Percutaneous Coronary Intervention Versus Deferral in Patients With Severe Aortic Stenosis and Obstructive Coronary Artery Disease: A Systematic Review and Meta Analysis

Zade Bihag, MD[1], **Oluwakorede Akele, MD[2],** Dahsun Liu, PhD[3], Zhao Helen Wu, PhD[4], Narinder Maheshwari, MD[2], Khagendra B. Dahal, MD, FACC, FSCAI[1]

[1] Pat and Jim Calhoun Center, University of Connecticut School of Medicine, Farmington, CT
[2] Department of Medicine, University of Connecticut School of Medicine, Farmington, CT
[3] Department of Statistics, University of Connecticut, Storrs, CT
[4] Department of Psychiatry, University of Connecticut School of Medicine, Farmington, CT

Saint Francis Hospital
Trinity Health
Saint Francis Research Day

Background and Objective

Stable coronary disease is common in patients undergoing TAVI, but the value of routine PCI remains uncertain.[1-3]

The decision to revascularize differs from the decision about procedural timing.[4]

We aimed to compare PCI with initial deferral for mortality, ischemic events, and bleeding.

Methods

Search strategy: PubMed, Embase, and CENTRAL through September 11, 2026.

Population: Adults with severe aortic stenosis and obstructive coronary disease undergoing TAVI.

Primary outcome: All-cause mortality at the longest trial follow-up.

Analysis: Random-effects risk ratios with modified Hartung–Knapp sensitivity analysis.

Registration: PROSPERO: CRD420261412952. Timing was a separate post hoc comparison.

Included trials

4 trials, 2,142 randomized patients

Trial	N	Follow-up
ACTIVATION[1]	235	1 year
NOTION-3[2]	455	Median 2 years
PRO-TAVI[3]	466	1 year
TAVI PCI[4]	986	1 year

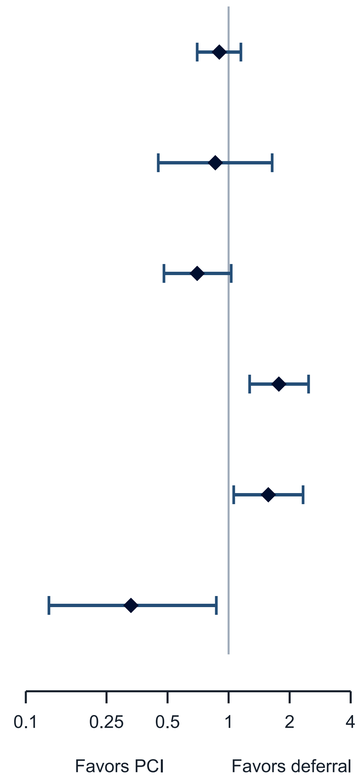
TAVI PCI did not enter the pooled strategy estimates.

Results: PCI versus initial deferral

3 strategy trials, 1,156 patients (PCI 579, deferral 577)[1–3]

Routine PCI did not establish a mortality benefit

Outcome	PCI Events/N	Deferral Events/N	RR (95% CI)	I^2
All-cause mortality	**94/579**	**104/577**	**0.90 (0.70–1.15)**	0%
Myocardial infarction	37/579	48/577	0.86 (0.45–1.64)	50%
Stroke	40/579	57/577	0.70 (0.48–1.03)	0%
Any bleeding	**215/579**	**118/577**	**1.77 (1.27–2.48)**	67%
Trial-defined major bleeding	91/579	57/577	1.57 (1.06–2.33)	38%
Urgent revascularization	**12/460**	**38/461**	**0.33 (0.13–0.87)**	54%



Adapted from manuscript Figures 2–3. DerSimonian–Laird random effects with conventional 95% CIs. Counts span trial-specific follow-up, not a common 1-year horizon. Major bleeding uses trial definitions.

Sensitivity to small-sample inference

Outcome	Conventional 95% CI	Modified HK 95% CI
All-cause mortality	0.70–1.15	0.52–1.55
Any bleeding	1.27–2.48	0.85–3.70
Trial-defined major bleeding	1.06–2.33	0.65–3.81

All modified Hartung–Knapp intervals included 1.0. Urgent revascularization was especially imprecise with only 2 contributing trials.

Timing when PCI was planned

TAVI PCI[4]: 986 randomized patients

Both procedures planned, 1–45 days apart

Outcome	TAVI-first	PCI-first
Primary composite	105/473 22.2%	112/463 24.2%
All-cause death	45/472 9.5%	44/462 9.5%

Difference −2.0 percentage points

95% CI −7.4 to 3.4

Noninferiority margin: 6.6 percentage points
P < 0.001 for noninferiority
P = 0.47 for superiority

TAVI-first was noninferior for the composite. Superiority was not demonstrated.

Composite: death, nonfatal MI, ischemia-driven revascularization, valve/procedure/heart-failure rehospitalization, or life-threatening, disabling, or major bleeding at 1 year.

Conclusions

Routine PCI has no established mortality benefit in the populations studied.

Conventional analyses suggest more bleeding and fewer urgent revascularizations, but small-sample inference leaves both signals uncertain.

TAVI-first is an option for selected patients when PCI is planned. Timing evidence does not establish that PCI can be omitted.

Limitations

Few open-label trials. Follow-up and bleeding definitions differ. RoB 2 and GRADE assessments remain provisional.

Selected references.

1. Patterson T, et al. ACTIVATION. JACC Cardiovasc Interv. 2021;14:1965–1974. doi:10.1016/j.jcin.2021.06.041

2. Lønborg J, et al. NOTION-3. N Engl J Med. 2024;391:2189–2200. doi:10.1056/NEJMoa2401513

3. Delewi R, et al. PRO-TAVI. Lancet. 2026;407:1429–1438. doi:10.1016/S0140-6736(26)00308-9

4. Stähli BE, et al. TAVI PCI. N Engl J Med. Published August 30, 2026. doi:10.1056/NEJMoa2606924

UCONN HEALTH