SBC2017 São Paulo

72° CONGRESSO BRASILEIRO DE CARDIOLOGIA

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Mesa-Redonda

ESTENOSE AÓRTICA

MANEJO POR CIRURGIA ABERTA E SEUS RESULTADOS ATUAIS

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Universidade Federal de Ciências da Saúde de Porto Alegre

Nome do Palestrante:

Renato A. K. Kalil

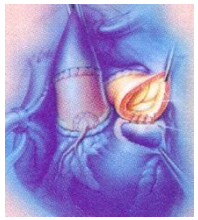
Título da Apresentação:

ESTENOSE AÓRTICA
MANEJO POR CIRURGIA ABERTA E SEUS RESULTADOS ATUAIS

Não possuo nenhum conflito de interesse relacionado a esta apresentação

Substitutos Valvares Atuais

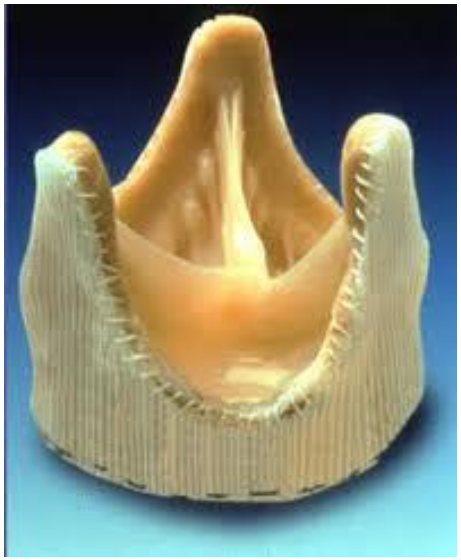
- Autólogos: Autoenxerto Pulmonar



- Homólogos: Homoenxertos aórticos, pulmonares

- Heterólogos: Biopróteses de aorta porcina e de pericárdio bovino, equino ou porcino

- Mecânicos: Próteses mecânicas de carbono pirolítico



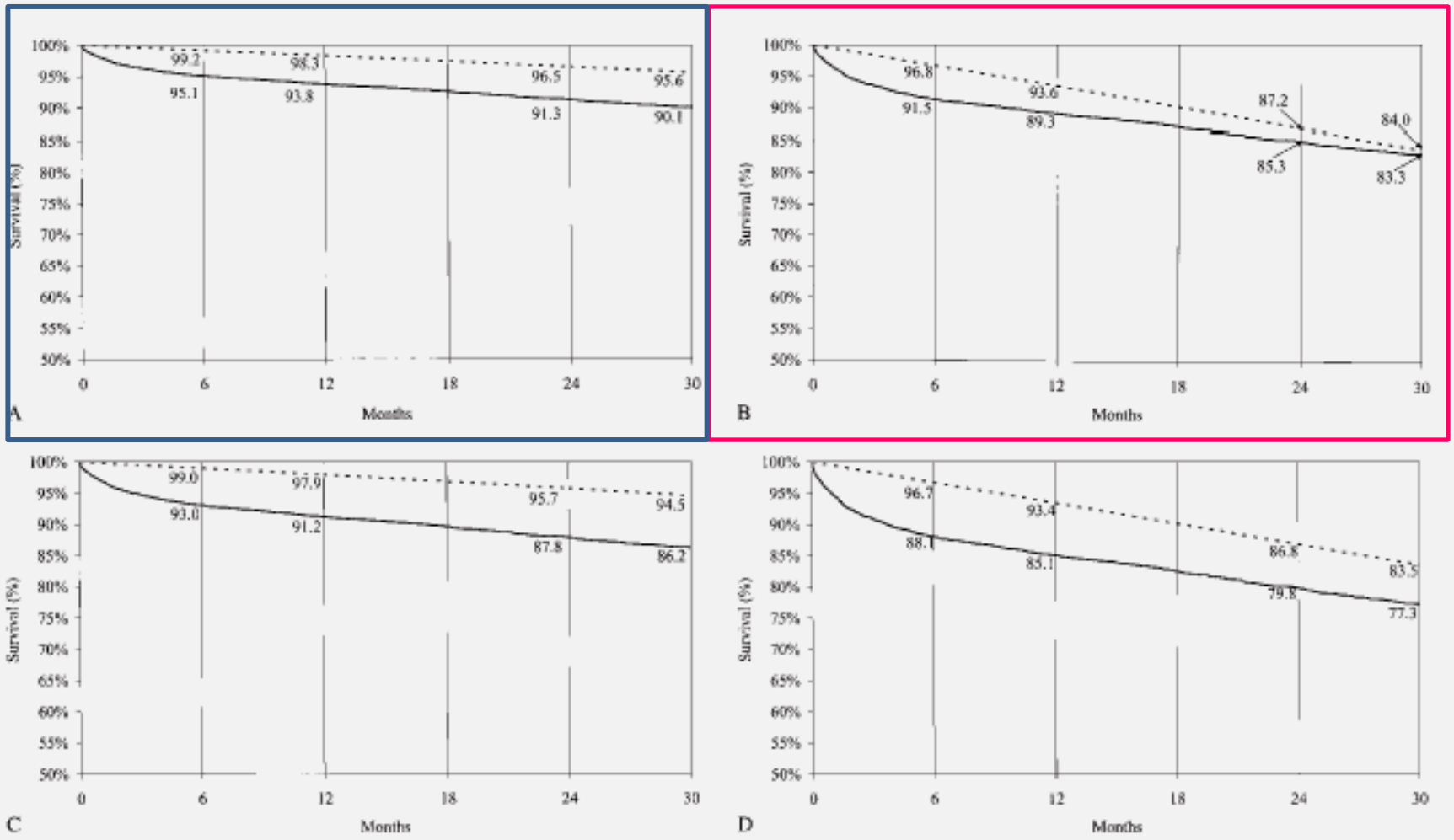
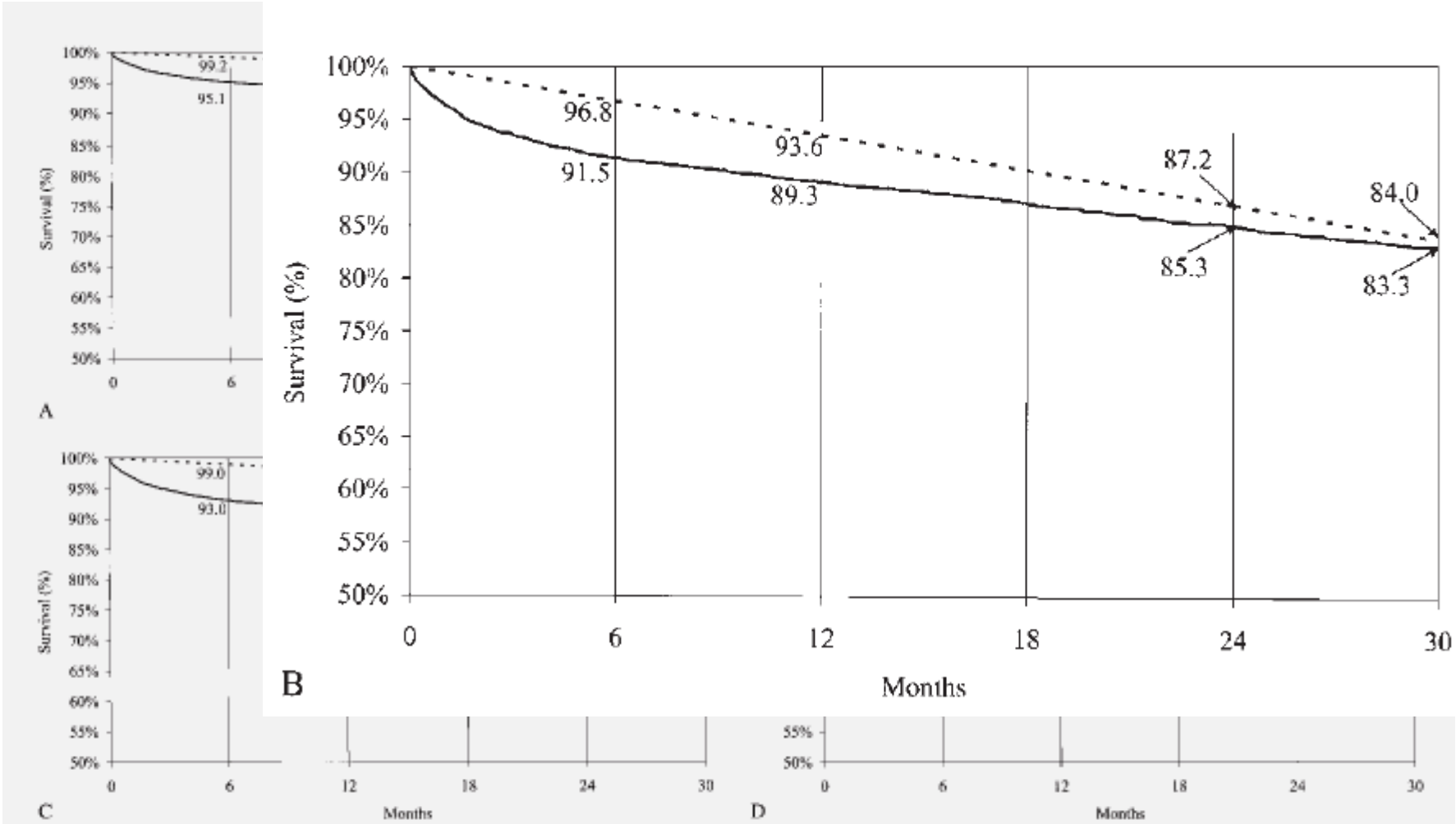


Fig 2. Survival after aortic valve replacement according to patient age. Dashed lines are survival for age- and sex-matched US population. Solid lines represent risk-adjusted survival in selected age and surgery subgroups. (A) Nonelderly patients (age < 75 years) with isolated aortic valve replacement. (B) Elderly patients (age > 75 years) with isolated aortic valve replacement. (C) Nonelderly patients undergoing aortic valve replacement with coronary artery bypass graft surgery. (D) Elderly patients undergoing aortic valve replacement with coronary artery bypass graft surgery.

Hannan, Registro de NY
AnnThoracSurg.2009Jun;87(6):1741-9



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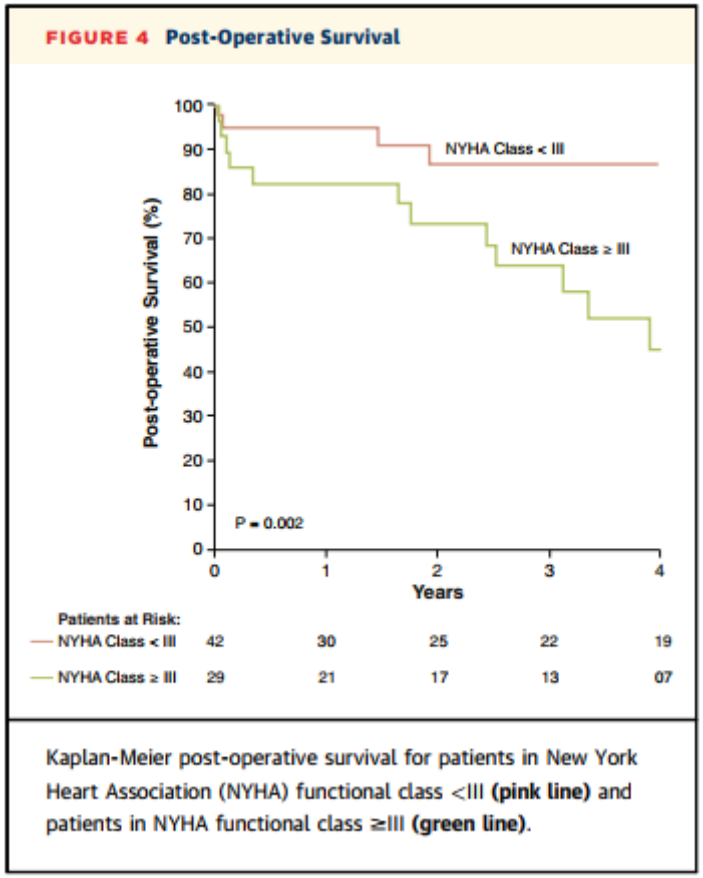
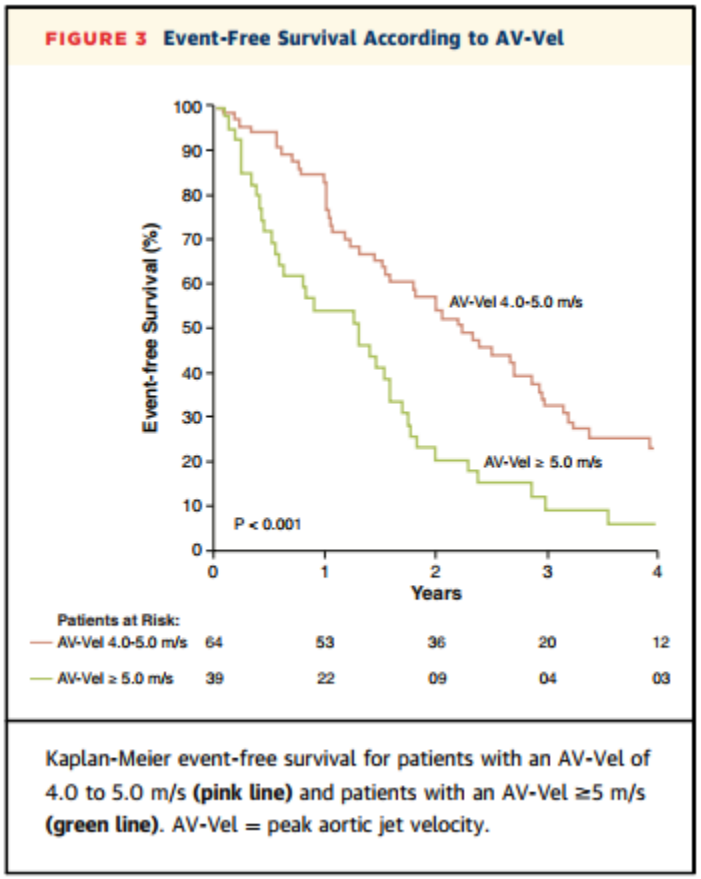
Hannan, Registro de NY
AnnThoracSurg.2009Jun;87(6):1741-9

Sintomas

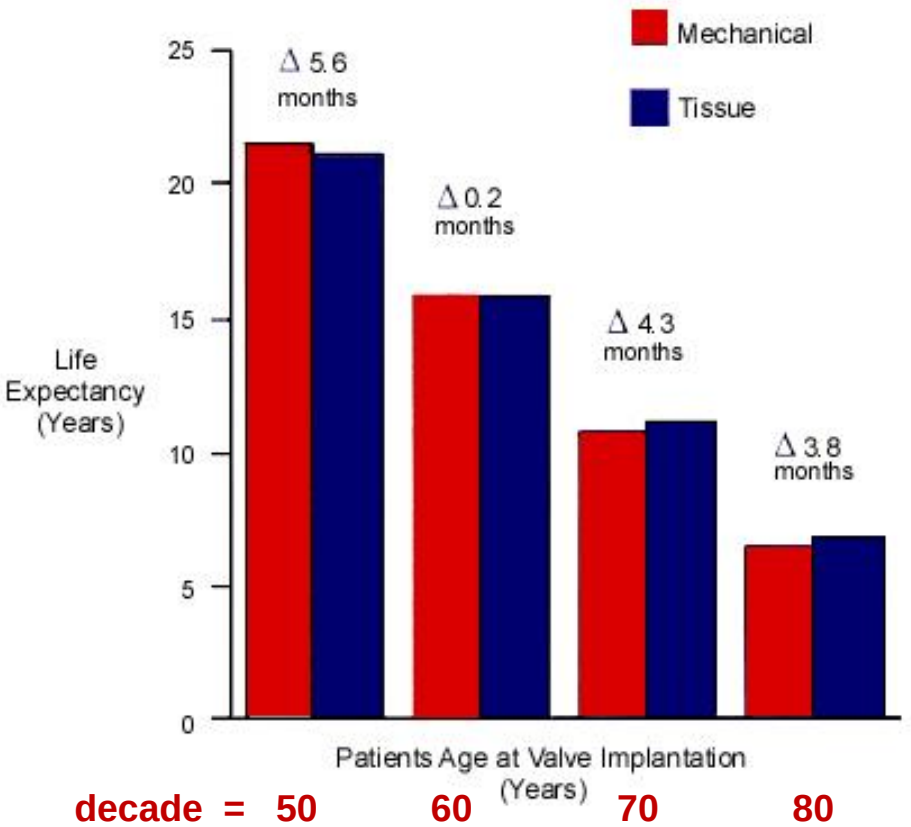
- No idoso/sedentário, sintomas podem permanecer mascarados e iniciar manifestação já em classe III-IV (NYHA)





Zilberszac R et al: Asymptomatic severe aortic stenosis in the elderly. JACC CV Imaging 2016

BIRKMEYER ET AL
VALVE TYPE PATIENTS UNDERGOING AVR



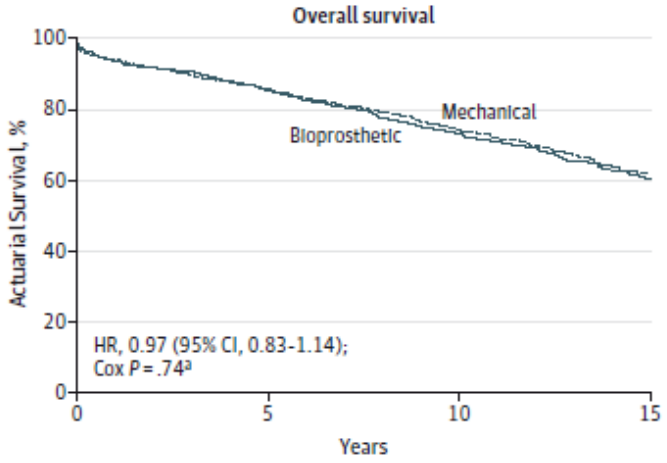
Life expectancy by age and valve type.
△ is the difference between tissue and mechanical valves in life expectancy.

Mortality, Reoperation, and Bleeding Rates at 12 Years, by Patients Age at Valve Implantation

	Patients Age (years) at Valve Implantation			
Finding	**50**	**60**	**70**	**80**
Mortality				
Mechanical(%)	27	42	63	91
Tissue (%)	28	41	61	90
Reoperation				
Mechanical (%)	6	6	4	1
Tissue (%)	32	21	12	3
Major bleeding episode				
Mechanical (%)	16	21	24	22
Tissue (%)	4	5	6	5
Mortality, reoperation or major bleeding episode				
Mechanical (%)	43	58	75	94
Tissue (%)	57	59	71	92

Ann Thorac Surg 2000;70:1946-52

Figure 1. Overall Survival Among Propensity-Matched Patients Aged 50 to 69 Years After Bioprosthetic vs Mechanical Aortic Valve Replacement



No. at risk

Bioprosthetic	1001	860	589	91
Mechanical	1001	856	611	89

There were 322 all-cause deaths in the bioprosthesis group vs 318 in the mechanical prosthesis group.

[a] *P* value calculated using a marginal Cox model with a robust sandwich variance estimator.

Survival and Long-term Outcomes Following Bioprosthetic vs Mechanical Aortic Valve Replacement in Patients Aged 50 to 69 Years

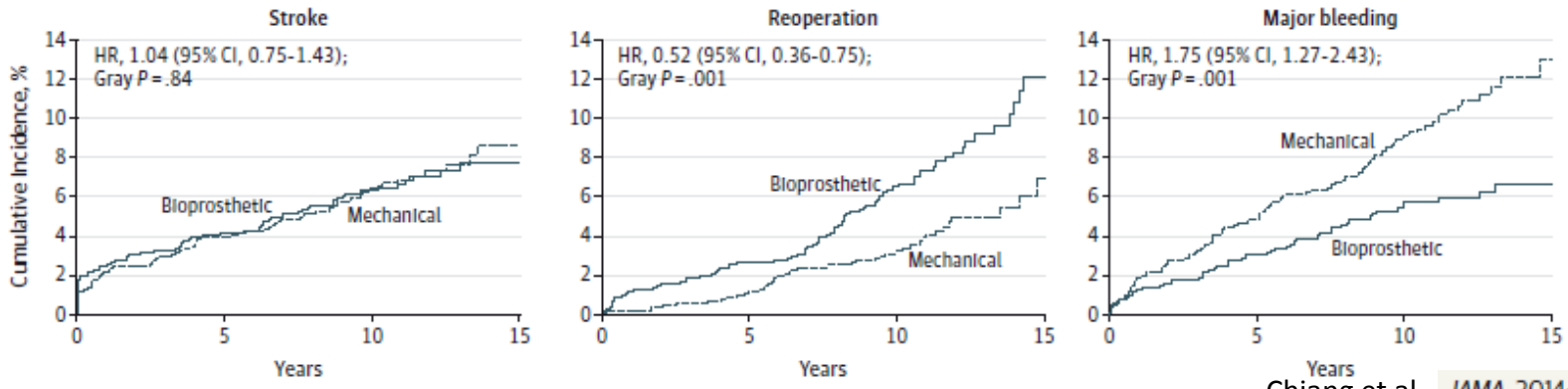
DESIGN, SETTING, AND PARTICIPANTS Retrospective cohort analysis of 4253 patients aged 50 to 69 years who underwent primary isolated aortic valve replacement using bioprosthetic vs mechanical valves in New York State from 1997 through 2004, identified using the Statewide Planning and Research Cooperative System. Median follow-up time was 10.8 years (range, 0 to 16.9 years); the last follow-up date for mortality was November 30, 2013. Propensity matching yielded 1001 patient pairs.

Based on NY Registry

Mortality after complications:

18,7% after stroke
9,0% after reoperation
13,2% after major bleeding

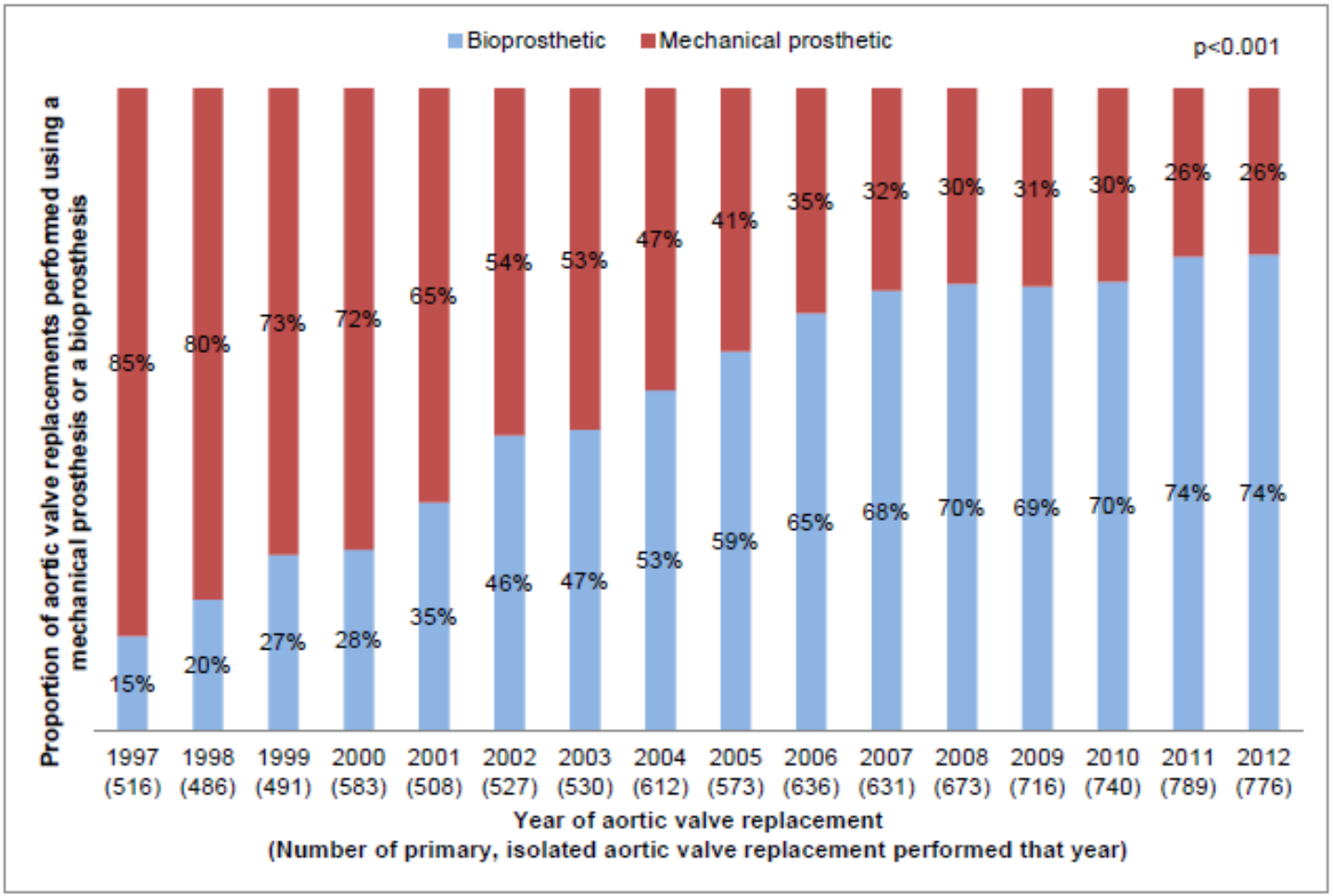
Figure 2. Cumulative Incidence of Major Morbidity (Stroke, Reoperation, Major Bleeding) Among Propensity-Matched Patients Aged 50 to 69 Years After Bioprosthetic vs Mechanical Aortic Valve Replacement



Chiang et al *JAMA*. 2014;312(13):1323-1329.

Survival and Long-term Outcomes Following Bioprosthetic vs Mechanical Aortic Valve Replacement in Patients Aged 50 to 69 Years

eFigure 2. Trend in Mechanical versus Bioprosthetic Valve Usage for Aortic Valve Replacement in Patients Aged 50 to 69 in New York State[a]



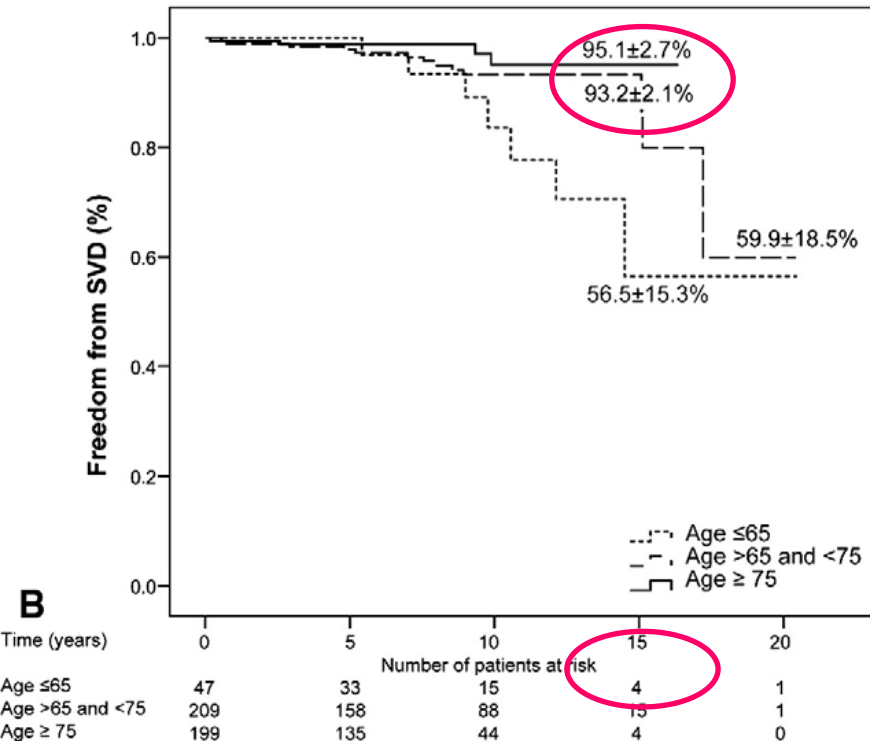
Based on NY Registry - Chiang et al

JAMA. 2014;312(13):1323-1329.

Sobrevida livre de degeneração estrutural da bioprótese Ao

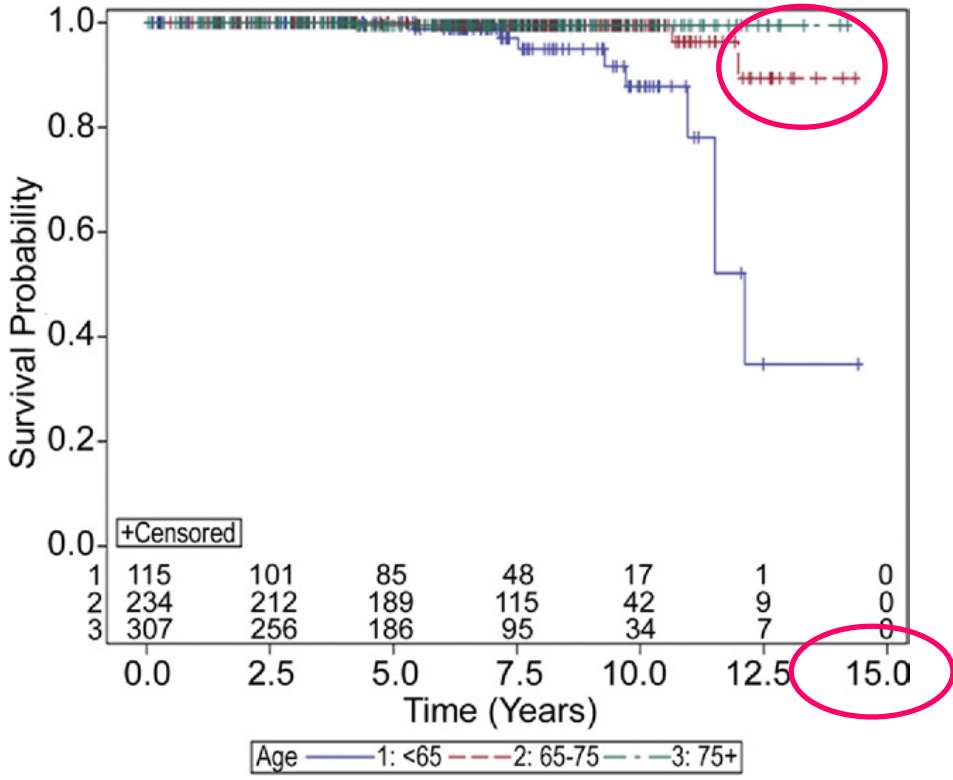
Biocor StJude porcina

Eichinger WB e cols
German Heart Center Munich
Ann Thorac Surg 2008;86:1204 –11



Carpentier-Edwards Pericardial Bioprosthesis

McClureRS e cols, Brigham and Women's Hospital ,Harvard Medical School
Ann Thorac Surg 2010;89:1410-1416



Pericárdica e Porcina, 3 modelos

n=2979
>65anos
período
1993-2007,
Mayo,
Mass Gen e
Brigham

Biopróteses
Medtronic
Sorin
Carpentier

Ann Thorac Surg
2012;93:1868–75

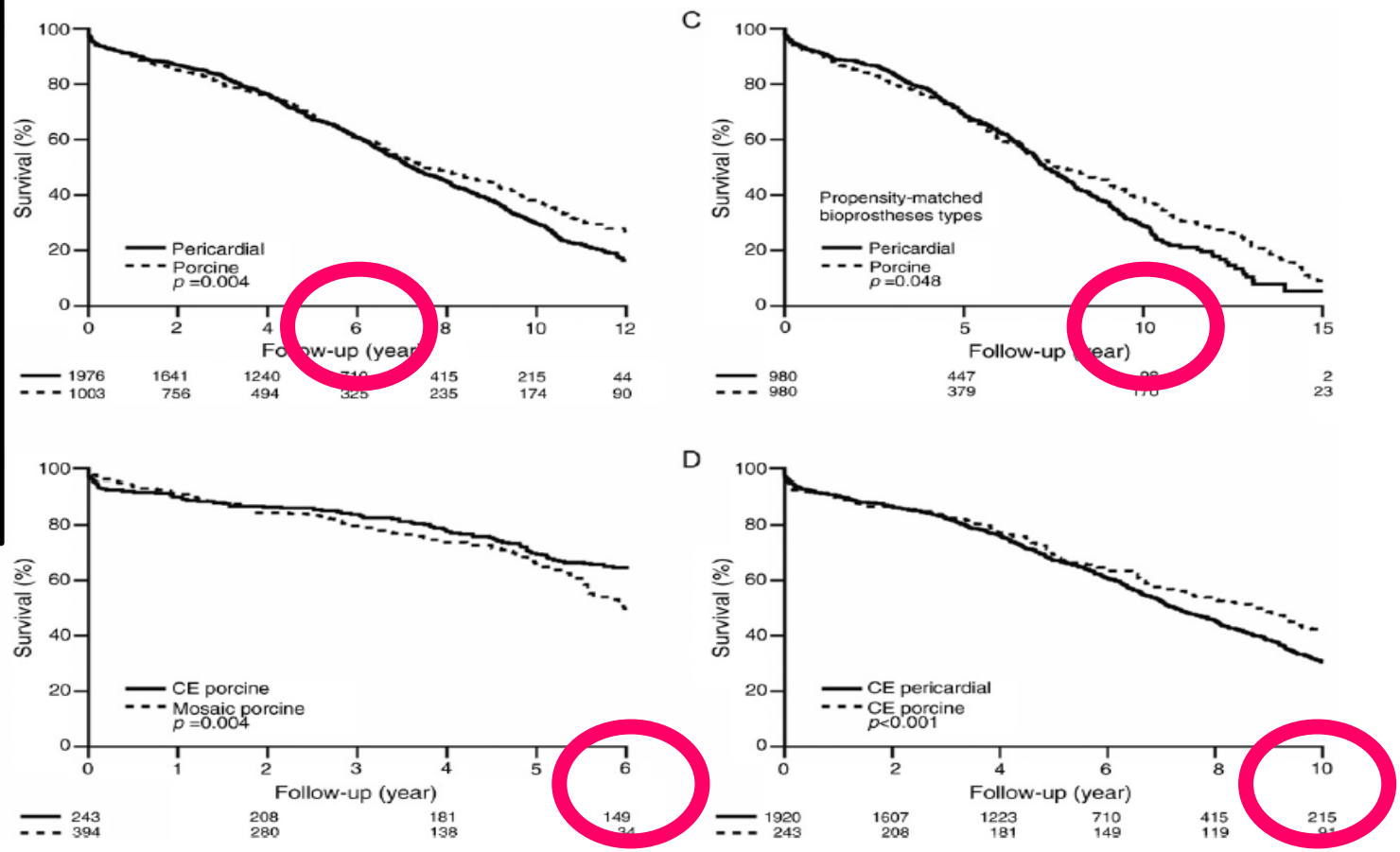


Fig 1. Kaplan-Meier graphs show survival of elderly patients after aortic valve replacement. (A) There was no survival advantage for patients with pericardial (solid line) over porcine (dashed line) bioprostheses (p = 0.05). (B), Survival is shown between the two most commonly used porcine brands, the Medtronic Mosaic (dashed line) and the Carpentier-Edwards Perimount (CE, solid line). (C) Survival is compared between propensity-matched pericardial (solid line) and porcine (dashed line) bioprostheses types. (D) There was no survival advantage for the Carpentier-Edwards (CE) Perimount (solid line) over the porcine type (dashed line); in fact, thex porcine brand appeared to have a survival advantage (p < 0.001).

Do Pericardial Bioprostheses Improve Outcome of Elderly Patients Undergoing Aortic Valve Replacement? Said SM et al (Mayo, Mass Gen & Brigham) **Ann Thorac Surg 2012;93:1868 –75**

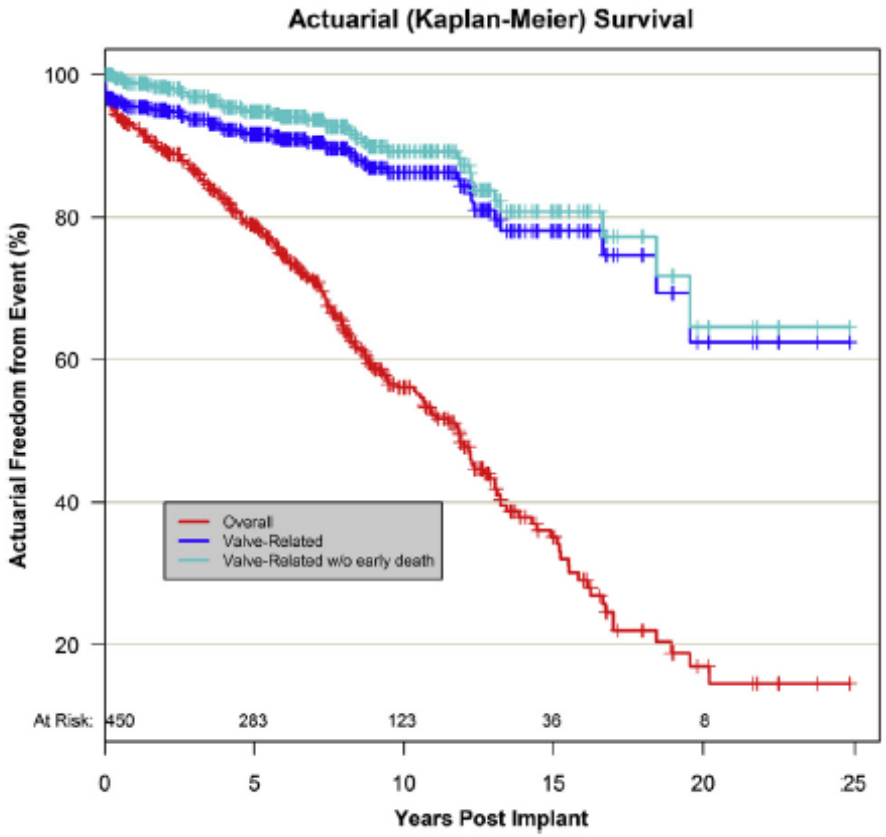


FIGURE 1. Kaplan-Meier estimates of overall and valve-related mortality.

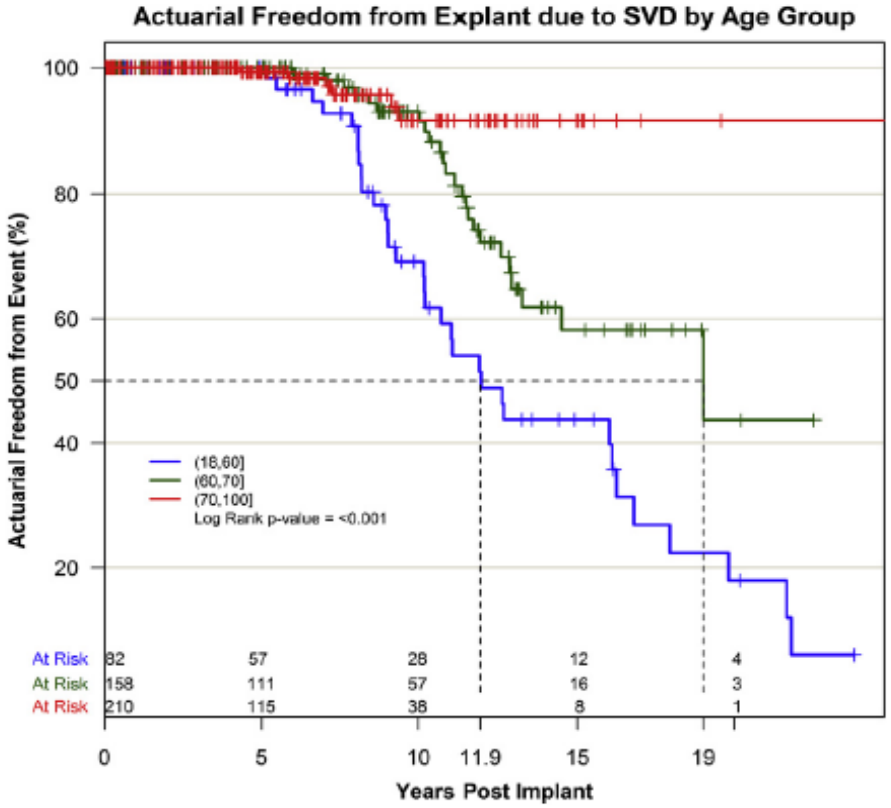


FIGURE 2. Kaplan-Meier estimates of explantation because of structural valve deterioration (*SVD*) stratified by age group.

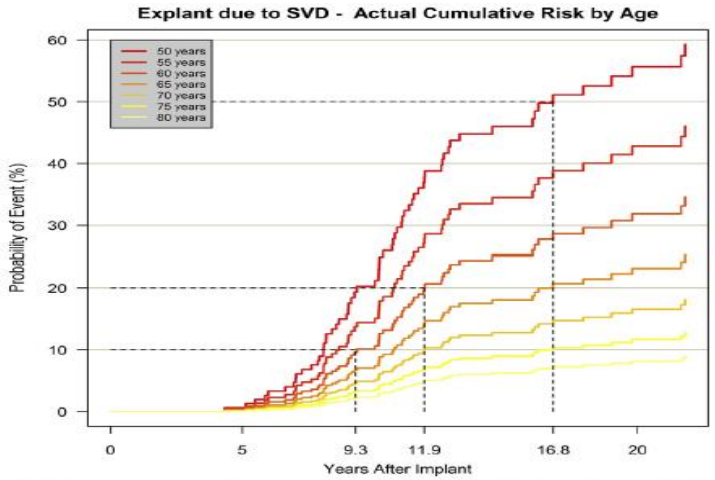


FIGURE 3. Competing risk estimates of explantation because of structural valve deterioration (*SVD*) stratified by age group.

Very late outcomes for mitral valve replacement with the Carpentier-Edwards pericardial bioprosthesis: 25-year follow-up of 450 implantations

J Thorac Cardiovasc Surg 2014

Long-Term Durability of Bioprosthetic Aortic Valves: Implications From 12,569 Implants

Ann Thorac Surg
2015;99:1239–47

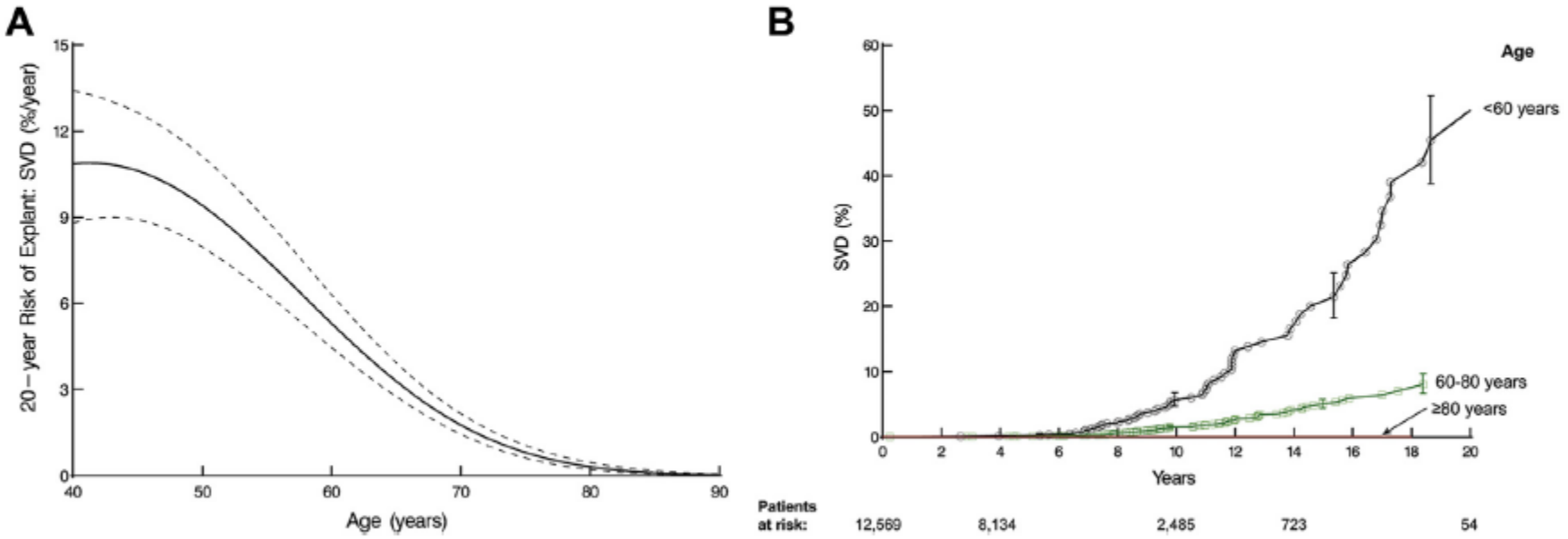


Fig 3. Age and probability of explant owing to structural valve deterioration (SVD). (A) Nomogram of age relationship to SVD from multivariable equation based on preoperative variables alone. (B) Patients are grouped according to age range. Each symbol represents an explant, vertical bars are 68% confidence limits, and numbers along the horizontal axis are patients remaining at risk.

Cleveland Clinic.
Carpentier Perimount Pericardial

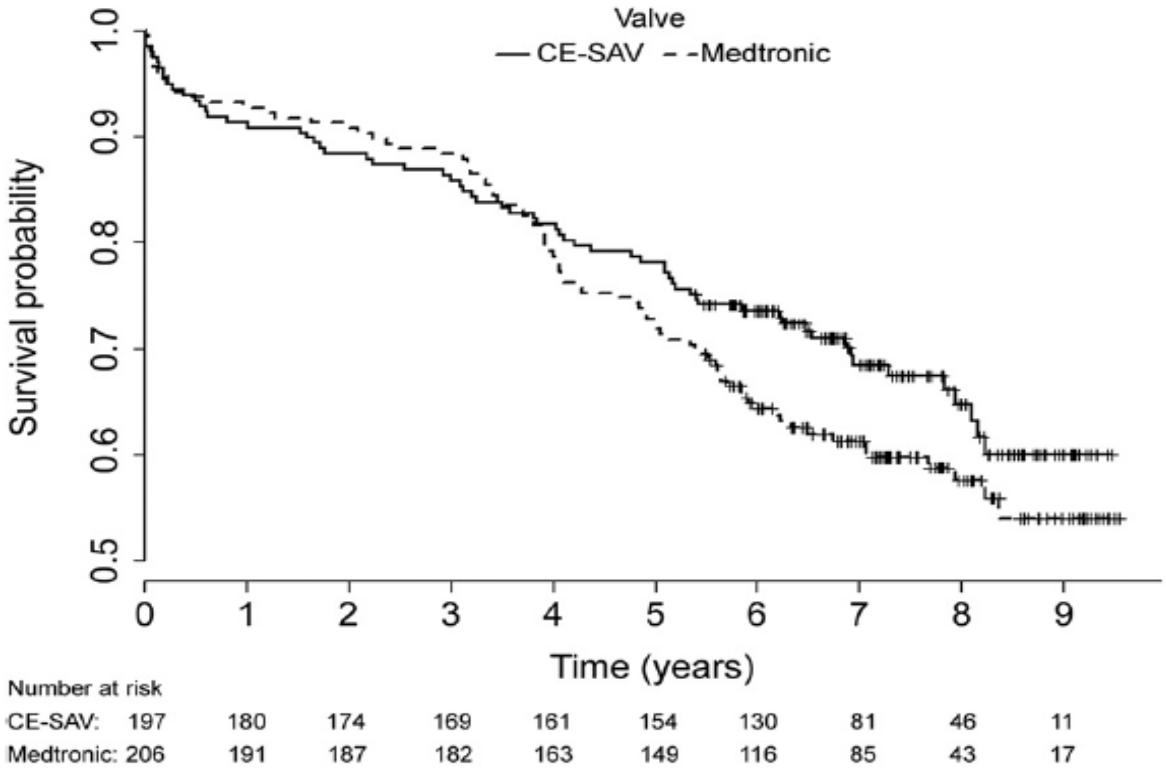


Fig 1. There is no statistically significant difference in the Kaplan-Meier plots of survival between the 2 cohorts of patients (log-rank test $p = 0.147$). (CE-SAV = Carpentier-Edwards supraannular aortic valve.)

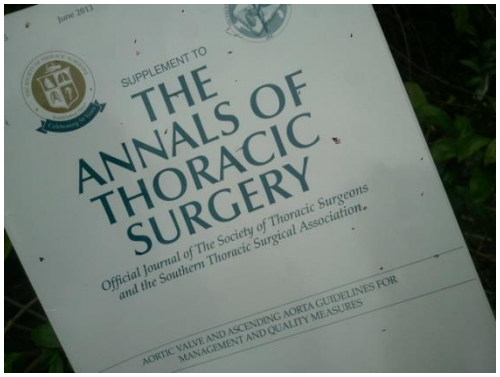
Randomized Trial of Carpentier-Edwards Supraannular Prosthesis Versus Mosaic Aortic Prosthesis: 6 Year Results

Table 5. Gradients at 5 Years

Valve Size	No. of Patients With CE-SAV	Average Gradient CE-SAV (mm Hg)	No. of Patients With Mosaic Valve	Average Gradient Mosaic (mm Hg)	*t* Test *p* Value
19	7	35.3 ± 11.6	7	53.9 ± 23.3	0.082
21	21	33.1 ± 18.3	20	37.70 ± 17.2	0.417
23	23	27.4 ± 11.9	17	38.03 ± 21.2	0.052
25	5	35.9 ± 11.4	9	31.94 ± 10.3	0.512
27	8	23.5 ± 6.4	9	24.9 ± 23.2	0.867
29	5	25.382 ± 10.5	1	24.00	NA

CE-SAV = Carpentier-Edwards supraannular aortic valve; NA = not available.

Diretrizes STS



Existem biopróteses com durabilidade superior ou indicadas para jovens?

sites. To mitigate valve calcification most companies have developed proprietary tissue treatments aimed at removing residual glutaraldehyde or phospholipid moieties to reduce calcium binding and hopefully enhance durability. Among these are treatment with alcohol and various antisurfactants but none has proved superior to others.

Válvula SJM E

Primeira válvula
comprovado pro
mais de 15 anos
exclusiva tecnol
proteger contra

Análise Competitiva

Produtos	Linx AC Tecnology[1,2,3,4] Epic/Epic Supra	Edwards XenoLogiX[5] PERIMOUNT™/Magna™	Edwards ThermaFix™ PERIMOUNT™/Magna™	Medtronic AOA[7] Mosaic™/Ultra™	Meditronic T6[8] Hancock II™
+ (1) Redução de aldeídos livres	✓		✓	✓	
+ (2) Extração de Lipídios	✓	✓	✓		✓
+ (3) Minimiza a absorção de colesterol	✓				
+ (4) Estabiliza o colágeno dos folhetos	✓				

Não há dados clínicos disponíveis que avaliem o impacto a longo prazo do tratamento de tecidos com anticalcificação em seres humanos.

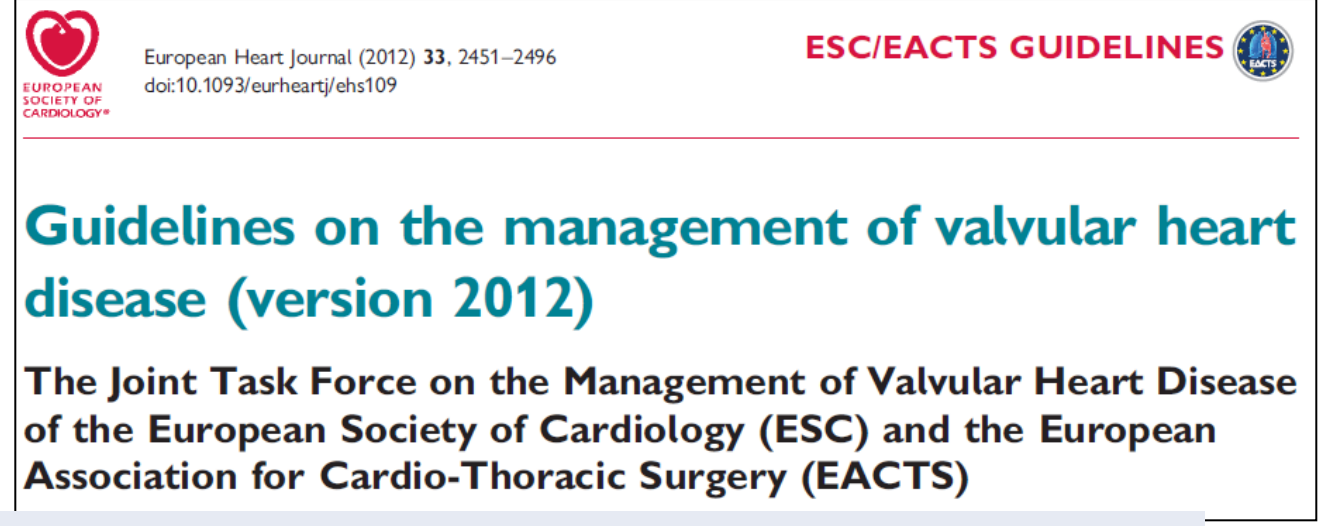
- Baseado em um projeto de estabilidade hemodinâmica comprovada de até 17 anos de pós-implantação.[8]

Projetado para durar

- Feito com o comprovado desempenho de bioprótese aórtica PERIMOUNT, com mais de 27 anos de experiência clínica[9,10]
- O Carpentier-Edwards ThermaFix process é a única tecnologia de anti-calcificação projetada para confrontar os locais de maior ligação de cálcio.

*Nenhum dado clínico está disponível para avaliar o impacto de longo prazo nos pacientes sob tratamento de tecidos Edwards.

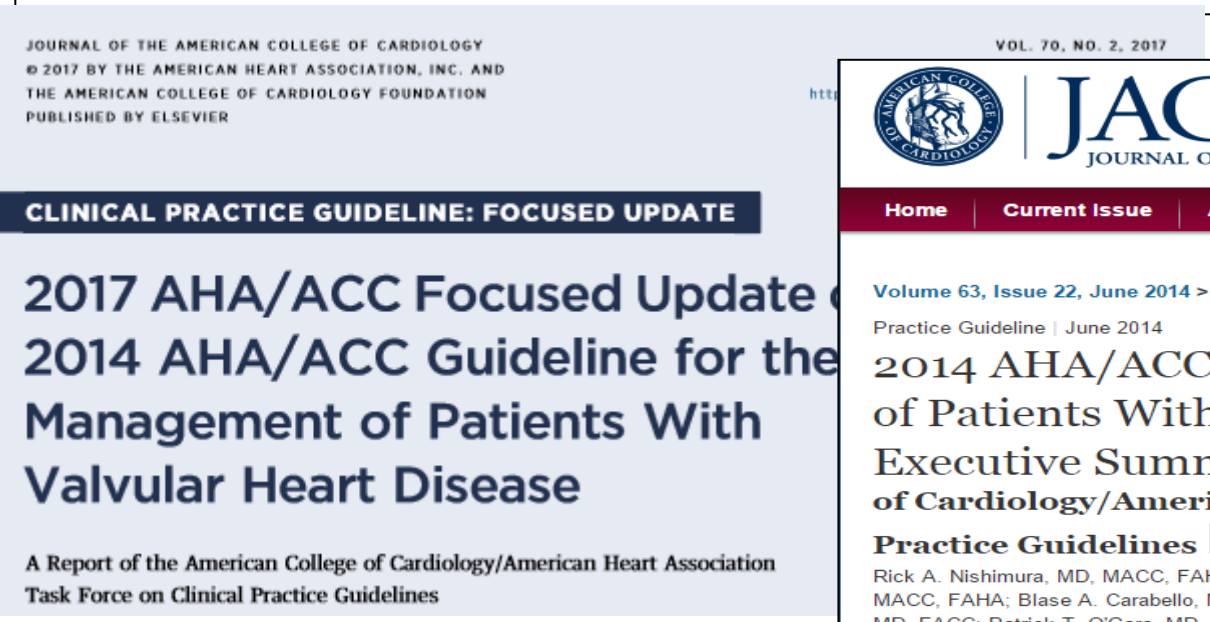
Referências


European Heart Journal (2012) 33, 2451–2496
doi:10.1093/eurheartj/ehs109

ESC/EACTS GUIDELINES

Guidelines on the management of valvular heart disease (version 2012)

The Joint Task Force on the Management of Valvular Heart Disease of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)


JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY
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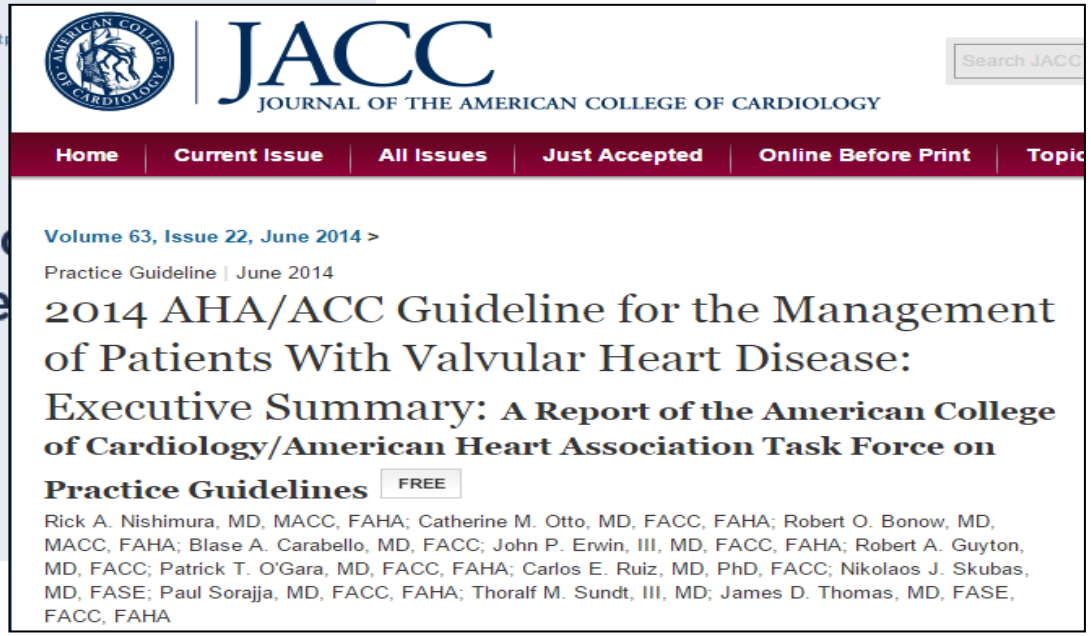
THE AMERICAN COLLEGE OF CARDIOLOGY FOUNDATION
PUBLISHED BY ELSEVIER
VOL. 70, NO. 2, 2017

CLINICAL PRACTICE GUIDELINE: FOCUSED UPDATE

2017 AHA/ACC Focused Update of 2014 AHA/ACC Guideline for the Management of Patients With Valvular Heart Disease

A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines


JACC
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Volume 63, Issue 22, June 2014 >
Practice Guideline | June 2014

2014 AHA/ACC Guideline for the Management of Patients With Valvular Heart Disease: Executive Summary: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines

FREE

Rick A. Nishimura, MD, MACC, FAHA; Catherine M. Otto, MD, FACC, FAHA; Robert O. Bonow, MD, MACC, FAHA; Blase A. Carabello, MD, FACC; John P. Erwin, III, MD, FACC, FAHA; Robert A. Guyton, MD, FACC; Patrick T. O'Gara, MD, FACC, FAHA; Carlos E. Ruiz, MD, PhD, FACC; Nikolaos J. Skubas, MD, FASE; Paul Sorajja, MD, FACC, FAHA; Thoralf M. Sundt, III, MD; James D. Thomas, MD, FASE, FACC, FAHA

Não citam diferenças de desempenho entre modelos de biopróteses

Long-Term Survival After Bovine Pericardial Versus Porcine Stented Bioprosthetic Aortic Valve Replacement: Does Valve Choice Matter?

Table 1. Stented Bioprosthetic Aortic Valves Included in Study

Valves	Total (No.)	Isolated AVR (No.)	AVR+CABG (No.)
Bovine pericardial	1,411		
Carpentier-Edwards Perimount[a]	1,273	734	539
Sorin Mitroflow[b]	26	16	10
St. Jude Trifecta[c]	112	51	61
Porcine	599		
St. Jude Biocor[c]	128	46	82
Carpentier-Edwards Porcine[a]	210	111	99
Medtronic Hancock[d]	105	44	61
Medtronic Mosaic[d]	156	140	16

[a] Edwards Lifesciences, Irvine, California. [b] Sorin Group Inc, Arvada, Colorado. [c] St. Jude Medical Inc, St. Paul, Minnesota. [d] Medtronic, Minneapolis, Minnesota.

AVR = aortic valve replacement; CABG = coronary artery bypass grafting.

Ann Thorac Surg
2015;100:550–9

Long-Term Survival After Bovine Pericardial Versus Porcine Stented Bioprosthetic Aortic Valve Replacement: Does Valve Choice Matter?

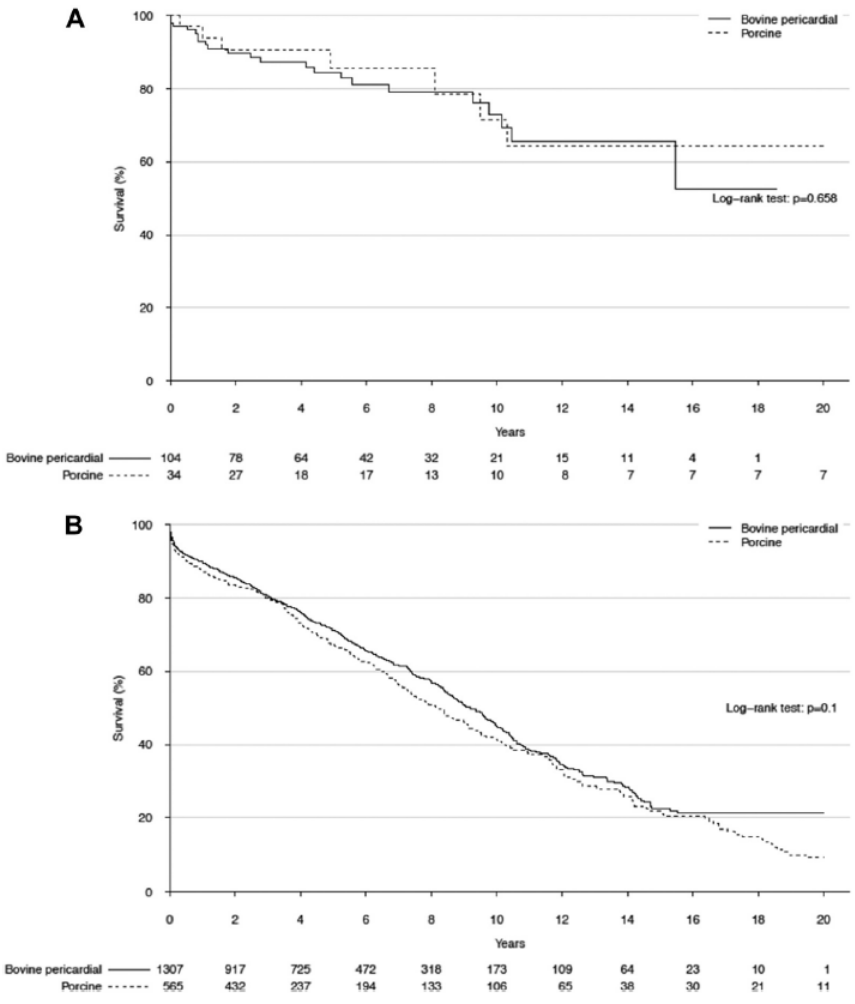

Fig 4. Overall survival analysis in patients with bovine pericardial (solid line) and porcine (dashed line) valves according patient age (A) 18 to 55 years and (B) age older than 55 years at aortic valve replacement.

In conclusion, for patients undergoing AVR with a stented bioprosthetic valve, with or without CABG, the choice of a porcine vs bovine pericardial bioprosthesis does not appear to affect long-term survival or the need for reoperation, regardless of valve size or patient age. As such, stented bioprosthetic valves would appear to be fungible, and therefore, valve choice should be driven by local market factors similar to other commodities.

Ann Thorac Surg
2015;100:550–9

Edwards

Edwards Masters

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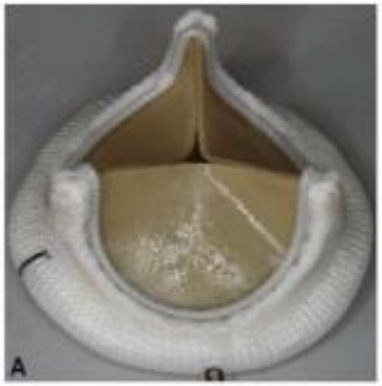
Edwards

RESILIA tissue



PERIMOUNT tissue valve

RESILIA tissue valve

Randomized into mitral position

N=14

N=17

Explantation after 8 months

Blinded echo assessment
- 1-week
- 8-months follow-up

Blinded pathologic analysis

Calcium content analysis

...ving Technology/Basic Science — Flameng et al

...randomized assessment of an advanced tissue preservation ...nology in the juvenile sheep model

...Willem Flameng, MD, PhD, Hadewich Hermans, MD, Erik Verbeken, MD, PhD, and Bart Meuris, MD, PhD

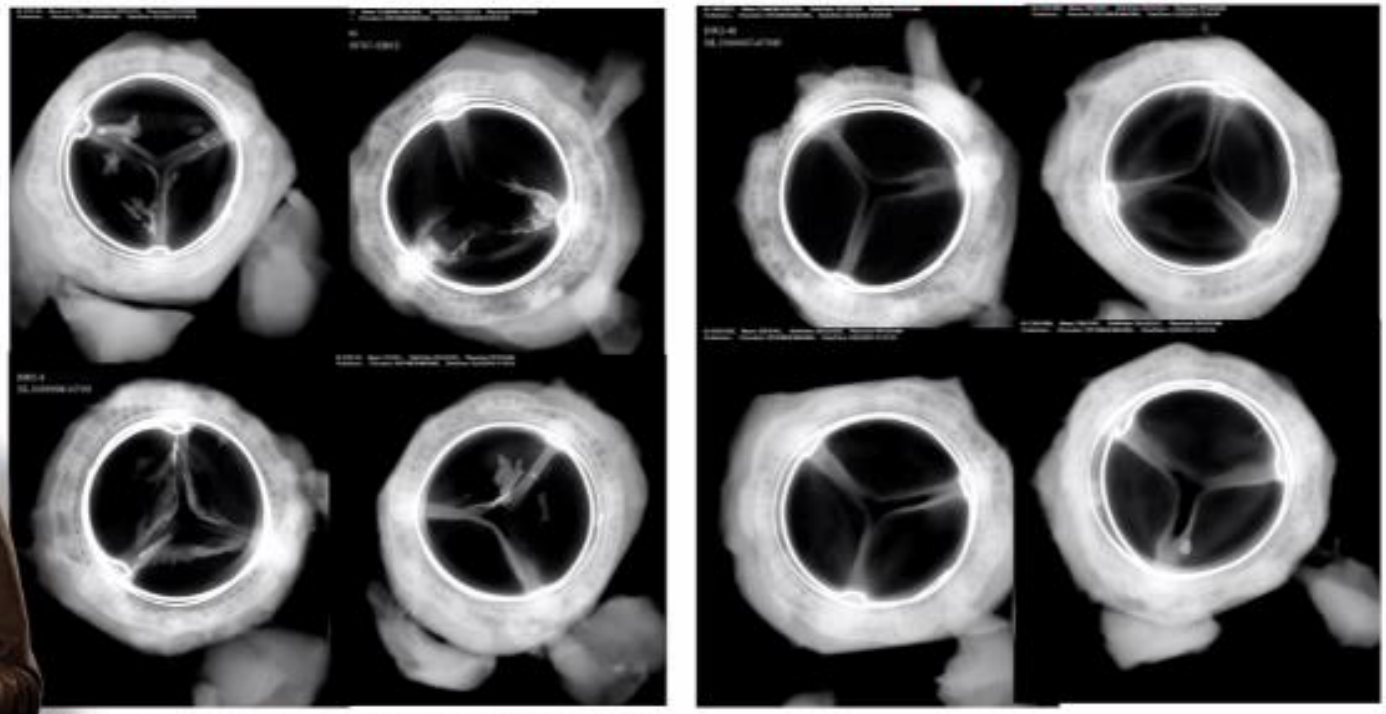
04:10

Flameng W, et al. J Thorac Cardiovasc Surg. 2015 Jan;149(1):240-5.

RESILIA tissue

PERIMOUNT tissue valves

RESILIA tissue valve



Radiographic analysis showed overt commissural and leaflet calcifications in the PERIMOUNT valve control group

Flameng W, et al. J Thorac Cardiovasc Surg. 2015 Jan;149(1):340-5.

Trilogy Pericardial Valve: Hemodynamic Performance and Calcification in Adolescent Sheep

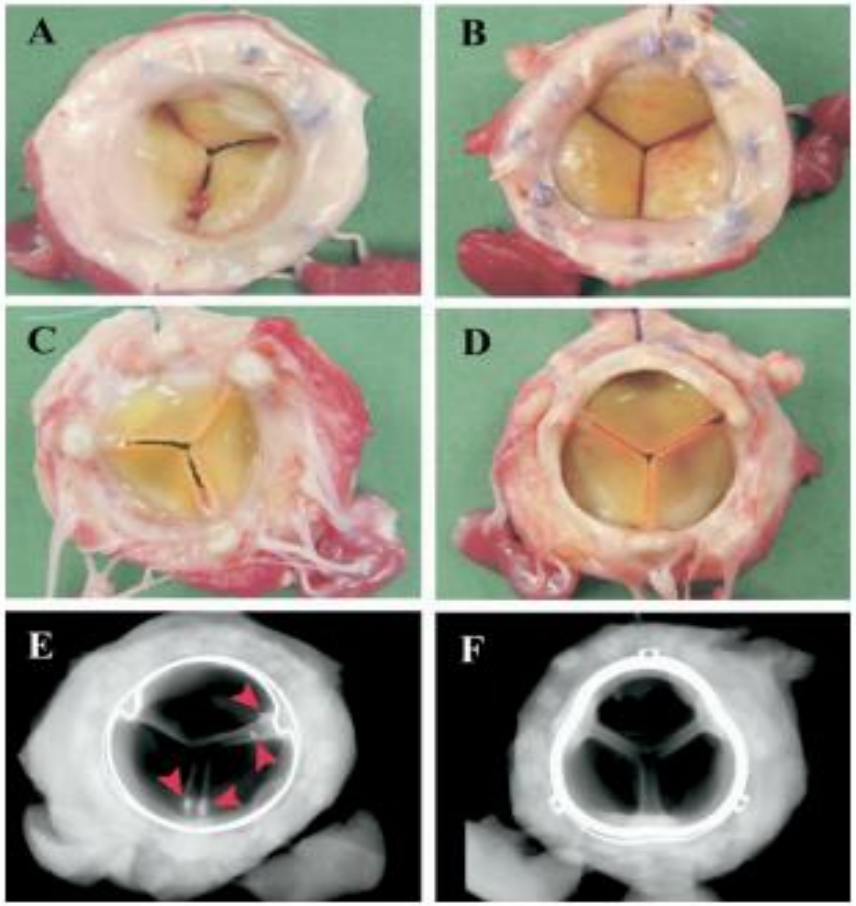


Fig 2. Typical examples of valves explanted after five months in mitral position: gross examination of the explants and their Faxitron (Wheeling, IL) X-ray pictures. Left panels (A, C, E): explanted Perimount valve (Edwards Lifesciences) (atrial side, ventricular side, and X-ray). Right panels (B, D, F) show an explanted Trilogy valve (Arbor Surgical Technologies Inc) (atrial side, ventricular side, and X-ray). Note the clear commissural calcifications in two commissures of the Perimount (arrowheads).

Flameng W et al.
Ann Thorac Surg 2008;85:587–92

The COMMENCE trial: 2-year outcomes with an aortic bioprosthesis with RESILIA tissue†.

Patients underwent clinically indicated surgical AVR with the Carpentier-Edwards PERIMOUNT™ Magna Ease™ aortic valve with RESILIA™ tissue (Model 11000A) in a prospective, multinational, multicentre (n = 27), single-arm, FDA Investigational Device Exemption trial

RESULTS:

January 2013 to February 2016 N= 689, Mean age 67.0 ± 11.6 years
71.8% were male 26.3% NYHA Class III/IV
Mean STS PROM 2.0 ± 1.8 (0.3-17.5) Isolated AVR 59.1%

30 days: all-cause mortality 1.2%, thromboembolism 2.2%, bleeding 0.9%, major paravalvular leak 0.1% and permanent pacemaker implantation 4.7

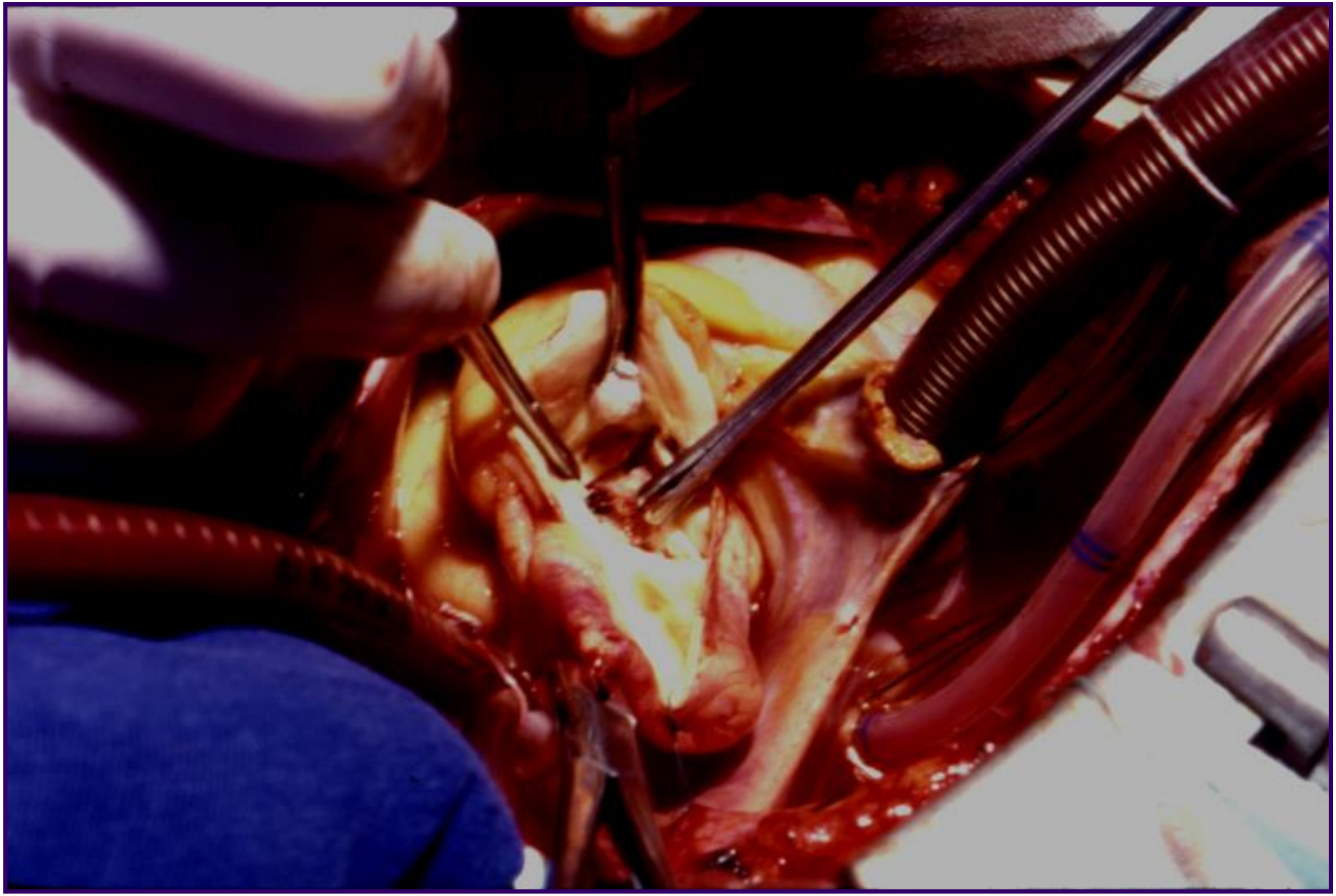
At 2 years, NYHA class improved in 65.7%, effective orifice area was 1.6 ± 0.5 cm 2 ; mean gradient was 10.1 ± 4.3 mmHg; and paravalvular leak was none/trivial in 94.5%, mild in 4.9%, moderate in 0.5% and severe in 0.0%.

1-year freedom from all-cause mortality for isolated AVR and for all patients was 98.2% and 97.6%, respectively.
2-year freedom from mortality in these groups was 95.3% and 94.3%, respectively.
CONCLUSIONS:
These data demonstrate excellent early safety and effectiveness of aortic valve replacement with a novel bioprosthetic tissue (RESILIA™)

Puskas JD et al: Eur J Cardiothorac Surg. 2017 Jun 10. doi: 10.1093/ejcts/ezx158. [Epub ahead of print]

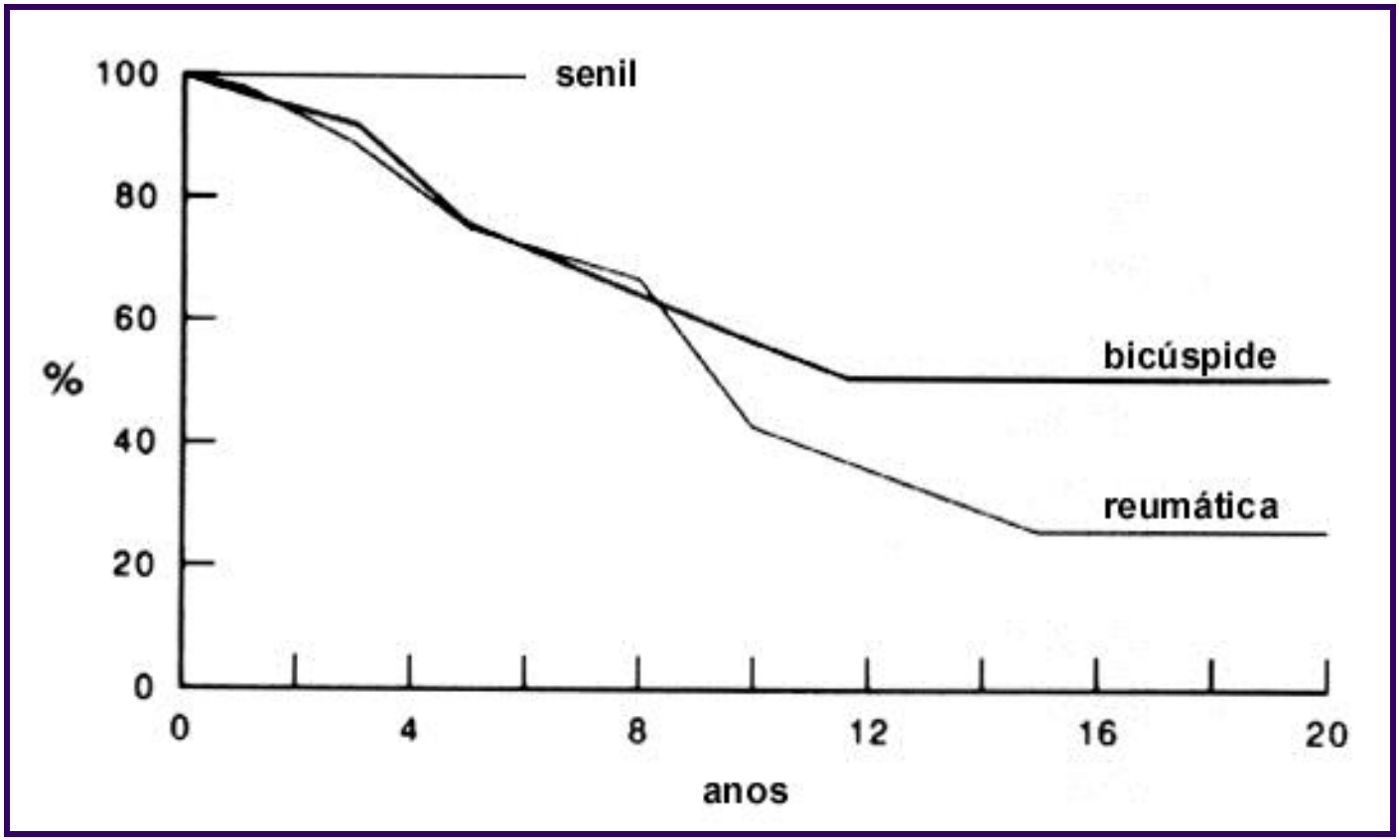
An undebrided cusp explanted from a patient with senile aortic stenosis. Calcium plaques (Ca) are confined to the aortic aspect, of the fibrosa (F) zone of the cusp, whereas in the ventricular aspect, the myxoid (M) zone, is free of calcification. The two zones are separeted by the intact elastica (arrows). (Elastic stain, X4 before 41% reduction.)

Shapira et al. Aortic Valve Repair. Ann Thorac Surg 1990;50:110-20

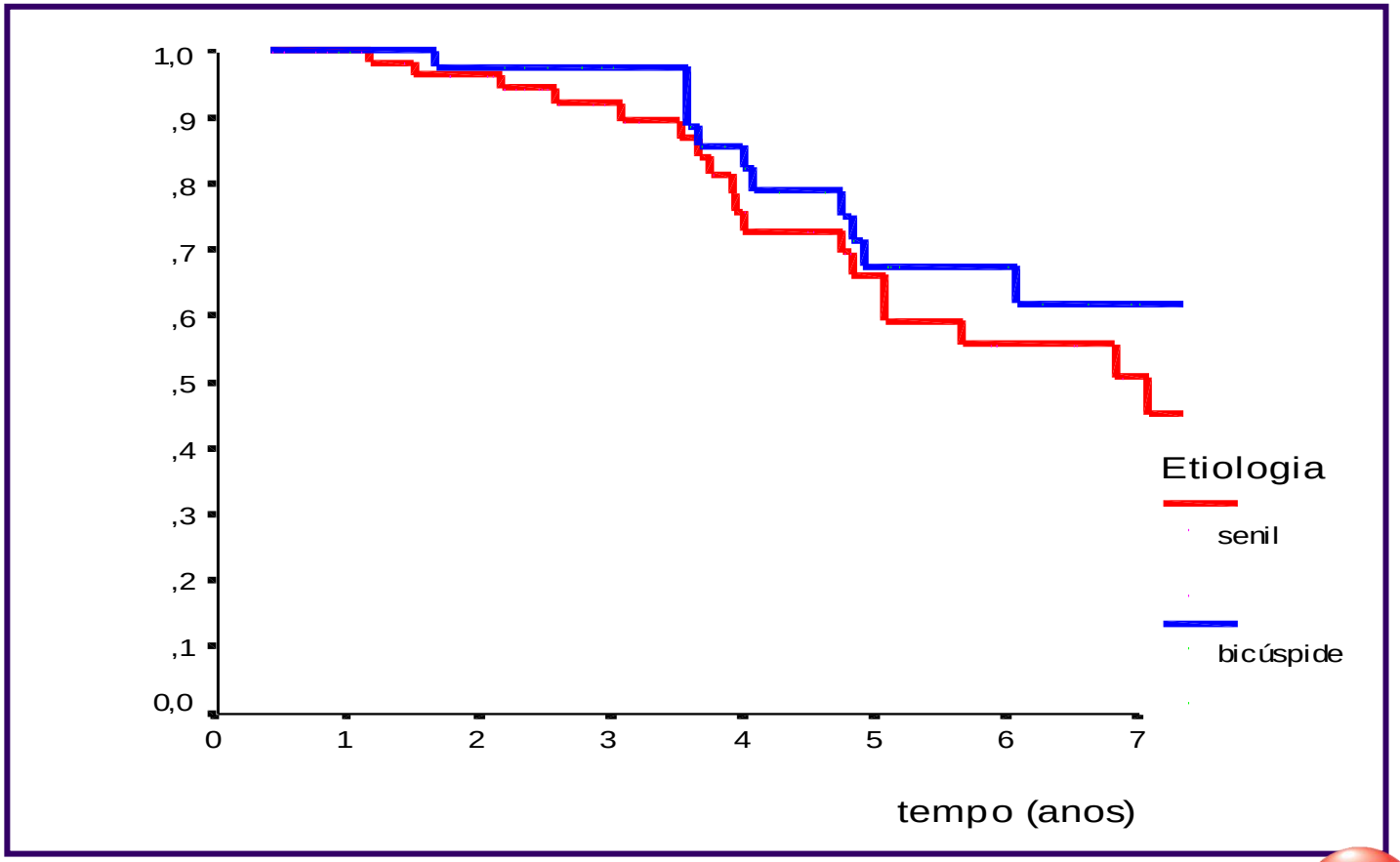


King R M et al. Mechanical Decalcification of the Aortic Valve. Ann Thorac Surg 1986;42:269-72

Sobrevida Livre de Reoperação



SOBREVIDA LIVRE DE REOPERAÇÃO



n reoperações = 33 (23,5%)

Machado RB; Kalil RAK; Sant'Anna JRM; Prates PR; Wender O; Teixeira Filho G; Nesralla IA. Valvoplastia por Desbridamento na Estenose Aórtica Calcificada Resultados Tardios

Tema Livre SOCERGS 2003

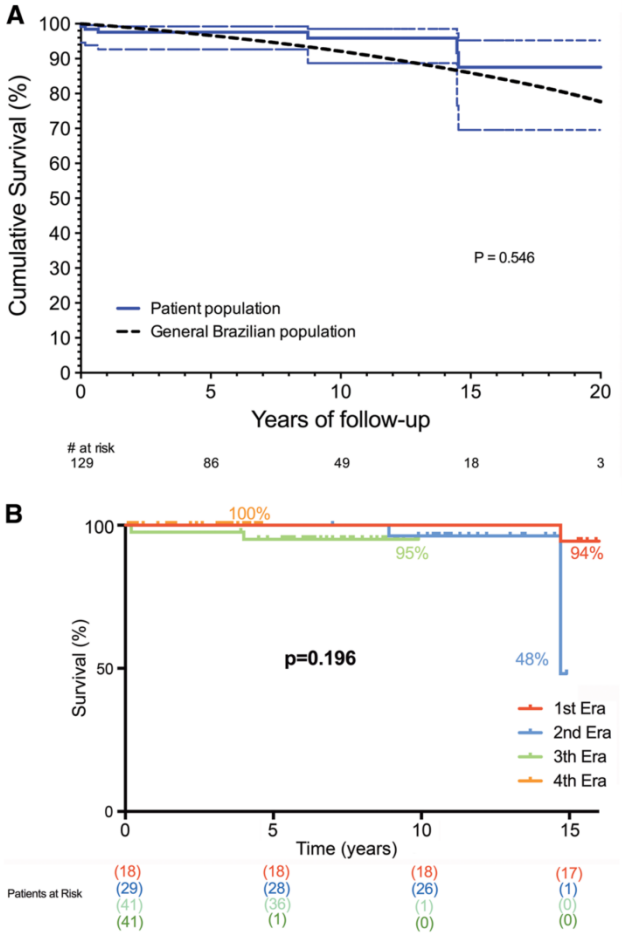
Instituto de cardiologia

Cirurgia de Ross: Autoenxerto pulmonar

Period: 1995-2016

129 consecutive patients (106 males)

mean age (47.2 ± 5.2 years)



From: 20 years experience with the Ross operation in middle-aged patients: the autologous principle is still alive†

Costa F et al : Interact CardioVasc Thorac Surg. 2016;24(3):348-354. doi:10.1093/icvts/ivw365

Clinical Outcomes Following the Ross Procedure in Adults: A 25-Year Longitudinal Study.

January 1990 and December 2014 n = 310 adults (mean age 40.8 years) at a single institution.

aortic stenosis(n = 225 [72.6%]

Median follow-up = 15.1 years (up to 25 years)

RESULTS:

Freedom from any Ross-related reintervention was 92.9% and 70.1% at 10 and 20 years, respectively.

4 hospital deaths (1.3%), and overall survival at 10 and 20 years was 94.1% and 83.6%, respectively.

Long-term survival was not significantly different in patients who required Ross-related reintervention (log-rank p = 0.70). However, compared with the general population, survival was significantly lower in patients following the Ross procedure when matched on age and sex ($p < 0.0001$).

Martin et al: J Am Coll Cardiol. 2017 Oct 10;70(15):1890-1899

European Journal of Cardio-Thoracic Surgery 46 (2014) 808–816
doi:10.1093/ejcts/ezu290 Advance Access publication 30 July 2014

ORIGINAL ARTICLE

The German Aortic Valve Registry: 1-year results from 13 680 patients with aortic valve disease†

Friedrich W. Mohr[a,*], David Holzhey[a], Helge Möllmann[b], Andreas Beckmann[c], Christof Veit[d], Hans Reiner Figulla[e], Jochen Cremer[f], Karl-Heinz Kuck[g], Rüdiger Lange[h], Ralf Zahn[i], Stefan Sack[j], Gerhard Schuler[a], Thomas Walther[k], Friedhelm Beyersdorf[l], Michael Böhm[m], Gerd Heusch[n], Anne-Kathrin Funkat[a], Thomas Meinertz[o], Till Neumann[p], Konstantinos Papoutsis[q], Steffen Schneider[r], Armin Welz[s] and Christian W. Hamm[b], for the GARY Executive Board

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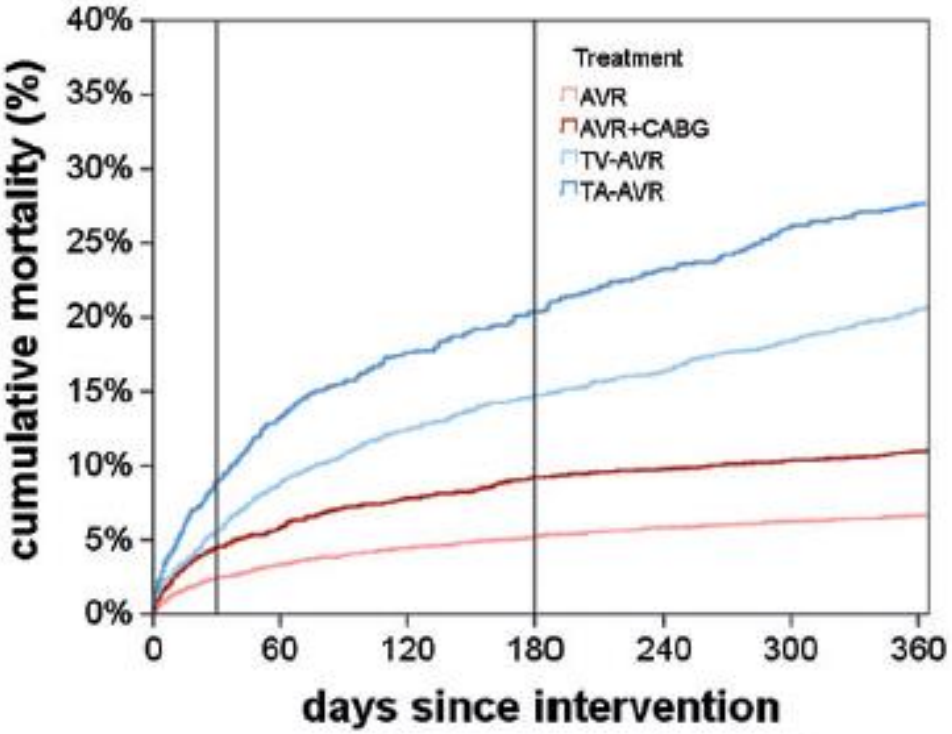
Received 16 April 2014; received in revised form 27 May 2014; accepted 17 June 2014

N= 13860

AVR= 6523, AVR+CABG=3462, TF-TAVI=2694, TA-TAVI= 1181

Mohr el al (GARY Registry). Eur J CardioThorac Surg 46 (2014):808-816



# at Risk – day	0	30	180	365
AVR	6523	6346	6089	5982
AVR+CABG	3462	3293	3079	3016
TV-AVR	2694	2533	2235	2073
TA-AVR	1181	1065	912	822

Figure 1: Overall death rates within the first year. Pairwise tests: for multiple comparison to correct by Bonferroni-Holm-Shaffer (6-3-3-3-2-1 rule). AVR: aortic valve replacement; CABG: coronary artery bypass grafting; TA: transapical; TV: transvascular.

Mohr el al (GARY Registry). Eur J CardioThorac Surg 46 (2014):808-816

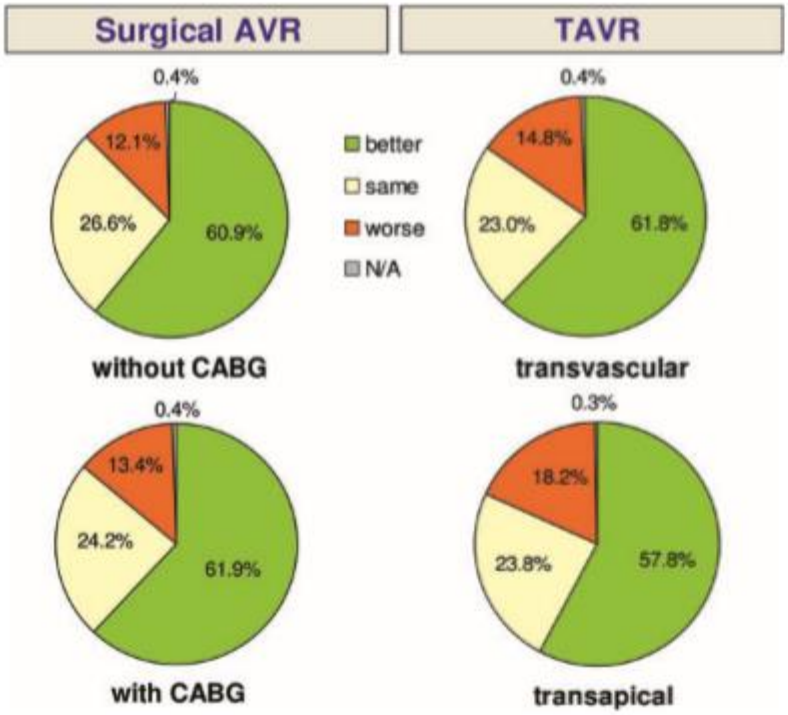


Figure 5: One-year follow-up: subjective rating of general health condition when compared with condition prior to the intervention. KM: Kaplan-Meier; GH: global hypothesis; TAVR: transcatheter AVR.

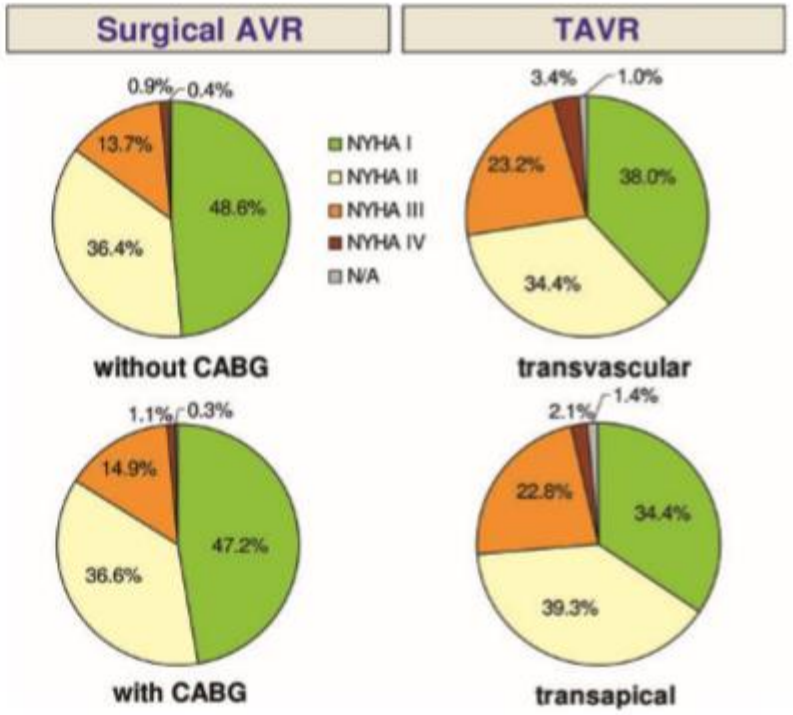


Figure 7: Heart failure symptom rating (NYHA) at 1 year post-intervention.

Mohr el al (GARY Registry). Eur J CardioThorac Surg 46 (2014):808-816

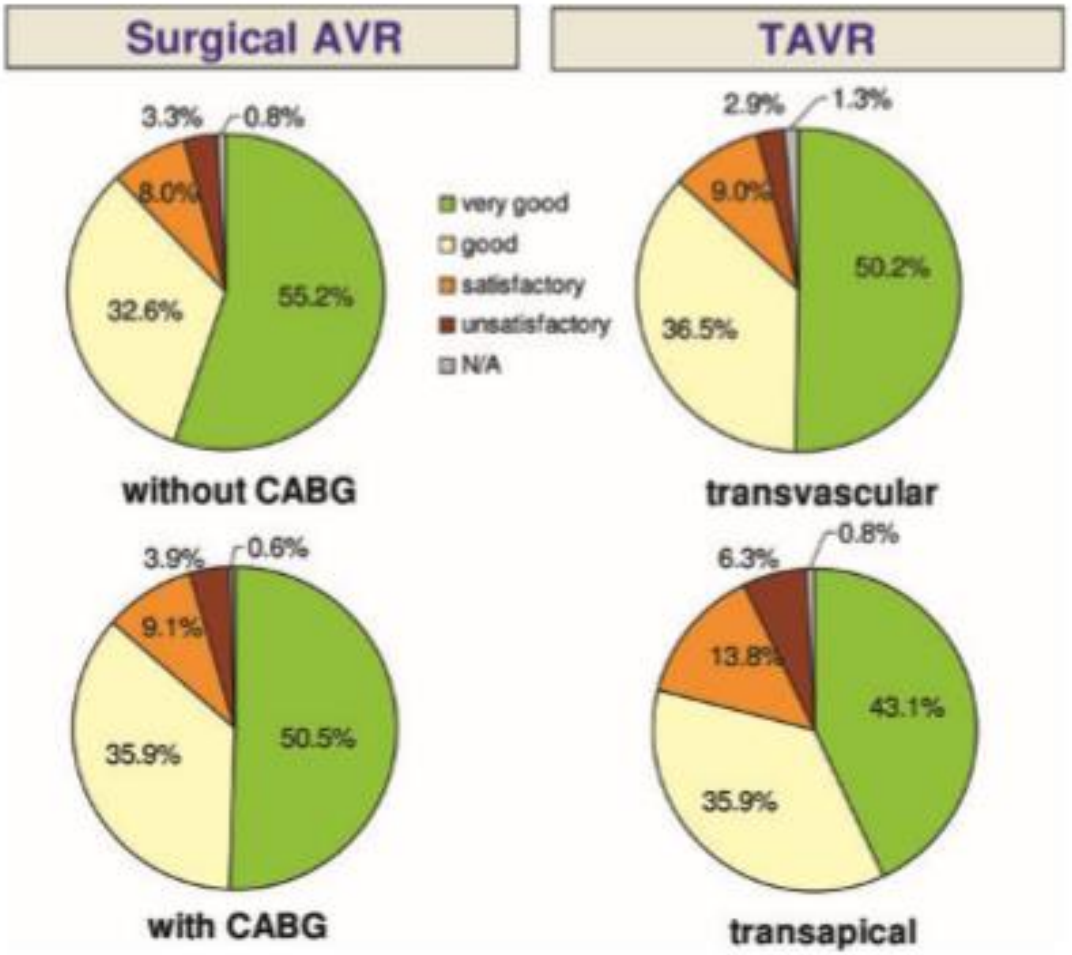
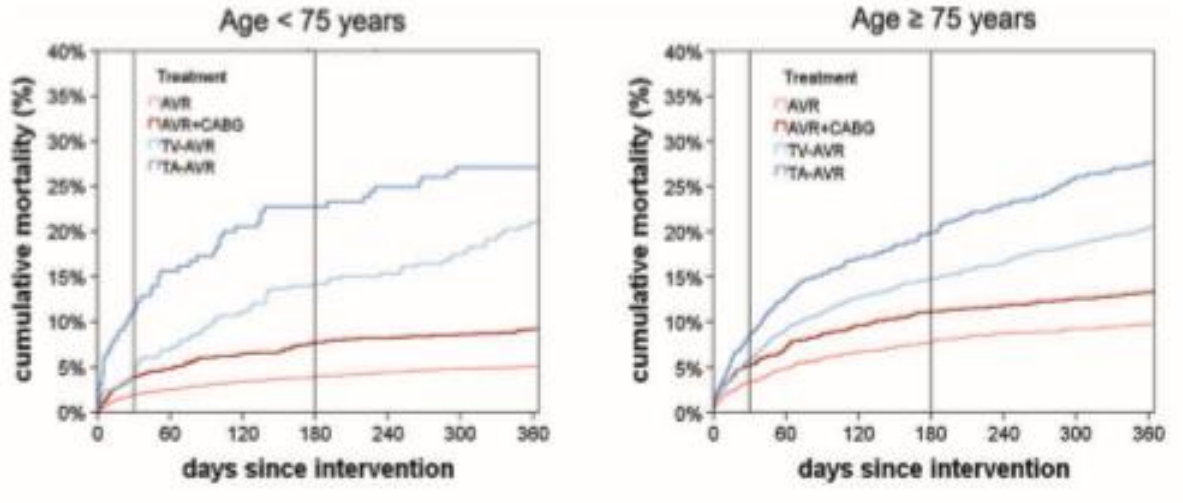


Figure 6: Satisfaction with outcome 1 year after the procedure.

Mohr el al (GARY Registry). Eur J CardioThorac Surg 46 (2014):808-816

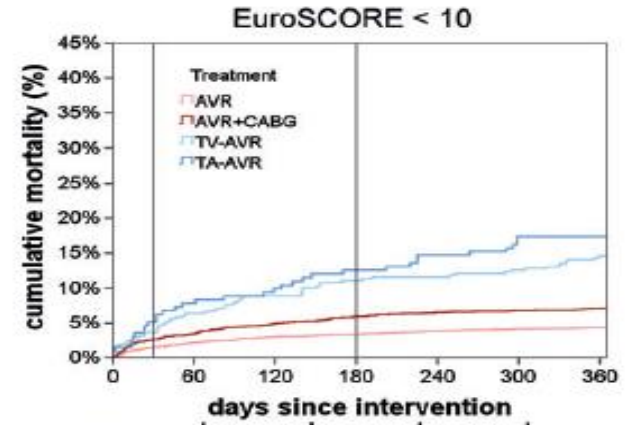


# at Risk – day	0	30	180	365
AVR	4349	4251	4112	4050
AVR+CABG	1905	1823	1725	1697
TV-AVR	368	352	314	289
TA-AVR	188	165	141	133

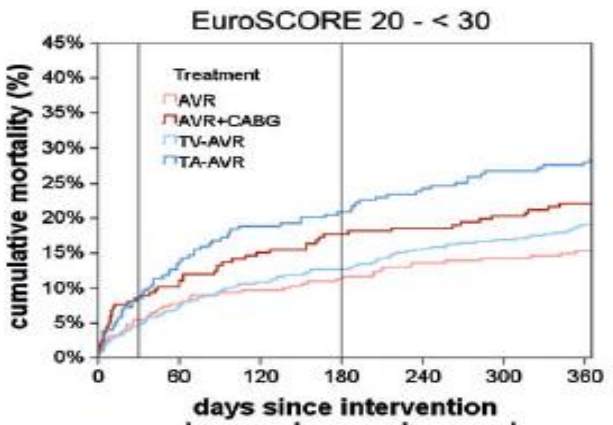
# at Risk – day	0	30	180	365
AVR	2168	2089	1971	1925
AVR+CABG	1553	1467	1351	1316
TV-AVR	2321	2176	1918	1781
TA-AVR	989	896	768	687

Figure 2: Time-to-event curves for death stratified by age. AVR: aortic valve replacement; CABG: coronary artery bypass grafting; TA: transapical; TV: transvascular.

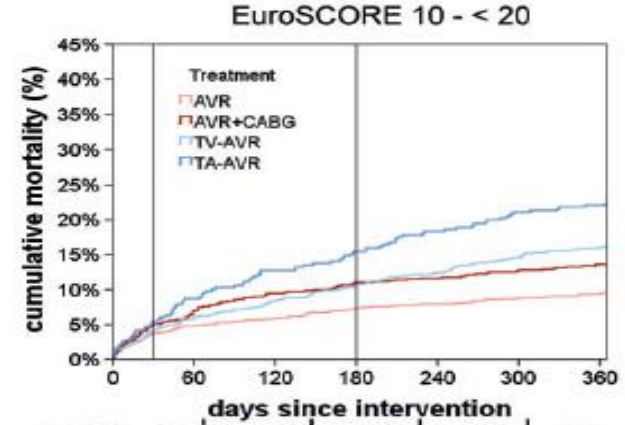
Mohr el al (GARY Registry). Eur J CardioThorac Surg 46 (2014):808-816



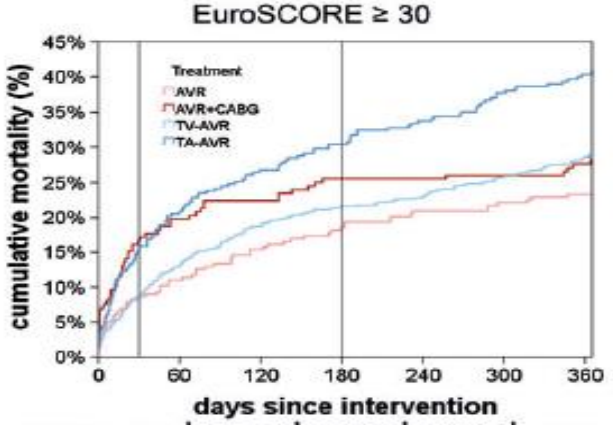
# at Risk – day	0	30	180	365
AVR	4731	4648	4505	4452
AVR+CABG	2138	2075	1977	1951
TV-AVR	409	394	358	344
TA-AVR	194	182	165	154



# at Risk – day	0	30	180	365
AVR	312	294	270	255
AVR+CABG	235	213	188	178
TV-AVR	514	488	435	402
TA-AVR	247	225	191	173



# at Risk – day	0	30	180	365
AVR	1080	1035	984	959
AVR+CABG	809	765	704	682
TV-AVR	858	818	739	693
TA-AVR	383	360	315	287



# at Risk – day	0	30	180	365
AVR	255	233	205	193
AVR+CABG	198	165	142	137
TV-AVR	801	728	614	553
TA-AVR	317	262	211	180

Figure 3: Time-to-event curves for death stratified by the logistic EuroSCORE. AVR: aortic valve replacement; CABG: coronary artery bypass grafting; TA: transapical; TV: transvascular.

Mohr el al (GARY Registry). Eur J CardioThorac Surg 46 (2014):808-816

Sutureless Aortic Valves

Fig. 1. Photo of the ATS 3f Enable® Aortic Bioprosthesis Model 6000.

3f ENABLE, Medtronic Inc.

INTUITY, Edwards

Inovare

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CLINICAL PRACTICE GUIDELINE: FOCUSED UPDATE

2017 AHA/ACC Focused Update of the 2014 AHA/ACC Guideline for the Management of Patients With Valvular Heart Disease

A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines

Developed in Collaboration With the American Association for Thoracic Surgery, American Society of Echocardiography, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Anesthesiologists, and Society of Thoracic Surgeons

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I C	A bioprosthesis is recommended in patients of any age for whom anticoagulant therapy is contraindicated, cannot be managed appropriately, or is not desired.	2014 recommendation remains current.
IIa B-NR See Online Data Supplement 20 (Updated From 2014 VHD Guideline)	An aortic or mitral mechanical prosthesis is reasonable for patients less than 50 years of age who do not have a contraindication to anticoagulation (141,149,151,155-157).	**MODIFIED: LOE updated from B to B-NR.** The age limit for mechanical prosthesis was lowered from 60 to 50 years of age.

Patients <50 years of age at the time of valve implantation incur a higher and earlier risk of bioprosthetic valve deterioration (141,149,151,155-157). Overall, the predicted 15-year risk of needing reoperation because of structural deterioration is 22% for patients 50 years of age, 30% for patients 40 years of age, and 50% for patients 20 years of age, although it is recognized that all bioprostheses are not alike in terms of durability (151). Anticoagulation with a VKA can be accomplished with acceptable risk in the majority of patients <50 years of age, particularly in compliant patients with appropriate monitoring of International Normalized Ratio (INR) levels. Thus, the balance between valve durability versus risk of bleeding and thromboembolic events favors the choice of a mechanical valve in patients <50 years of age, unless anticoagulation is not desired, cannot be monitored, or is contraindicated. (See the first Class I recommendation for additional discussion).

IIa B-NR See Online Data Supplement 20 (Updated From 2014 VHD Guideline)	For patients between 50 and 70 years of age, it is reasonable to individualize the choice of either a mechanical or bioprosthetic valve prosthesis on the basis of individual patient factors and preferences, after full discussion of the trade-offs involved (141-145,157-160).	**MODIFIED:** Uncertainty exists about the optimum type of prosthesis (mechanical or bioprosthetic) for patients 50 to 70 years of age. There are conflicting data on survival benefit of mechanical versus bioprosthetic valves in this age group, with equivalent stroke and thromboembolic outcomes. Patients receiving a mechanical valve incur greater risk of bleeding, and those undergoing bioprosthetic valve replacement more often require repeat valve surgery.

AHA/ACC 2017 Update. JACC (2017)70: 252-89

Escolha da Prótese Valvar

Recommendations for Intervention of Prosthetic Valves

COR	LOE	RECOMMENDATIONS	COMMENT/RATIONALE
I	C-LD See Online Data Supplement 20 (Updated From 2014 VHD Guideline)	The choice of type of prosthetic heart valve should be a shared decision-making process that accounts for the patient's values and preferences and includes discussion of the indications for and risks of anticoagulant therapy and the potential need for and risk associated with reintervention (141-146).	MODIFIED: LOE updated from C to C-LD. In choosing the type of prosthetic valve, the potential need for and risk of "reoperation" was updated to risk associated with "reintervention." The use of a transcatheter valve-in-valve procedure may be considered for decision making on the type of valve, but long-term follow-up is not yet available, and some bioprosthetic valves, particularly the smaller-sized valves, will not be suitable for a valve-in-valve replacement. Multiple other factors to be considered in the choice of type of valve for an individual patient; these factors are outlined in the text. More emphasis has been placed on shared decision making between the caregiver and patient.
IIa	B-NR See Online Data Supplement 20 (Updated From 2014 VHD Guideline)	An aortic or mitral mechanical prosthesis is reasonable for patients less than 50 years of age who do not have a contraindication to anticoagulation (141,149,151,155-157).	MODIFIED: LOE updated from B to B-NR. The age limit for mechanical prosthesis was lowered from 60 to 50 years of age.

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Escolha da Prótese Valvar

IIa	B-NR

See Online Data Supplement 20
(Updated From 2014 VHD Guideline)

For patients between 50 and 70 years of age, it is reasonable to individualize the choice of either a mechanical or bioprosthetic valve prosthesis on the basis of individual patient factors and preferences, after full discussion of the trade-offs involved (141-145,157-160).

MODIFIED: Uncertainty exists about the optimum type of prosthesis (mechanical or bioprosthetic) for patients 50 to 70 years of age. There are conflicting data on survival benefit of mechanical versus bioprosthetic valves in this age group, with equivalent stroke and thromboembolic outcomes. Patients receiving a mechanical valve incur greater risk of bleeding, and those undergoing bioprosthetic valve replacement more often require repeat valve surgery.

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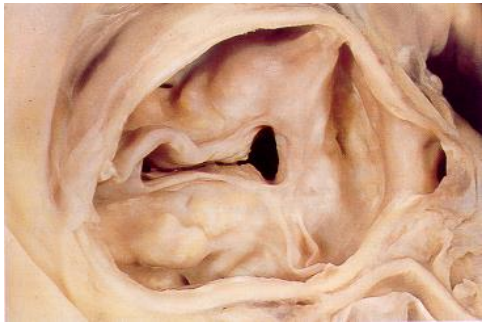
Estenose Aórtica

Escolha do tipo de Intervenção



I / A See Online Data Supplement 9 (Updated From 2014 VHD Guideline)	Surgical AVR or TAVR is recommended for symptomatic patients with severe AS (Stage D) and high risk for surgical AVR, depending on patient-specific procedural risks, values, and preferences (49-51).	MODIFIED: COR updated from IIa to I, LOE updated from B to A. Longer-term follow-up and additional RCTs have demonstrated that TAVR is equivalent to surgical AVR for severe symptomatic AS when surgical risk is high.
I / A See Online Data Supplements 5 and 9 (Updated From 2014 VHD Guideline)	TAVR is recommended for symptomatic patients with severe AS (Stage D) and a prohibitive risk for surgical AVR who have a predicted post-TAVR survival greater than 12 months (58-61).	MODIFIED: LOE updated from B to A. Longer-term follow-up from RCTs and additional observational studies has demonstrated the benefit of TAVR in patients with a prohibitive surgical risk.
IIa / B-R See Online Data Supplements 5 and 9 (Updated From 2014 VHD Guideline)	TAVR is a reasonable alternative to surgical AVR for symptomatic patients with severe AS (Stage D) and an intermediate surgical risk, depending on patient-specific procedural risks, values, and preferences (62-65).	NEW: New RCT showed noninferiority of TAVR to surgical AVR in symptomatic patients with severe AS at intermediate surgical risk. **Obs limited follow-up**

Estenose Aórtica

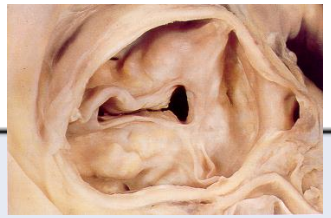
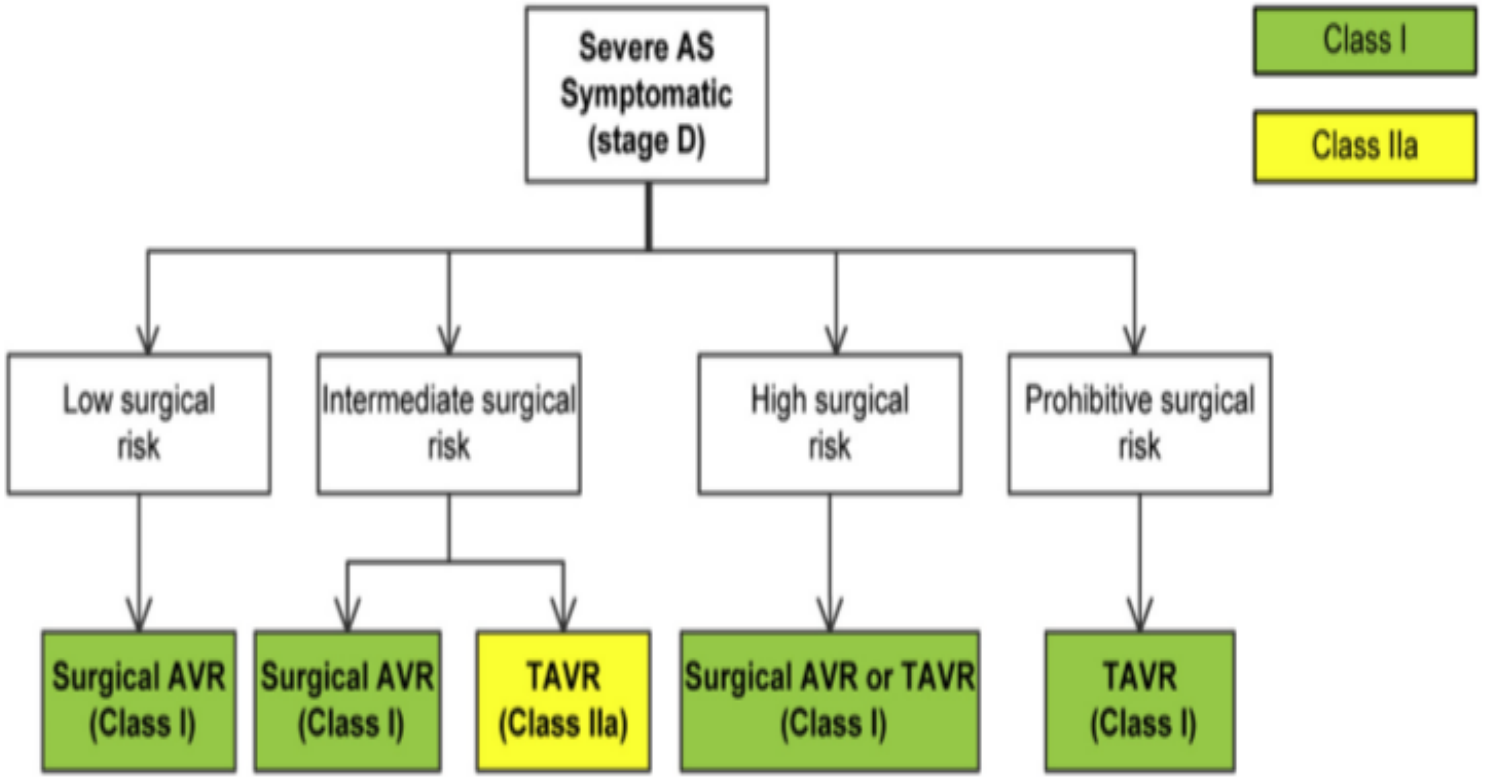


FIGURE 1 Choice of TAVR Versus Surgical AVR in the Patient With Severe Symptomatic AS



AS indicates aortic stenosis; AVR, aortic valve replacement; and TAVR, transcatheter aortic valve replacement.

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ESTENOSE AÓRTICA

MANEJO POR CIRURGIA ABERTA E SEUS RESULTADOS ATUAIS

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