Impact of SGLT2 Inhibitors on Outcomes After TAVR: A Real-World Propensity Matched Analysis

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Disclosure of Relevant Financial Relationships

I, Salman Zahid DO NOT have any financial relationships to disclose.

Background

TAVR has revolutionized the treatment of severe aortic stenosis (AS), but:

- Post-TAVR **mortality** and **heart failure readmission** remain high.
- Optimization of **adjunct medical therapy** is an unmet need.

SGLT2 inhibitors, initially antidiabetic drugs have demonstrated:

- Cardiovascular & renal protection in HFpEF and HFrEF.
- Reduction in HF hospitalizations and CV death (regardless of diabetes status).

Yet, **their role post-TAVR remains largely unexplored**.

Study Objectives

To evaluate the real-world impact of SGLT2 inhibitors on:

- All-cause **mortality**
- **Heart failure exacerbation (HFE)**
- **Hospitalizations**
- **Renal & genitourinary adverse events**

in patients undergoing **TAVR** across a large U.S. health network.

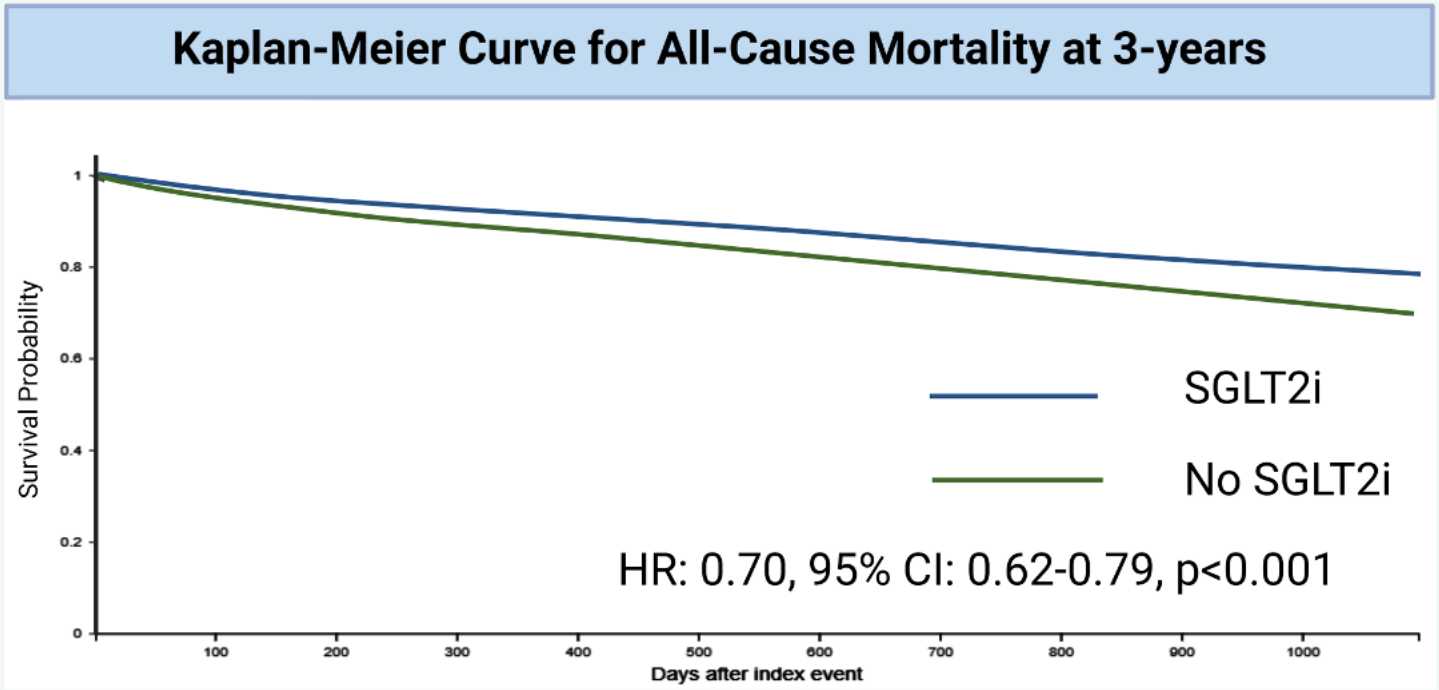
Methods

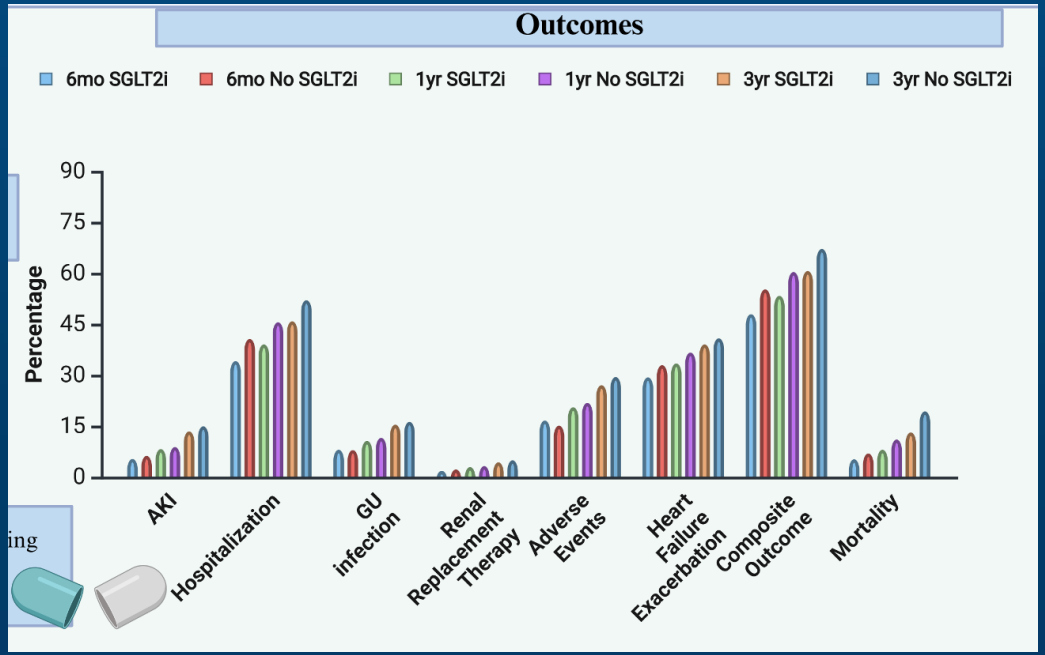
- **Study Design:** Retrospective cohort
- **Data source:** TriNetX Research Network (2013–2024)
- **Population:** 61,763 adults who underwent TAVR
- **Exposure:** SGLT2i prescribed *before or within 1 month* after TAVR
- **Control:** Patients who did not use SGLT2i before or after TAVR
- **Outcomes assessed at:** 6 months, 1 year, and 3 years post TAVR
- **Propensity matching (1:1)** based *on age, sex, race, body mass index, comorbid conditions (including heart failure, CKD, atrial fibrillation, and ischemic heart disease), baseline NT-proBNP, LDL cholesterol, LVEF, and use of baseline GDMT*→ **3,362 patients per group.**

Characteristic	Before PSM			After PSM		
	Non-SGLT2i N = 55,219	SGLT2i N = 3,529	Std. Diff	Non-SGLT2i N = 3,362	SGLT2i N = 3,362	Std. Diff
Age	78.4 ± 8.6	75.0 ± 8.7	0.391	75.3 ± 10.7	75.4 ± 8.4	0.006
Female	42.00%	32.40%	0.198	32.90%	32.70%	0.003
Race/ethnicity						
White	81.00%	80.60%	0.011	80.80%	80.60%	0.003
Black or African American	4.80%	5.00%	0.012	4.90%	5.00%	0.004
Hispanic or Latino	3.40%	3.70%	0.017	4.30%	3.70%	0.029
Comorbidities						
Systolic heart failure	14.80%	37.50%	0.535	33.20%	35.70%	0.052
Diastolic heart failure	32.80%	42.20%	0.195	43.30%	41.90%	0.029
Essential hypertension	67.40%	71.70%	0.095	73.30%	71.70%	0.037
Atrial fibrillation and flutter	32.30%	40.30%	0.167	39.50%	40.10%	0.012
Cardiomyopathy	10.40%	25.40%	0.398	21.20%	23.90%	0.066
Ischemic heart disease	71.70%	82.20%	0.250	81.20%	81.90%	0.018
Chronic kidney disease	28.30%	38.70%	0.221	37.90%	38.80%	0.018

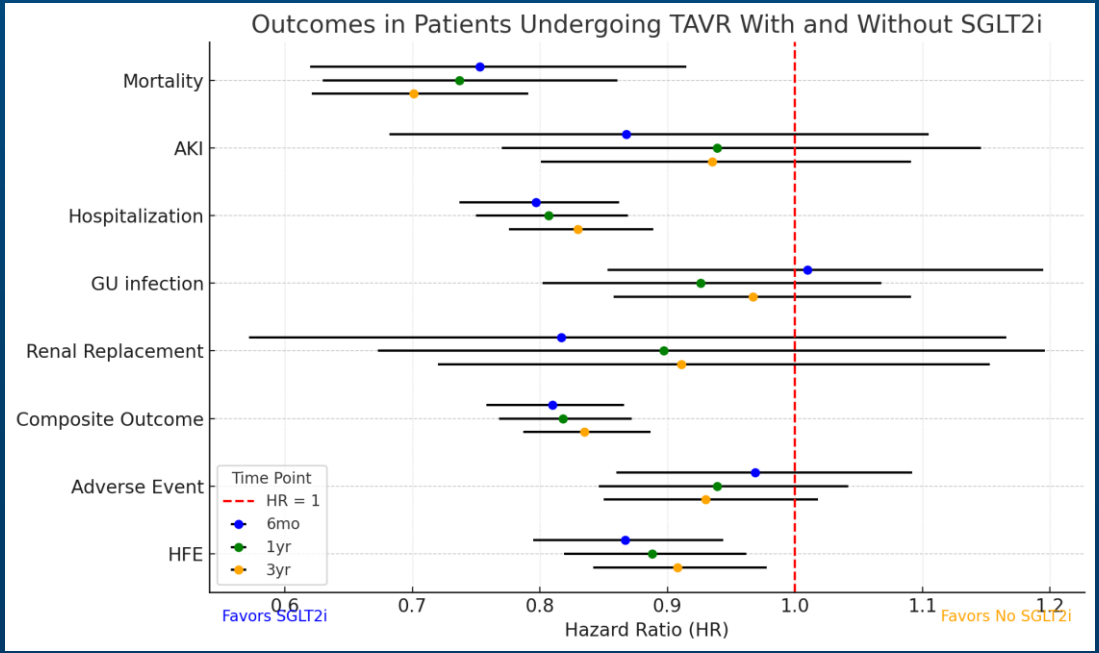
Baseline Characteristics

Primary outcome

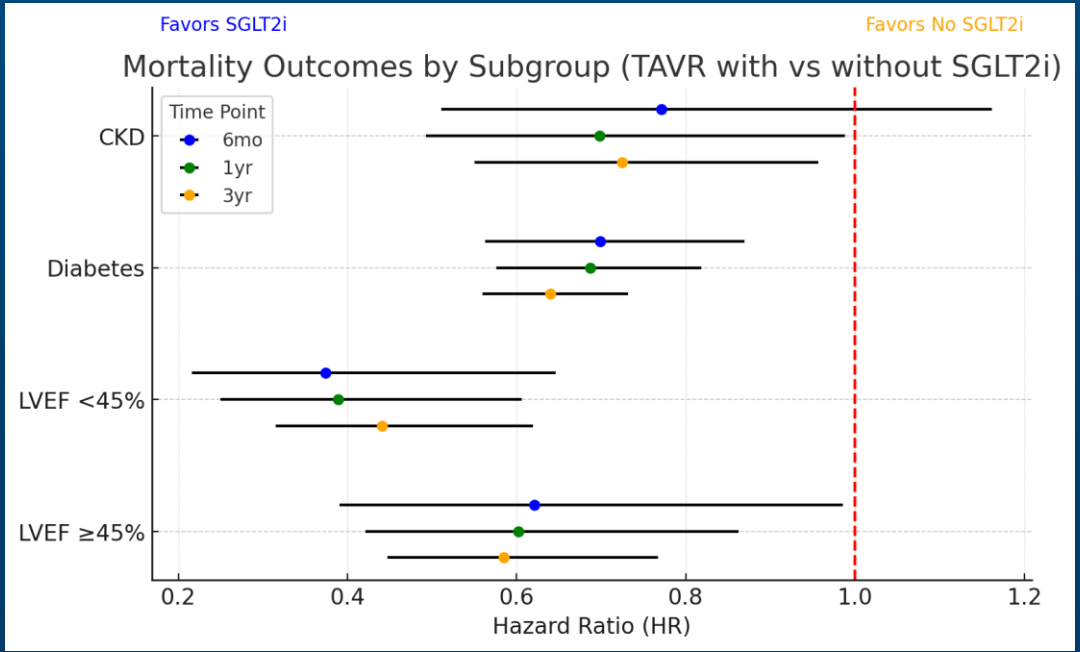



Outcomes
6mo SGLT2i
6mo No SGLT2i
1yr SGLT2i
1yr No SGLT2i
3yr SGLT2i
3yr No SGLT2i
Percentage
90
75
60
45
30
15
0
AKI
Hospitalization
GU infection
Renal Replacement Therapy
Adverse Events
Heart Failure Exacerbation
Composite Outcome
Mortality

Secondary Outcomes



Subgroup Insights



Comparison with DAPA-TAVI trial

Parameter	DAPA-TAVI	Present Study
Design	RCT	Real-world cohort
n	665	(3,362 matched/group)
Follow-up	1 year	Up to 3 years
Mortality benefit	Not significant	Significant, sustained

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DapaTAVI Investigators. Dapagliflozin in Patients Undergoing Transcatheter Aortic-Valve Implantation. N Engl J Med. 2025 Apr 10;392(14):1396-1405. doi: 10.1056/NEJMoa2500366. Epub 2025 Mar 29. PMID: 40162639.

Conclusion

SGLT2 inhibitors after TAVR:

- ↓ All-cause mortality
- ↓ HF hospitalization and exacerbation
- ↔ No excess renal or GU adverse events
- Benefit increases over time

Supports integration of SGLT2i into post-TAVR management
as part of comprehensive, heart-failure–guided care.