

Prosthetic Valve Endocarditis after TAVI INTeNSE

Infective eNdocarditis after Tavr a National SwEdish study

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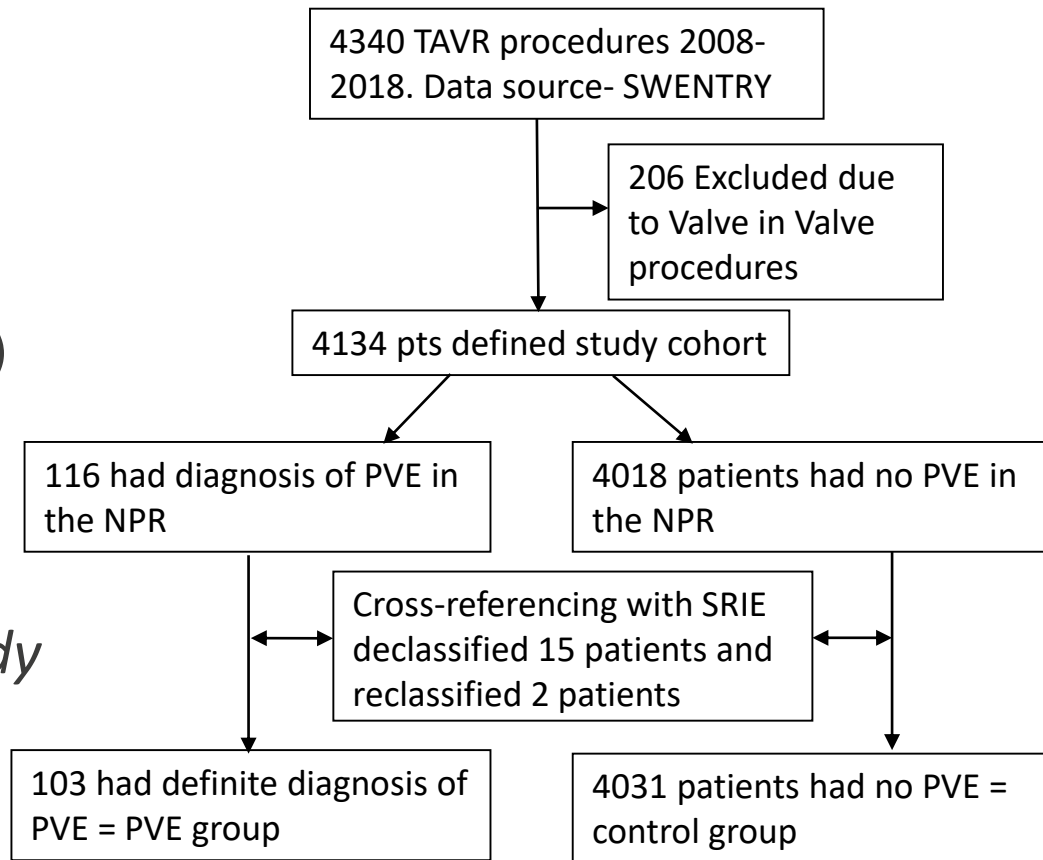
- I have the following potential conflicts of interest to declare:
- Receipt of honoraria or consultation fees: Boston Scientific, Edwards Lifesciences
- Founder/Owner: Septulus AB

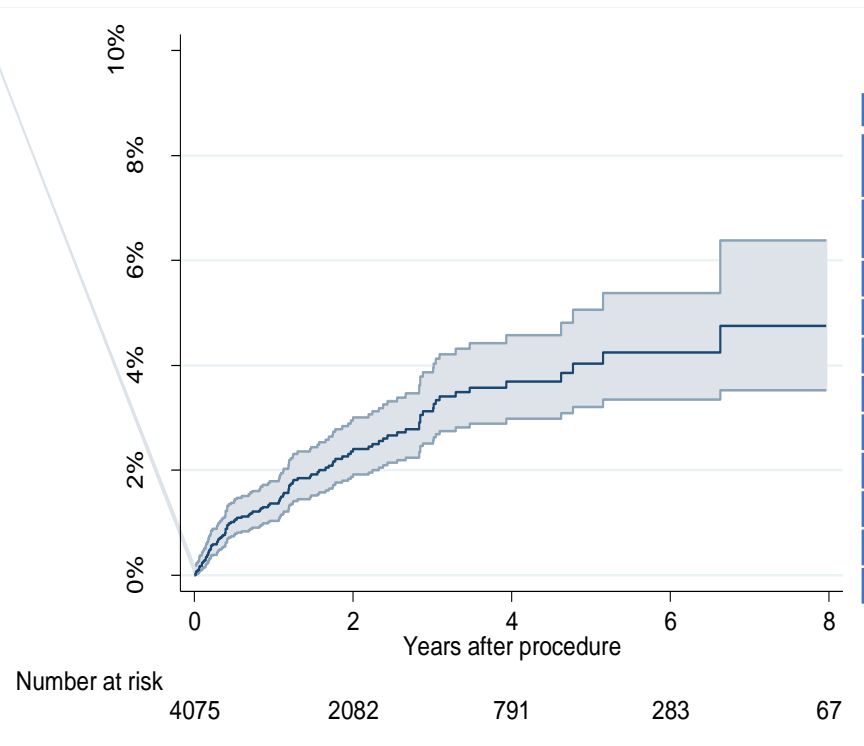
- Prosthetic Valve Endocarditis (PVE) after TAVI is a devastating complication after TAVI with high morbidity and mortality
 - Little is known about
 - the incidens of PVE
 - risk-factors for PVE
 - outcome after PVE
- in real world setting



- Registry based study
- SWENTRY (SWEdish traNscatheter cardiac intervention registry)
- NPR (National Patient Registry)
- SRIE (Swedish Registry on Infective Endocarditis)

Nationwide, all-comers study with independent and validated reporting





Accumulated rate of PVE after TAVI

Annually

Interval	PVE/number of patients	Crude rate (95% CI)
0-1	51/3601	1.42% (1.03%-1.80%)
1-2	27/2563	1.05% (0.51%-1.60%)
2-3	12/1732	0.69% (0.03%-1.36%)
3-4	7/1084	0.65% (-0.16%-1.45%)
4-5	2/637	0.31% (-0.59%-1.22%)
5-6	1/383	0.26% (-0.77%-1.29%)
6-7	1/218	0.46% (-0.88%-1.80%)
7-8	0/109	0.00% (-1.34%-1.34%)
8-9	1/50	2.02% (-1.94%-5.98%)
9-10	1/18	5.71% (-5.10%-16.5%)

1-5 and 5-10 years

PVE/number of patient year	Crude rate (95% CI)
48/6015	0.80% (0.60%-1.06%)
4/776	0.52% (0.20%-1.32%)

Variable	Multivariable entire follow up		
	HR (95% CI)	Wald	P-level
BSA (per m ²)	6.4 (2.6-15.4)	16.9	<0.001
eGFR< 30 ml/min/1.73 m ²	2.84 (1.6-4.9)	13.7	<0.001
Transapical access	2.2 (1.2-3.8)	7.0	0.008
Mean gradient (per mmHg)	1.02 (1.00-1.03)	6.9	0.009
Critical preoperative state	2.5 (1.1-5.7)	4.6	0.033
Amount of contrast (per dl)	1.3 (1.1-1.7)	5.8	0.016
PVD	0.5 (0.3-1.0)	4.4	0.036
Atrial fibrillation	1.5 (1.0-2.2)	3.9	0.047

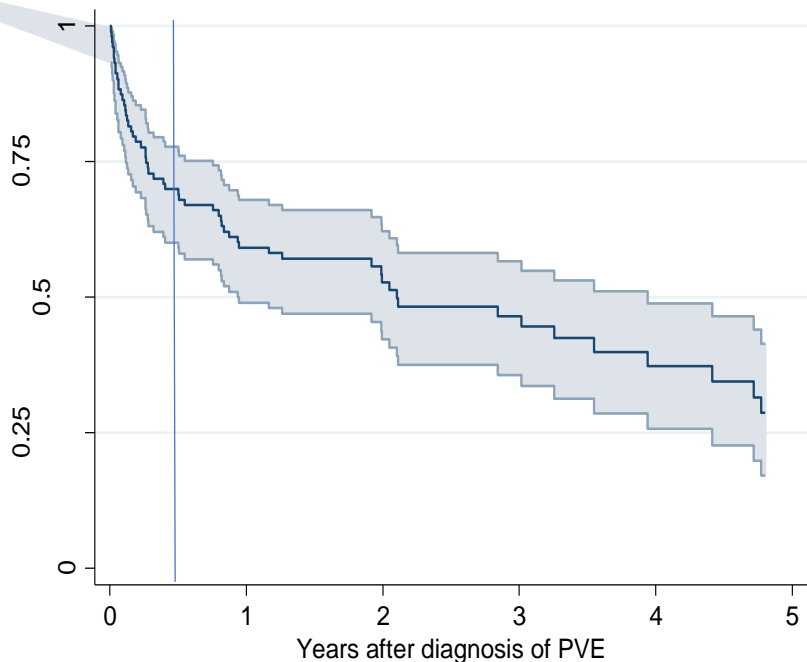
Risk factors early and late PVE

Early (1 < year) PVE

Variable	OR (95% CI)	P-level
BSA (per m ²)	11.2 (3.2-39.0)	<0.001
eGFR < 30 ml/min/1.73 m ²	3.0 (1.5-6.2)	0.003
Transapical access		
Mean gradient (per mmHg)	1.02 (1.01-1.04)	0.011
Critical preoperative state	2.5 (0.9-7.5)	0.086
Amount of contrast (per dl)		
PVD		
Atrial fibrillation		
History of malignancy		
IE in the year before TAVR		
AR grade I-III	1.9 (1.1-3.4)	0.028

Late (>1 year) PVE

Variable	HR (95% CI)	P-level
BSA (per m ²)	3.4 (0.9-12.4)	0.066
eGFR < 30 ml/min/1.73 m ²	2.6 (1.1-6.1)	0.034
Transapical access	3.09 (1.5-6.2)	0.002
Mean gradient (per mmHg)		
Critical preoperative state		
Amount of contrast (per dl)	1.4 (1.0-2.0)	0.030
PVD	0.44 (0.2-1.0)	0.062
Atrial fibrillation	2.2 (1.2-3.8)	0.007
History of malignancy	2.7 (1.4-5.2)	0.002
IE in the year before TAVR	6.7 (1.5-28.7)	0.011

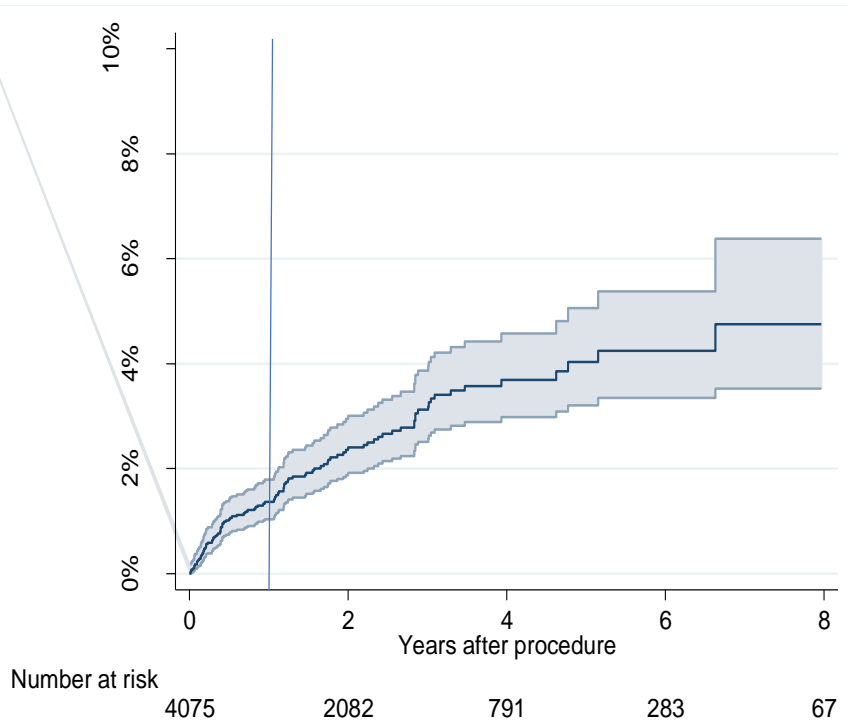


Survival after PVE diagnosis

multivariable analysis for death within 6 months

	OR (95% CI)	p-level
S. aureus	2.7 (0.8-8.9)	0.095
Community acquisition	0.20 (0.06-0.6)	0.006
Abscess	4.9 (1.1-22.1)	0.037
Endocarditis <1 year after TAVR	5.6 (1.8-17.5)	0.003

Early vs Late PVE

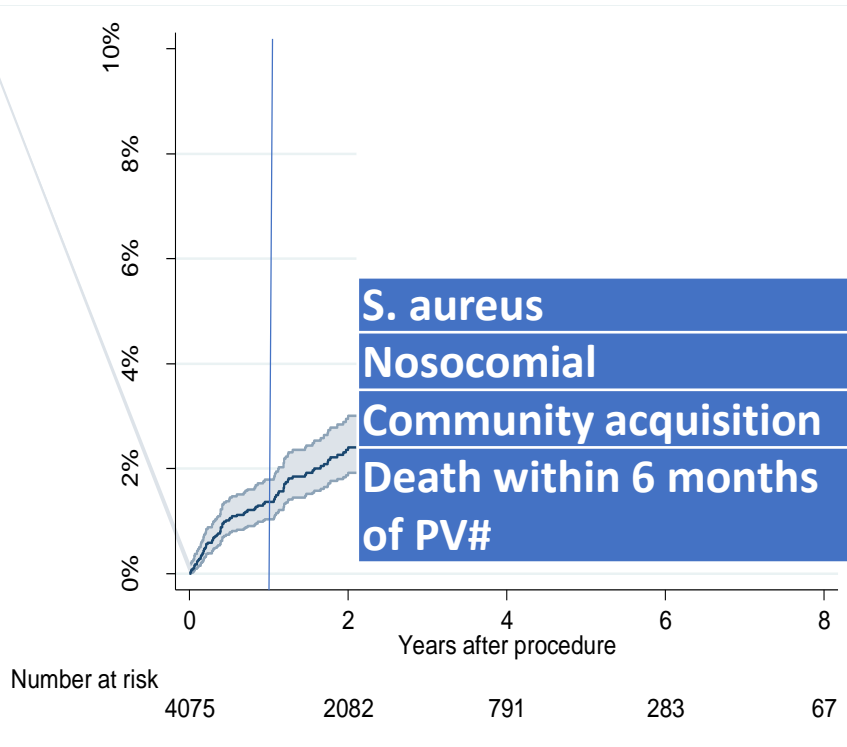


Accumulated rate of PVE after TAVI

	All (103)	Early PVE <1year (n=51)	Late PVE >1year (n=52)	p-value
Age	82 (77-85)	82 (77-85)	83 (78-86)	0.376
Female gender	40 (38.8%)	15 (29.4%)	25 (48.1%)	0.052
Microbiology				
S. aureus	23 (22.3%)	16 (31.4%)	7 (13.5%)	0.029
Alpha streptococci	35 (34.0%)	17 (33.3%)	18 (34.6%)	0.891
Enterococcus faecalis	21 (20.4%)	10 (19.6%)	11 (21.2%)	0.846
CoNS	7 (6.8%)	1 (2.0%)	6 (11.5%)	0.053
No bacteria	5 (4.9%)	2 (3.9%)	3 (5.8%)	0.663
Other bacteria	12 (11.7%)	5 (9.8%)	7 (13.5%)	0.563
Definite IE	54 (52.4%)	26 (51.0%)	28 (53.8%)	0.771
Nosocomial	18 (17.8%)	15 (29.4%)	3 (6.0%)	0.002
Community acquisition	76 (74.5%)	33 (64.7%)	43 (84.3%)	0.023
Echocardiography				
TEE performed	83 (81.4%)	41 (80.4%)	42 (82.4%)	0.799
Vegetation on TEE	39 (38.2%)	18 (35.3%)	21 (41.2%)	0.541
Abscess	12 (11.9%)	7 (13.7%)	5 (10.0%)	0.563
New PVL	5 (5.0%)	3 (5.9%)	2 (4.0%)	0.663
Aortic valve affected	54 (52.9%)	26 (51.0%)	28 (54.9%)	0.692
Mitral valve affected	22 (21.8%)	9 (17.6%)	13 (26.0%)	0.309
No vegetation	32 (31.7%)	18 (35.3%)	14 (28.0%)	0.431
PM lead vegetation	6 (6.0%)	2 (3.9%)	4 (8.2%)	0.372
Other				
Vascular phenomena	10 (9.8%)	5 (9.8%)	5 (9.8%)	1
Surgery during hospitalization	13 (12.7%)	6 (11.8%)	7 (13.7%)	0.767
PM extraction	11 (10.8%)	4 (7.8%)	7 (13.7%)	0.338
SAVR	2 (2.0%)	2 (3.9%)	0 (0.0%)	0.161
Hospitalization (days)	38 (25-46)	39 (27-45)	35 (25-47)	0.96
Death during hospitalization	17 (16.8%)	8 (15.7%)	9 (18.0%)	0.756
Death within 6 months of PVE	31 (30.1%)	11 (21.6%)	20 (38.5%)	0.062



Early vs Late PVE



Accumulated rate of PVE after TAVI

	All (103)	Early PVE 1<year (n=51)	Late PVE > 1year (n=52)	p-value
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Female gender	40 (38.8%)	15 (29.4%)	25 (48.1%)	0.052
Microbiology				
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			3.5%	0.563
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			5.0%	0.002
			34.3%	0.023
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Circulation

Prosthetic Valve Endocarditis After Surgical Aortic Valve Replacement

Prosthetic valve endocarditis (PVE) is the most severe form of infective endocarditis and accounts for 20% of all cases of infective endocarditis.^{1,2} However, studies reporting the incidence of PVE after surgical aortic valve replacement (AVR) are scarce and based mainly on noncontemporary patient cohorts. Whether PVE affects biological and mechanical aortic valves to the same extent remains unknown. Therefore, we investigated the incidence and risk of PVE after surgical AVR in patients with biological and mechanical valves.

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Prosthetic Valve Endocarditis After Surgical Aortic Valve Replacement. *Circulation* 2017;**136**(3):329-31

Circulation

	Mechanical surgical valves	Biological surgical valves	TAVI
years	<i>Crude rate (95% CI)</i>	<i>Crude rate (95% CI)</i>	<i>Crude rate (95% CI)</i>
0-1	0.70% (0.55%–0.89%)	1.17% (1.01%–1.36%)	1.42% (1.03%-1.80%)
1-5	0.43% (0.37%–0.51%)	0.59% (0.50%–0.70%)	0.80% (0.60%-1.06%)
5-10	0.38% (0.31%–0.46%)	0.60% (0.53%–0.68%)	0.52% (0.20%-1.32%)

AVR in patients with biological and mechanical valves.

This observational, nationwide, population-based cohort study was approved by the regional Human Research Ethics Committee in Stockholm, Sweden (Dnr. 2016/1241-32) and is registered at ClinicalTrials.gov (Unique identifier: NCT02276950). No informed consent from patients was required. The SWEDHEART (Swedish Web System for Enhancement and Development of Evidence

MD, PhD
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- 6 Month survival 30%
- Risk factors: Obesity, poor renal function, transapical access, high pre-op aortic gradient
- Alpha streptococci > Enterococci > S. Aureus
- PVE after TAVI \approx PVE after biological valves
- S Aureus and abscess -> poor prognosis

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