

Outcome of TAVR in patients ≥ 90-year old

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Disclosures: A. Witkowski

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Aortic stenosis in elderly

- AS is the most common valvular heart disease in developed countries, and its impact on public health and health care resources is expected to increase due to aging European and American populations
- The emergence of TAVR has renewed interest in the epidemiology of AS

Aortic stenosis in nonagenarians

- The mean age of patients in the previously reported randomized trials and large TAVR registries was from 81.4 to 83.6 years⁽¹⁻⁶⁾, but only small minority of these patients were nonagenarians (age ≥ 90 years)
- Relatively few studies have examined the outcomes of this procedure in very old patients
- The purpose of this study was to assess the feasibility and safety of performing TAVR in nonagenarians compared to patients aged < 90 years

1) Iung B et al: Eur Heart J 2005;26:2714-20; 2) Leon MB et al: NEJM 2010;363:1597-1607; 3) Smith CR et al: NEJM 2011;364:2187-98; 4) Gilard M et al: NEJM 2012;366:1705-15; 5) Adams DH et al: NEJM 2014;370:1790-98; 6) Zahn R et al: EHJ 2011;32:198-204

Annual Number of TAVR Candidates in Different Countries Under Current Treatment Indications

Study period: 1989 to 2009

Country	Candidates (95%CI)
Austria	263 (115-152)
Belgium	402 (172-232)
Czech Republic	316 (136-581)
Denmark	179 (78-325)
Finland	192 (82-349)
France	2,265 (990-4,160)
Germany	3,952 (1,684-7,227)
Greece	529 (226-954)
Italy	2,679 (1,145-4,958)
Ireland	110 (46-203)
Luxembourg	15 (6-27)
Norway	131 (55-24)
Poland	1,220 (512-2,226)
Portugal	463 (197-844)
Spain	1,737 (728-3,155)
Sweden	318 (133-582)
Switzerland	270 (115-495)
The Netherlands	526 (224-965)
The United Kingdom	2,217 (896-3,904)
Total 19 European countries	17,712 (7,590-32,691)*
The United States	8,205 (3,470-15,139)
Canada	970 (408-1,777)
Total North America	9,189 (3,898-16,682)*

26.901



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TAVR 2009-2015

- 296 patients, 8.01.2009 – 03.12.2015
- 192 women (65.1%)
- Age $80.3 \pm 7,2$ (39-93) years old
- Logistic Euroscore $21,2 \pm 12.4\%$
- **10 patients ≥ 90 years old (3.38%)**

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TAVR 2009-2015 (n=296)

Baseline characteristic

Variable	Age		p-value
	<90 (n=286)	>90 (n=10)	
Age	79.8±7	91±0.5	
Women	184 (64%)	8 (80%)	NS
log EuroScore	20.9±12.3	33±9.5	0.0035
COPD	61 (21%)	3 (31%)	NS
Coronary artery disease	171 (59.8%)	5 (50%)	NS
Stroke/TIA	37 (12.9%)	2 (20%)	NS
Peripheral artery disease	69 (24.1%)	2 (20%)	NS
DM	103 (36%)	5 (50%)	NS
Atrial fibrillation/PAF	96 (33.6%)	5 (50%)	NS
Creatinine	102±41.1	133±38.4	0.0067
eGFR	56.2±17.8	36.3±10.4	0.007
Left ventricle Ejection Fraction	56.7±12.4	56.3±10.9	NS
Pulm. Artery Systolic Pressure	49.9±13.6	68.7±13.8	0.015

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< 90 vs ≥ 90 years old patients (propensity matched cohorts)

Procedural data - propensity matched cohorts

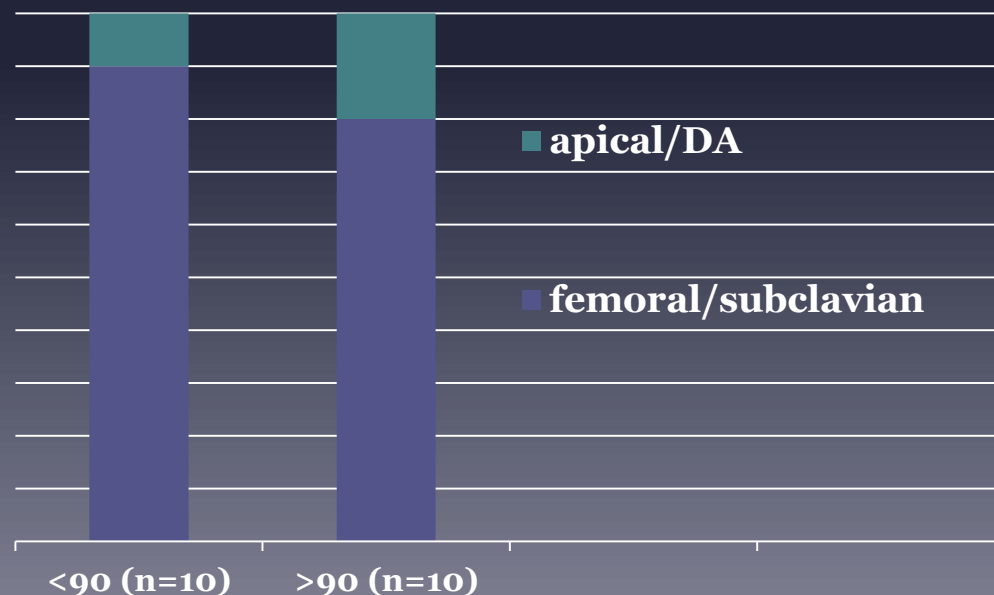
Variable	Age		p-value
	<90 (n=10)	>90 (n=10)	
Implanted prosthesis type			
Edwards Sapien/Sapien XT/S3	2 (20%)	4 (40%)	NS
Core Valve/Evolut R	8 (80%)	6 (60%)	NS
Vascular access			
transfemoral/subclavian	9 (90%)	8 (80%)	NS
transapical/direct aorta	1 (10%)	2 (20%)	NS
Device success	10 (100%)	9 (90%)	NS
Fluoroscopy time	29±15.9	27.9±11.8	NS
Total contrast used	179±55	154±67	NS
Postprocedural PVL			
trace/mild	8 (80%)	9 (90%)	NS
moderate	2 (20%)	1 (10%)	NS
Postprocedural aortic gradient	13.6±6.8	10.9±4.3	NS

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< 90 vs ≥ 90 years old patients (propensity matched cohorts)

	<90 (n=10)	>90 (n=10)
Vascular access		
femoral/subclavian	9 (90%)	8 (80%)
apical/direct aorta	1 (10%)	2 (20%)

p = 0.53

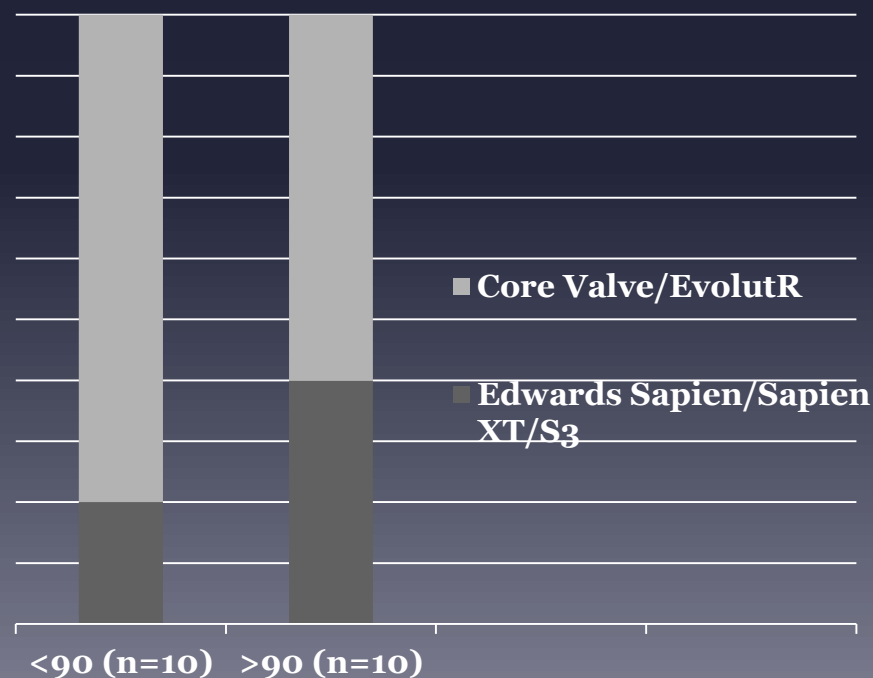


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< 90 vs ≥ 90 years old patients (propensity matched cohorts)

	<90 (n=10)	>90 (n=10)
Prosthesis type		
Core Valve/EvolutR	8 (80%)	6 (60%)
Edwards Sapien/Sapien XT/S3	2 (20%)	4 (40%)

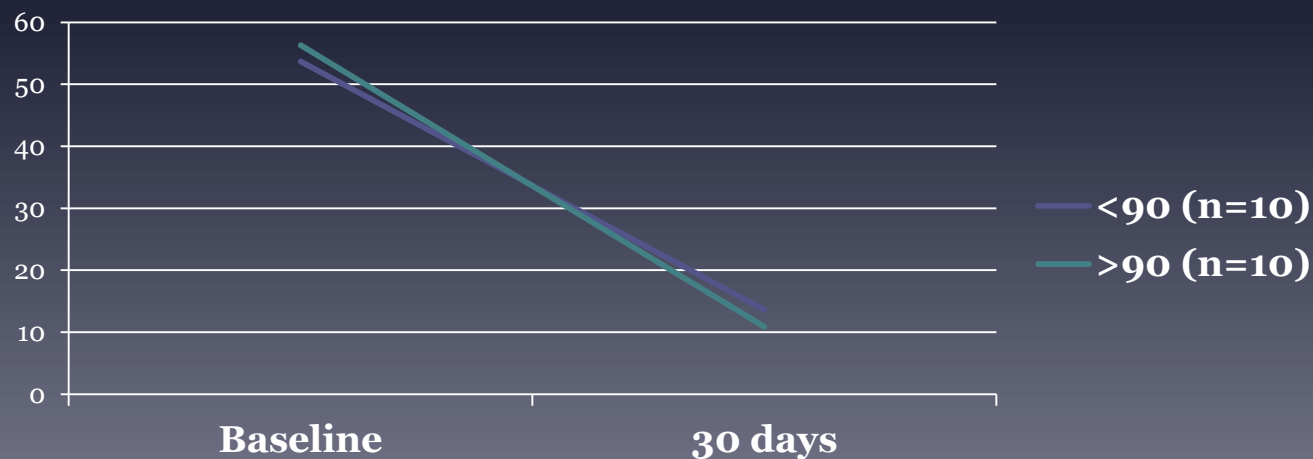
p = 0.33



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< 90 vs ≥ 90 years old patients (propensity matched cohorts)

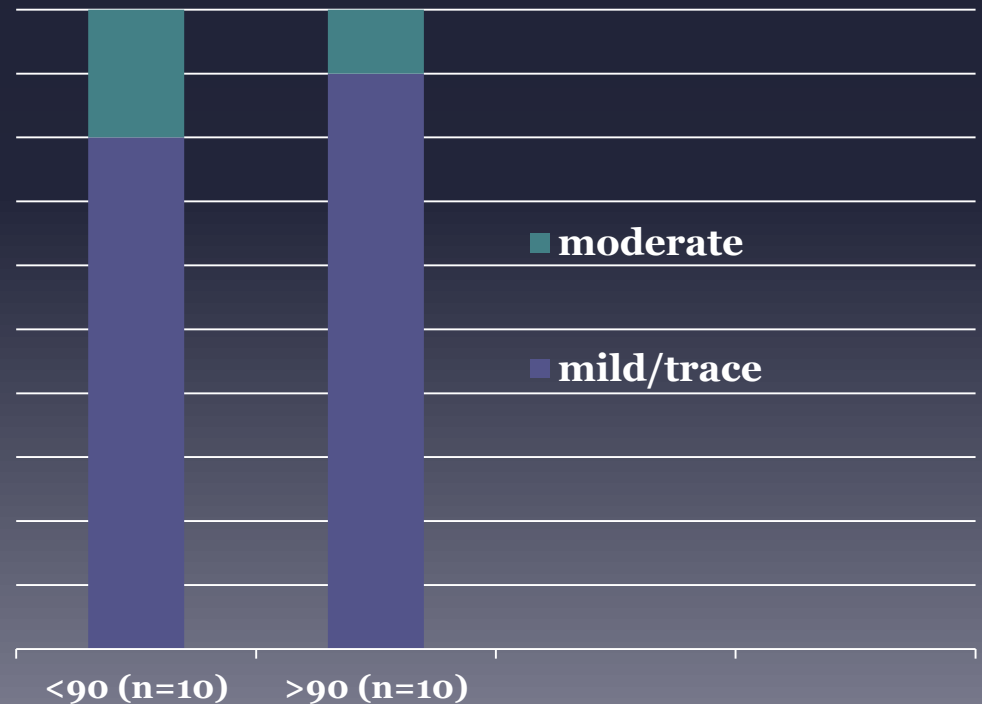
	<90 (n=10)	>90 (n=10)	p value
Baseline aortic gradient (mean – mmHg)	53.75±11.7	56.3±11.3	0.94
Post. aortic gradient (mean – mmHg)	13.6±6.8	10.9±4.3	0.77



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< 90 vs ≥ 90 years old patients (propensity matched cohorts)

	<90 (n=10)	>90 (n=10)	P
Postprocedural PVL			
trace/mild	8 (80%)	9 (90%)	NS
moderate	2 (20%)	1 (10%)	NS



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< 90 vs ≥ 90 years old patients (propensity matched cohorts)

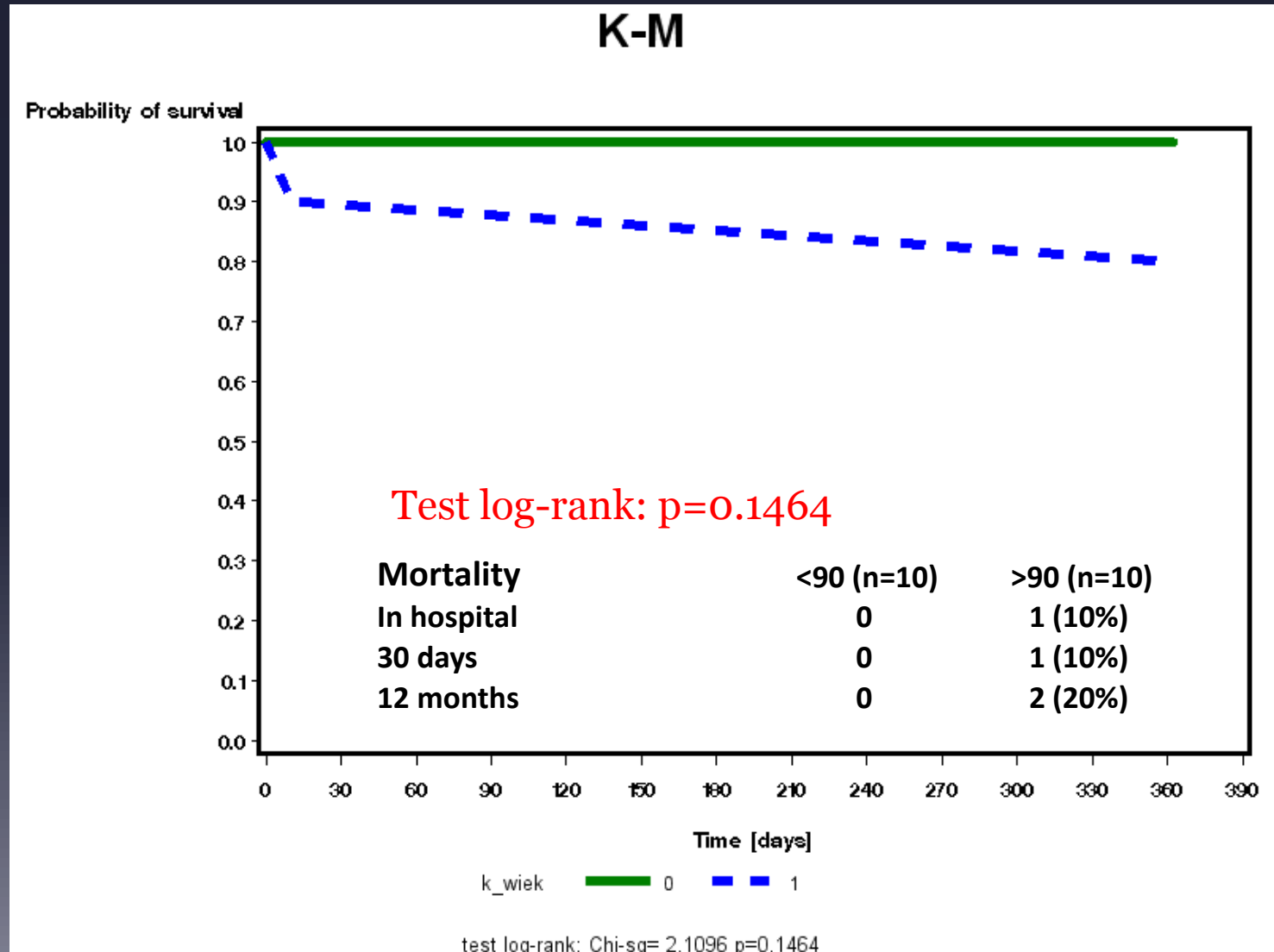
Clinical 30 days outcome - propensity matched cohorts

Variable	Age		p-value
	<90 (n=10)	>90 (n=10)	
Mortality (30 days)	0	*1 (10%)	NS
Stroke/TIA	0	0	
Myocardial infarction	0	0	
Cardiac tamponade	0	0	
Major bleeding	0	3 (30%)	0.04
Major vascular complications	0	1 (10%)	NS
New permanent pacemaker	3 (30%)	2 (20%)	NS

* Procedural death after DA access

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< 90 vs ≥ 90 years old patients (propensity matched cohorts)



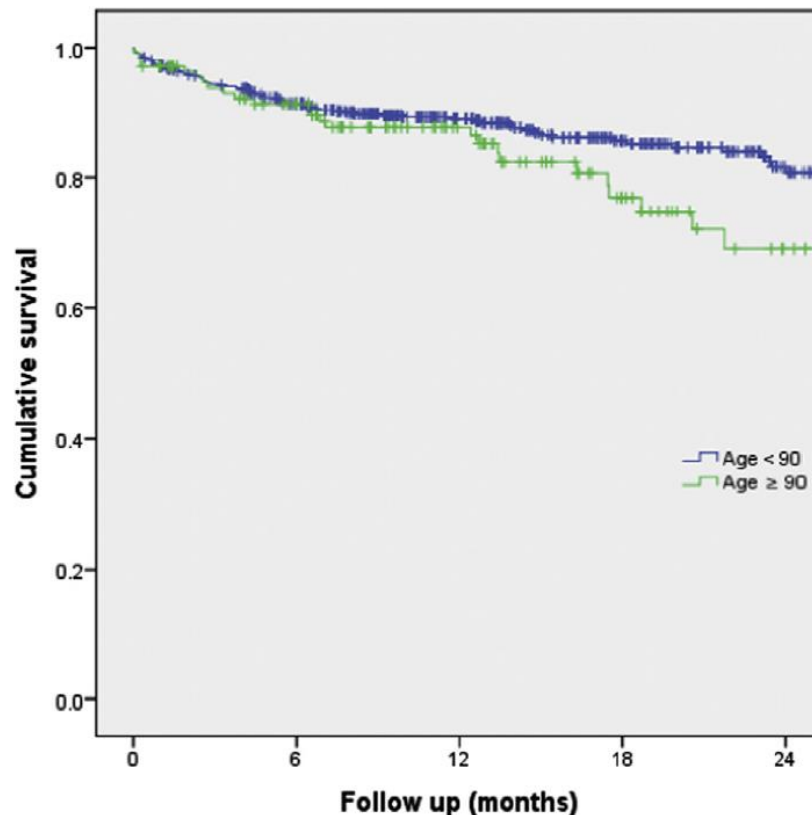
Study limitations

- One centre registry
- Small number of patients ≥ 90 -year old (n=10)
- Assessment of the influence of TAVI on the midterm and long-term mortality of nonagenarians after the procedure is substantially limited by their shorter life expectancy compared to younger population

Overall survival during the study follow-up (TAVR with balloon-expandable valves)

Abramovitz J et al: Am J Cardiol 2015;116:1110-15

Kaplan-Meier curves for overall survival in nonagenarians compared to younger pts up to 24 months (p=0.07, log-rank test)



Number at risk

Age < 90	598	480	290	180	91
Age ≥ 90	136	104	70	37	20

Conclusions

- TAVR in carefully selected group of nonagenarians is feasible and offers clinical benefit comparable to patients aged < 90 years, however risk of major bleeding is higher
- Advanced age, in the absence of significant comorbidities, should not deter clinicians from evaluating patients with severe AS for TAVR
- Larger multicentre study based on national POL-TAVI Registry is planned