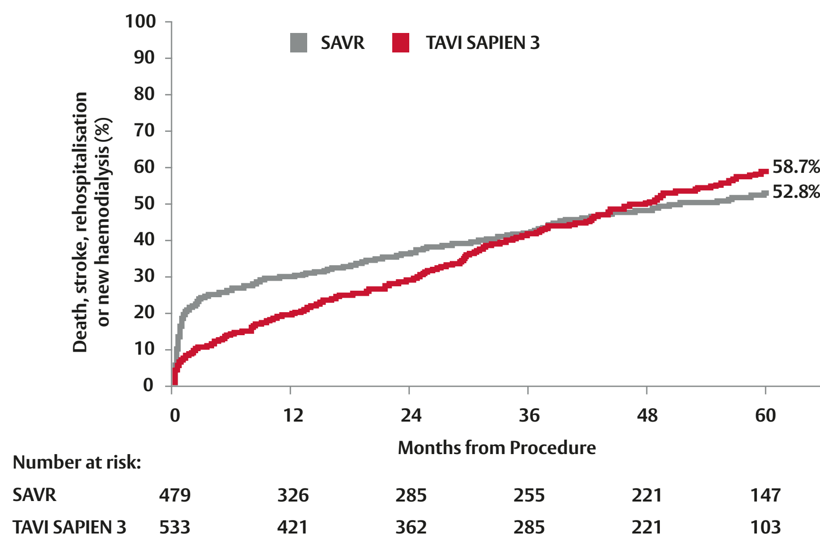
Patient population

2,940 patients at intermediate risk from PARTNER II A and S3i had available baseline eGFR. Of these, moderate or severe CKD was present in 479 SAVR patients (52.1%) and 1,045 TAVI patients (51.6%; n = 512 Edwards SAPIEN XT valve and n = 533 Edwards SAPIEN 3 valve).[1]

Primary outcome

At 5 years, the composite primary endpoint was similar for SAVR and Edwards SAPIEN 3 valve (52.8% vs 58.7%, respectively. HR: 1.01 [95% CI, 0.84-1.22] p = 0.89). This result remained after propensity score matching.[1]

Kaplan-Meier curve comparing rates of the primary endpoint in patients with severe AS and moderate to severe chronic kidney disease treated with SAVR and TAVI Edwards SAPIEN 3 valve[1]

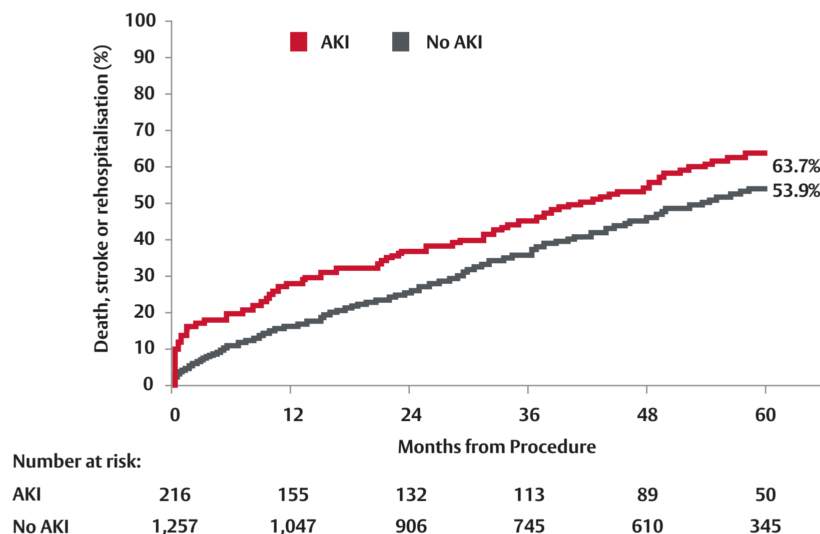


Renal outcomes

Perioperative AKI was more common with SAVR than TAVI between 0 and 1 month, occurring in 26.3% and 10.3% of patients respectively ($p < 0.001$).[1]

AKI after AVR was also independently associated with increased risk for mortality, stroke, and rehospitalisation after 5 years versus no AKI after AVR (HR 1.38 [95% CI, 1.14-1.66] $p < 0.001$).[1]

Kaplan-Meier curve comparing the composite rate of death, stroke or rehospitalisation at 5 years on the basis of whether patients developed perioperative AKI[1]



Durability

At 5 years, Edwards SAPIEN 3 valve had comparable valve durability with SAVR:[1]

- All-cause BVF was 0.8% and 2.4% for SAVR and TAVI SAPIEN 3 valve, respectively (p = 0.1)
- SVD-related BVF = 0.3% and 0.0% for SAVR and TAVI SAPIEN 3 valve, respectively (p = 0.99)

Conclusions

- In patients with sAS and CKD, SAVR and Edwards SAPIEN 3 valve had similar 5-year risks of:[1]
  - Death
  - Stroke
  - Rehospitalisation
  - Progression to haemodialysis
- AKI was more common after SAVR than TAVI[1]
- Valve durability was comparable between SAVR and Edwards SAPIEN 3 valve[1]

Abbreviations

AKI:	acute kidney injury
AVR:	aortic valve replacement
BVF:	bioprosthetic valve failure
CI:	confidence interval
CKD:	chronic kidney disease
eGFR:	estimated glomerular filtration rate
HR:	hazard ratio
MDRD:	Modification of Diet in Renal Disease
PARTNER:	Placement of Aortic Transcatheter Valves
S3i:	PARTNER S3i Registry (part of the PARTNER II Trial)
sAS:	severe aortic stenosis
SAVR:	surgical aortic valve replacement
SVD:	structural valve deterioration
TAVI:	transcatheter aortic valve implantation
VARC:	Valve Academic Research Consortium

Reference

1. Garcia S *et al. JACC Cardiovasc Interv*. 2021;14(18):1995 – 2005.

This document is a summary of the presentation by Dvir D, at TCT CONNECT 2020. The full presentation is available at:
https://www.tctconnect.com/interventional-cardiology-in-the-era-of-covid-19/

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