TAVI en Anillo Aórtico Grande

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Declaración de Interés

Ningún conflicto de interés en relación al tema de esta presentación

Agenda

1. Concepto de "Anillo Ao. Grande"
2. Problemas del "Anillo Ao. Grande"
3. Resultados TAVI en "Anillo Ao. Grande"
4. Válvulas para "Anillo Ao. Grande"
5. Mensajes finales

Agenda

1 Concepto de “Anillo Ao. Grande”

¿Anillo Ao. Grande?

- En general la asignación de “Anillo Ao. Grande” ha venido determinada por la no disponibilidad de tamaños adecuados de válvulas para su implante en procedimientos TAVI en relación al diámetro del Anillo aórtico que presentaba algún paciente.

- Definiéndose como Anillo:
  - Grande *(diámetro >27mm, área ≥575 mm^2 o perímetro ≥85 mm)*, y
  - Extragrande *(diámetro >29mm, área ≥683 mm^2, o perímetro ≥94,2 mm).*

Agenda

2 Problemas del "Anillo Ao. Grande"

Introducción al problema

- ✓ El éxito del reemplazo valvular aórtico transcatéter (TAVR), depende principalmente de factores anatómicos y de la técnica de implantación.
- ✓ El tamaño del anillo aórtico afecta al rendimiento de la válvula, a la posibilidad de "Mistmatch" sobre todo en anillos pequeños, y limita las opciones de TAVI, en función de la disponibilidad, o no, del tamaño adecuado de prótesis que se ajuste al anillo.
- ✓ Existen diferencias en el tamaño del anillo en función de la raza considerada. Muchos asiáticos orientales tienen anillos aórticos más pequeños que los de los países occidentales. Una cuarta parte de los japoneses tienen un diámetro promedio del anillo de 23 mm.

Introducción al problema

- ✓Actualmente, existen pocas opciones para anillos aórticos grandes, lo que podría excluir a estos pacientes de la terapia TAVI.
- ✓El uso de estas válvulas más allá de ciertos límites en anillos grandes se considera fuera de indicación (área ≥683 mm^2; perímetro ≥94,2 mm).
- ✓Existe también la posibilidad de que el tamaño de la válvula, a pesar de una óptima planificación, sea significativamente menor del necesario.

Introducción al problema

- ✓La sobre-expansión de una válvula que está diseñada para tamaño más pequeño del anillo, pueden conducir a:
  - Riesgo de fuga para-valvular
  - Falta de coaptación de la válvula protésica con insuficiencia central
  - Migración y Embolización de la válvula
  - Ruptura anular.

- ✓ Además, el acortamiento de la estructura del stent de la prótesis cuando se sobredimensiona es impredecible y es poco predecible el posicionamiento óptimo final de la válvula.

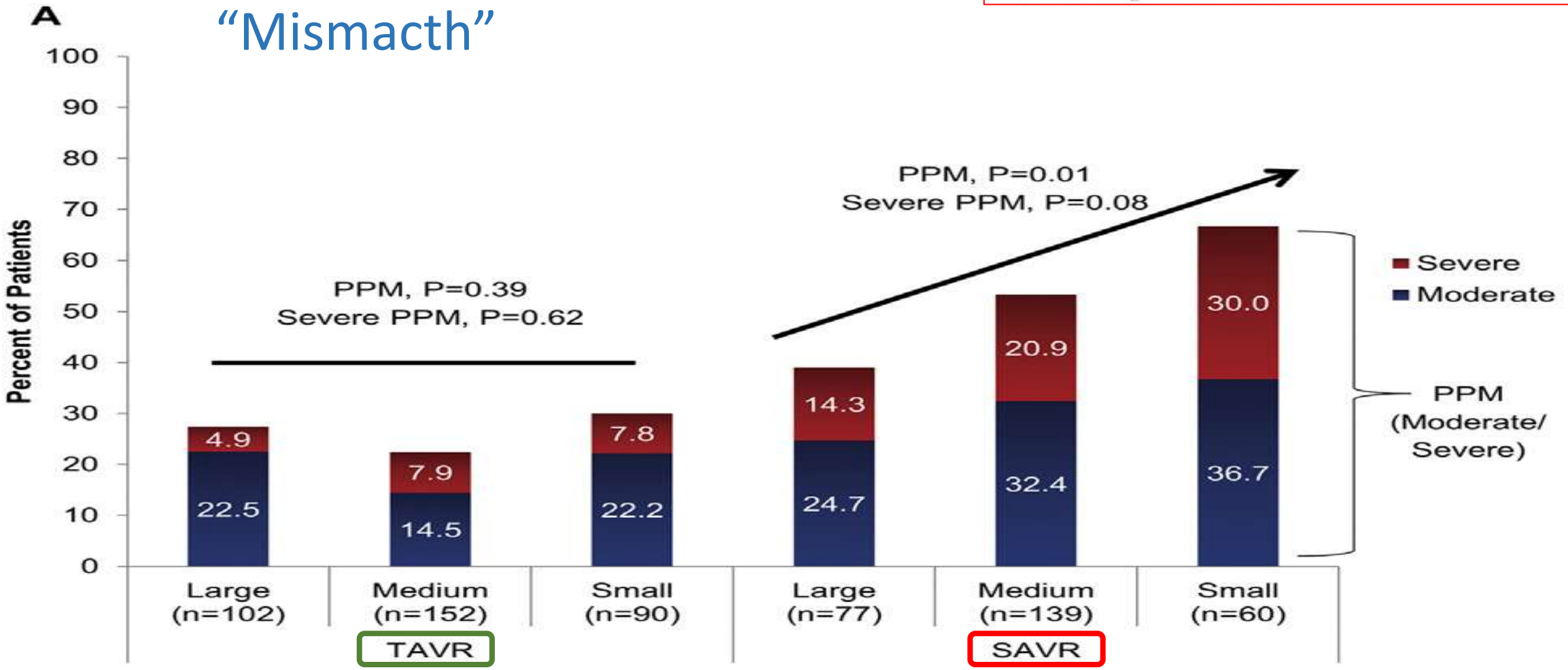
Agenda

3 Resultados TAVI en "Anillo Ao. Grande"

Resultados de RVAo en anillo grande

Impact of Annular Size on Outcomes After Surgical or Transcatheter Aortic Valve Replacement

"Mismacth"



Deeb, et al. Ann Thorac Surg 2018;105:1129–36

Resultados de TAVR en anillo grande

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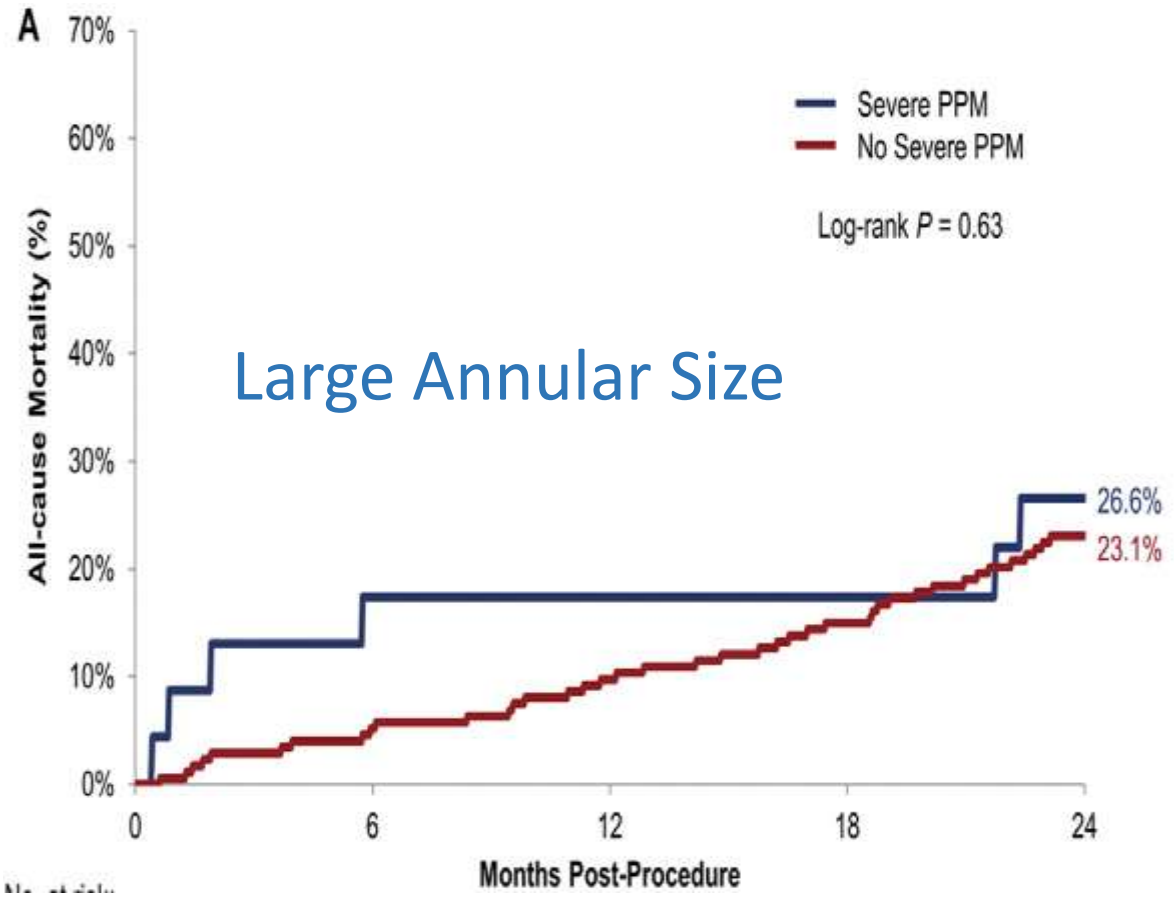
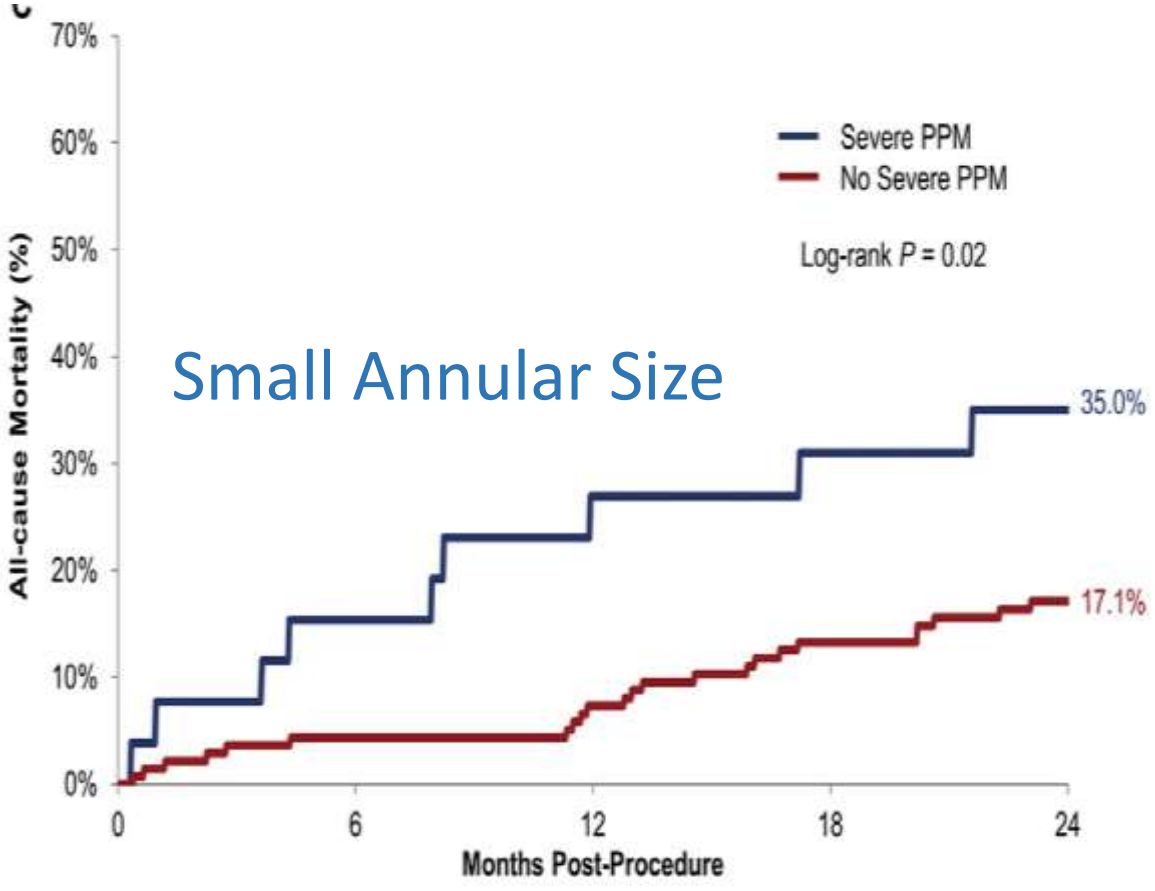


Large Annular Size



Small Annular Size

Deeb, et al. Ann Thorac Surg 2018;105:1129–36

Resultados de TAVR en anillo grande

Mid-Term Outcomes of Transcatheter Aortic Valve Replacement in Extremely Large Annuli With Edwards SAPIEN 3 Valve

TABLE 1 Patient Characteristics (N = 105)

Age, yrs	76.9 ± 10.4
Female	5 (4.8)
STS risk score, %	5.15 ± 3.36
Coronary artery disease	53 (50.5)
Diabetes	36 (34.3)
TIA or stroke	19 (18.1)
Peripheral vascular disease	30 (28.6)
Moderate or severe COPD	24 (22.9)
Atrial fibrillation	51 (48.6)
Chronic kidney disease	32 (30.5)
Pulmonary hypertension, PASP >60 mm Hg	11 (10.5)
Prior permanent pacemaker	19 (18.1)
Prior cardiac surgery	29 (27.6)
Prior PCI	40 (38.1)
Bicuspid aortic valve	20 (19.0)
LVEF <35%	29 (27.6)

TABLE 2 Anatomic Characteristics (N = 105)

Annulus	
Minimal diameter, mm	27.6 ± 1.8
Maximal diameter, mm	33.5 ± 1.6
Mean diameter, mm	30.6 ± 1.0
Area, mm^2	721.3 ± 36.1
Perimeter, mm	96.7 ± 2.7
% oversized (by area)	−9.8 ± 4.2
Eccentricity, %	17.5 ± 7.6
LVOT	
Minimal diameter, mm	27.8 ± 3.2
Maximal diameter, mm	34.4 ± 2.8
Mean diameter, mm	31.1 ± 2.6
Area, mm^2	735.8 ± 89.5
Perimeter, mm	97.5 ± 6.7
% oversized (by area)	−10.5 ± 10.6
Eccentricity, %	19.1 ± 8.2
Nontubularity index, %	2.7 ± 2.1

J Am Coll Cardiol Intv 2020;13:210–6

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TABLE 3 Procedural Characteristics (N = 105)

Transfemoral approach	99 (94.3)
Conscious sedation	54 (51.4)
Post-dilatation (n = 86)	30 (34.9)
Bottom of balloon center marker position (n = 74)	
Above annulus	21 (28.4)
At annulus	35 (47.3)
Below annulus	18 (24.3)
Final balloon filling (n = 86)	
Nominal	21 (24.4)
Underfill	0 (0)
Overfill	65 (75.6)
Contrast (ml)	110 ± 59
Valve implantation depth	
% ventricular, NCC	24.0 ± 12.4
% ventricular, LCC	20.8 ± 10.8
% ventricular, mean	22.8 ± 11.1

TABLE 4 In-Hospital, 30-Day, and 1-Year Outcomes (N = 105)

	In-Hospital	30 Days	1 Year
Death	1 (1.0)	2 (1.9)	18/99 (18.2)
Stroke	1 (1.0)	2 (1.9)	2/83 (2.4)
Major vascular complication	3 (2.9)	3 (2.9)	3 (2.9)
New persistent LBBB*		12/89 (13.5)	
New PPM†	7/94 (7.5)	7/94 (7.5)	11/68 (16.2)
ICU stay, h	19.7 (0-24)		
Hospital stay, days	2 (1-5)		
SAPIEN 3 valve hemodynamics			
Mean gradient, mm Hg		9.3 ± 3.8	10.0 ± 3.9
Peak gradient, mm Hg		17.1 ± 6.9	18.0 ± 8.1
Valve area, cm^2		1.94 ± 0.55	2.03 ± 0.62

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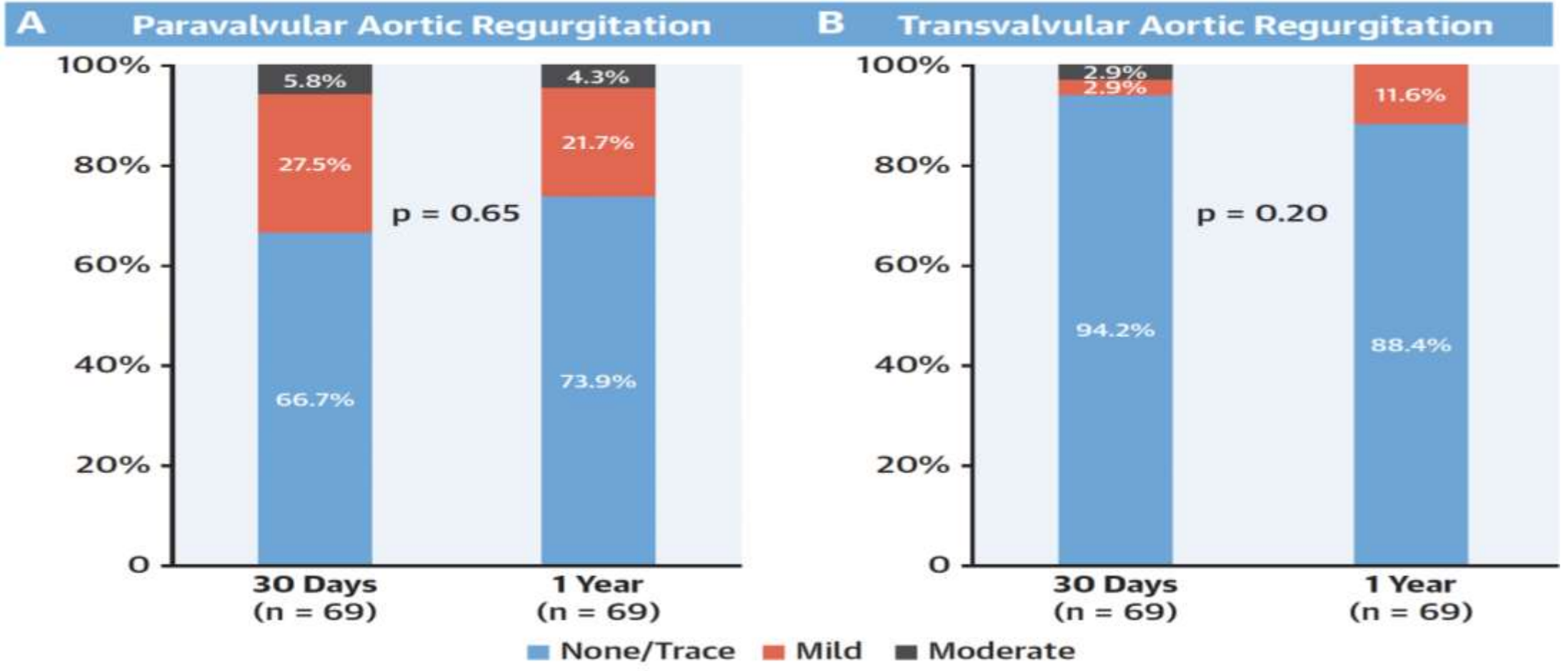

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Resultados de TAVR en anillo grande

Comparación **SAPIEN 3 29 mm**. Vs **EVOLUT R 34mm.**

ORIGINAL ARTICLE

Third-Generation Balloon and Self-Expandable Valves for Aortic Stenosis in Large and Extra-Large Aortic Annuli From the TAVR-LARGE Registry

Table 2. Baseline Imaging Characteristics

	Overall (n=833)	S3 (n=640)	ER (n=193)	*P* Value
Echocardiographic variables				
Left ventricular ejection fraction, %	54.8 (40.0–60.0)	53.0 (39.0–60.0)	55.0 (41.0–60.0)	0.153*
Mean aortic gradient, mm Hg	41.0 (31.0–48.0)	40.2 (30.0–48.0)	42.0 (32.5–48.0)	0.120*
Aortic valve area, cm^2	0.77 (0.6–0.9)	0.76 (0.6–0.9)	0.78 (0.6–0.9)	0.786*
Bicuspid aortic valve	48 (7.3%)	38 (7.7%)	10 (6.0%)	0.467
MDCT variables				
Annulus diameter, mm	28.1 (27.5–29.0)	28.2 (27.5–29.0)	27.9 (27.1–28.8)	0.002*
Annulus area, mm^2	617 (591–657)	620 (596–660)	610 (580–649)	0.007*
Annulus perimeter, mm	89.1 (87.0–92.1)	89.3 (87.0–92.2)	88.6 (86.5–92.0)	0.063*
LCA height, mm	15.4 (13.0–17.6)	15.5 (13.2–17.9)	14.6 (12.9–17.0)	0.066*
RCA height, mm	17.7±3.9	17.7±4.0	17.8±3.8	0.691†
LVOT diameter, mm	28.1±2.0	28.2±2.1	27.8±2.0	0.079†
Sinotubular junction diameter, mm	32.5±3.3	32.7±3.0	31.8±4.1	0.043†
Sinus of Valsalva diameter, mm	36.9±3.3	37.0±3.2	36.6±3.7	0.287†
Eccentricity index	0.19±0.1	0.19±0.1	0.18±0.1	0.398†

Circ Cardiovasc Interv. 2020;13:e009047. DOI: 10.1161/CIRCINTERVENTIONS.120.009047

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Periprocedural complications		SAPIEN 3 29 mm	EVOLUT R 34mm	
Annular rupture	6 (0.7%)	6 (0.9%)	0 (0.0%)	0.345†
Cardiac tamponade	14 (1.7%)	13 (2.0%)	1 (0.5%)	0.209†
Coronary obstruction	1 (0.1%)	1 (0.2%)	0 (0.0%)	1.000†
Valve embolization	7 (0.8%)	2 (0.3%)	5 (2.6%)	0.009†
Second valve required	10 (1.2%)	4 (0.6%)	6 (3.1%)	0.013†

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In-hospital clinical outcomes				
Mortality	19 (2.3%)	15 (2.3%)	4 (2.1%)	1.000†
Stroke	16 (1.9%)	10 (1.6%)	6 (3.1%)	0.226*
Major vascular complications	42 (5.0%)	36 (5.6%)	6 (3.1%)	0.191*
Bleeding complications				
Life-threatening	20 (2.4%)	17 (2.7%)	3 (1.6%)	0.591†
Major	19 (2.3%)	14 (2.2%)	5 (2.6%)	0.783†
New permanent pacemaker implantation‡	116/704 (16.5%)	77/546 (14.1%)	39/158 (24.7%)	0.002
Length of coronary care unit stay, d	1.0 (0.8–2.0)	1.0 (0.0–1.3)	1.0 (1.0–2.8)	<0.001
Length of hospital stay, d	5.0 (2.0–7.8)	5.0 (2.0–8.0)	5.0 (3.0–7.0)	0.963
30-d mortality	20 (2.4%)	16 (2.5%)	4 (2.1%)	1.000†

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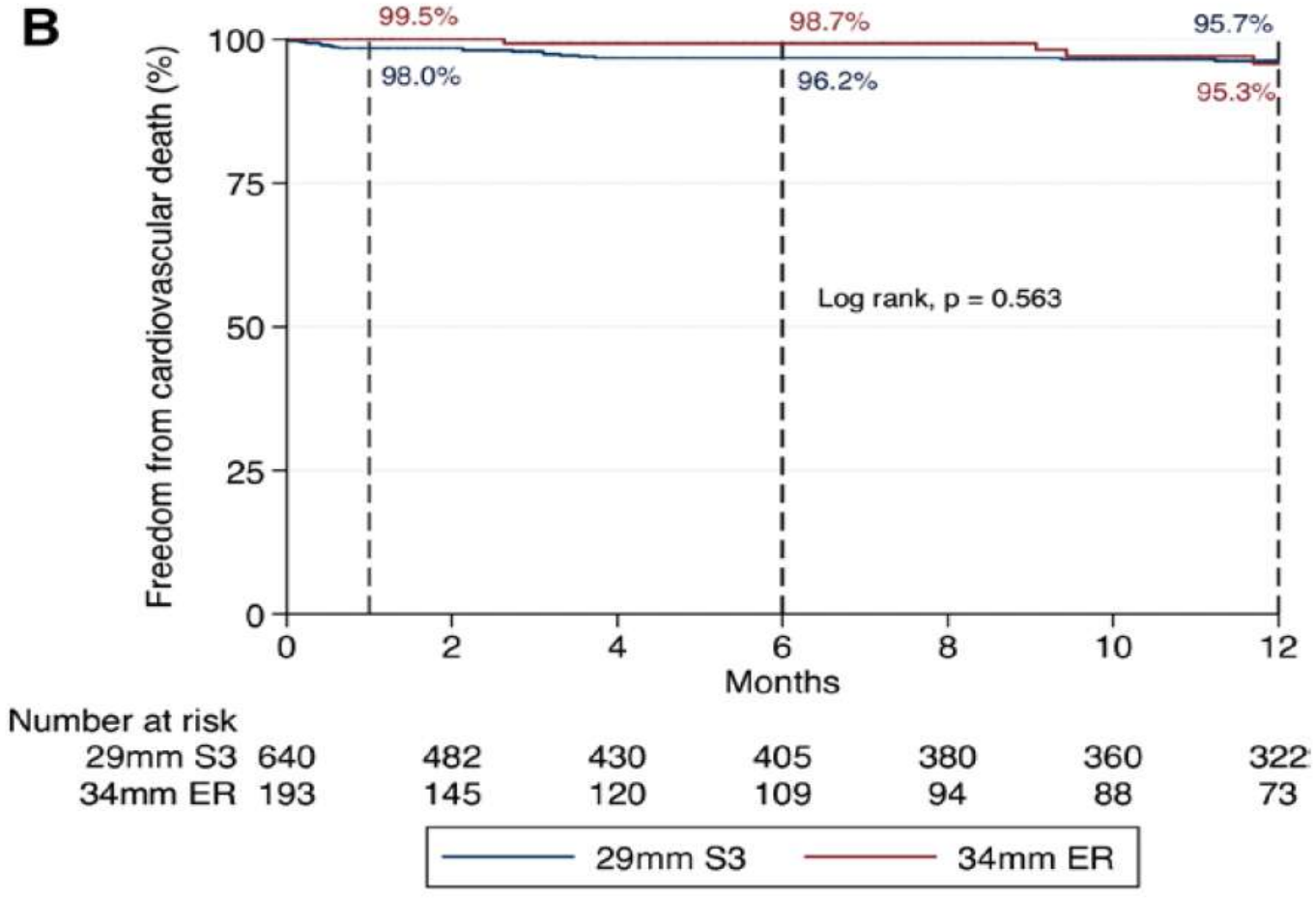

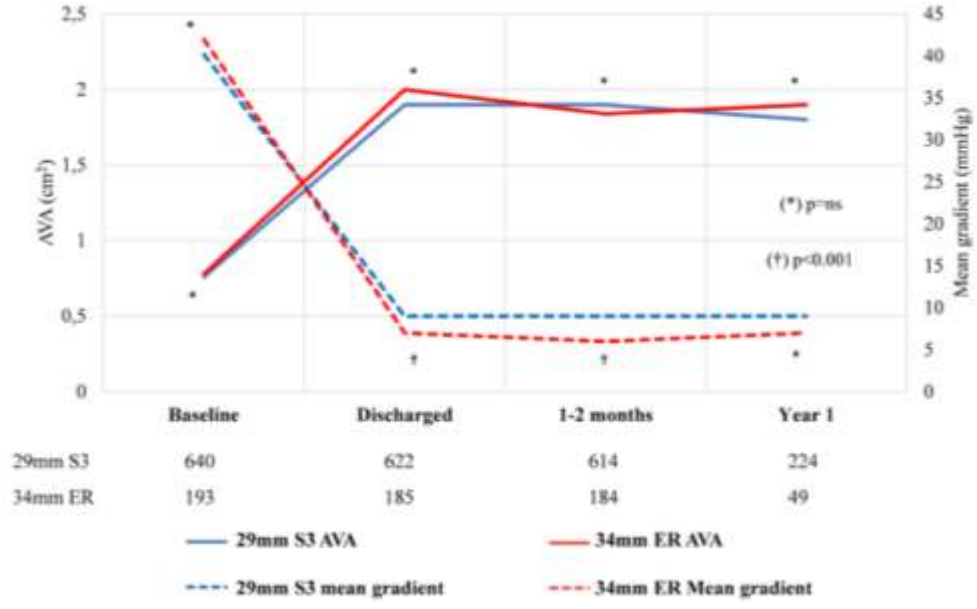

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Resultados de TAVR en "anillo grande"

Transcatheter Aortic Valve Implantation in Japanese Patients With Large Annulus

The OCEAN-TAVI Registry

773 patients with large annulus
(annular area of ≥500 mm² and an average diameter of ≥25 mm on CT measurements)

671 patients with BEV-TAVI	102 patients with SEV-TAVI
✓ Less pacemaker implantation ✓ Less PVL grade	✓ The peak transaortic valve pressure gradient was higher

➢ No significant differences regarding the incidence of PPM, device success

TABLE 1 Patient Characteristics

	Total (N = 773)	Balloon-Expandable Valve (n = 671)	Self-Expandable Valve (n = 102)	P Value
CT data before TAVI				
Annulus area, mm²	367.0 (337.6-397.6)	544.0 (518.8-575.1)	524.6 (512.8-541.0)	<0.001
Mean annular diameter, mm	21.6 (20.7-22.5)	26.3 (25.7-27.1)	25.9 (25.6-26.3)	<0.001
Annular perimeter, mm	69.5 (66.6-72.4)	84.0 (82.0-86.4)	82.3 (81.5-84.0)	<0.001
Moderate or severe LVOT calcification	73 (6.2)	22 (3.4)	12 (12.0)	<0.001
STS score	6.0 (4.1-9.5)	5.0 (3.3-8.1)	5.4 (4.0-7.7)	0.275

TABLE 1 Patient Characteristics

	Total (N = 773)	Balloon-Expandable Valve (n = 671)	Self-Expandable Valve (n = 102)	P Value
Age, y	86 (82-89)	83 (79-86)	84 (80-87)	0.422
Male	184 (14.7)	585 (87.2)	83 (81.4)	0.110
BSA, m²	1.40 (1.31-1.50)	1.60 (1.50-1.70)	1.59 (1.40-1.70)	0.003
BMI, kg/m²	21.8 (19.6-24.4)	22.8 (20.5-24.9)	22.3 (19.5-24.2)	0.035
Atherosclerotic risks				
Hypertension	1,004 (80.0)	536 (79.9)	81 (79.4)	0.912
Dyslipidemia	673 (53.6)	354 (52.8)	49 (48.0)	0.374
Diabetes mellitus	365 (29.1)	219 (32.6)	31 (30.4)	0.652
Current smoking	189 (15.2)	9 (1.4)	1 (1.0)	0.776
Atrial fibrillation	246 (19.6)	186 (27.7)	26 (25.5)	0.638
Pacemaker implantation	63 (5.0)	–	–	–
Previous coronary artery bypass graft	50 (6.4)	41 (6.7)	4 (2.9)	0.142
Previous PCI	213 (17.0)	192 (28.6)	24 (23.5)	0.286
Previous myocardial infarction	46 (3.7)	41 (6.1)	4 (3.9)	0.379
Coronary artery disease	396 (31.6)	–	–	–
Previous ischemic stroke	125 (10.0)	94 (14.0)	13 (12.7)	0.731
Peripheral artery disease	151 (12.1)	74 (11.0)	13 (12.7)	0.609
Cerebrovascular disease	128 (10.2)	–	–	–
Pulmonary disease	108 (8.6)	–	–	–
NYHA functional class				0.184
II	773 (61.7)	346 (51.6)	56 (54.9)	
III	291 (23.2)	218 (32.5)	25 (24.5)	
IV	77 (6.2)	51 (7.6)	13 (12.7)	
Clinical frailty scale	4 (3-4)	3 (3-4)	4 (3-4)	0.400
Laboratory data on admission				
eGFR, mL/min/1.73 m²	50.3 (39.3-63.3)	52.1 (39.4-64.7)	52.5 (43.6-63.0)	0.862
BNP, pg/mL	145.6 (65.8-343.2)	275.5 (118.8-604.9)	356.4 (167.1-657.0)	0.127
TTE data before TAVI				
LVEF, %	64.7 (58.9-69.0)	55.5 (44.7-63.7)	57.5 (40.5-66.0)	0.873
Mean AVPG, mm Hg	42.0 (34.7-52.8)	42.9 (33.6-56.0)	47.2 (36.1-65.2)	0.014
Peak AVPG, mm Hg	72.3 (64.0-89.1)	74.0 (60.5-92.2)	83.2 (64.1-107.8)	0.007
AVA with Doppler, cm²	0.66 (0.53-0.78)	0.71 (0.60-0.83)	0.60 (0.48-0.74)	<0.001
Index AVA, cm²/m²	0.46 (0.38-0.55)	0.44 (0.37-0.52)	0.38 (0.30-0.48)	<0.001
Bicuspid valve	20 (1.6)	78 (11.7)	18 (18.0)	0.075

Onishi K, et al. JACC Asia. 2024;4:686–694

Resultados de TAVR en "anillo grande"

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Annular perimeter, mm	69.5 (66.6-72.4)	84.0 (82.0-86.4)	82.3 (81.5-84.0)	<0.001
Moderate or severe LVOT calcification	73 (6.2)	22 (3.4)	12 (12.0)	<0.001
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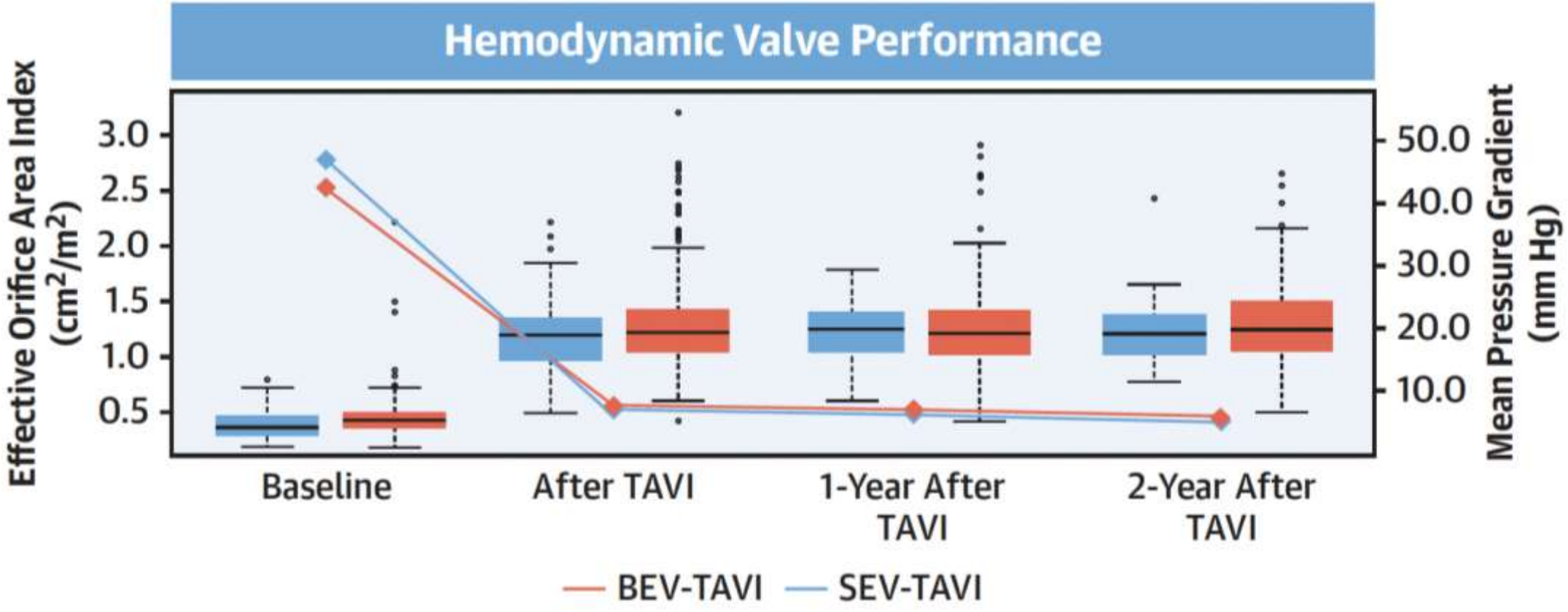
BMI, kg/m²	21.8 (19.6-24.4)		22.3 (19.5-24.2)	0.035
Atherosclerotic risks				
			81 (79.4)	0.912
			49 (48.0)	0.374
			31 (30.4)	0.652
			1 (1.0)	0.776
			26 (25.5)	0.638
			–	–
			4 (2.9)	0.142
		192 (28.6)	24 (23.5)	0.286
	46 (3.7)	41 (6.1)	4 (3.9)	0.379
Coronary artery disease	396 (31.6)	–	–	–
Previous ischemic stroke	125 (10.0)	94 (14.0)	13 (12.7)	0.731
Peripheral artery disease	151 (12.1)	74 (11.0)	13 (12.7)	0.609
Cerebrovascular disease	128 (10.2)	–	–	–
Pulmonary disease	108 (8.6)	–	–	–
NYHA functional class				0.184
II	773 (61.7)	346 (51.6)	56 (54.9)	
III	291 (23.2)	218 (32.5)	25 (24.5)	
IV	77 (6.2)	51 (7.6)	13 (12.7)	
Clinical frailty scale	4 (3-4)	3 (3-4)	4 (3-4)	0.400
Laboratory data on admission				
eGFR, mL/min/1.73 m²	50.3 (39.3-63.3)	52.1 (39.4-64.7)	52.5 (43.6-63.0)	0.862
BNP, pg/mL	145.6 (65.8-343.2)	275.5 (118.8-604.9)	356.4 (167.1-657.0)	0.127
TTE data before TAVI				
LVEF, %	64.7 (58.9-69.0)	55.5 (44.7-63.7)	57.5 (40.5-66.0)	0.873
Mean AVPG, mm Hg	42.0 (34.7-52.8)	42.9 (33.6-56.0)	47.2 (36.1-65.2)	0.014
Peak AVPG, mm Hg	72.3 (64.0-89.1)	74.0 (60.5-92.2)	83.2 (64.1-107.8)	0.007
AVA with Doppler, cm²	0.66 (0.53-0.78)	0.71 (0.60-0.83)	0.60 (0.48-0.74)	<0.001
Index AVA, cm²/m²	0.46 (0.38-0.55)	0.44 (0.37-0.52)	0.38 (0.30-0.48)	<0.001
Bicuspid valve	20 (1.6)	78 (11.7)	18 (18.0)	0.075

Onishi K, et al. JACC Asia. 2024;4:686–694

Resultados de TAVR en anillo grande

Transcatheter Aortic Valve Implantation in Japanese Patients With Large Annulus

The OCEAN-TAVI Registry



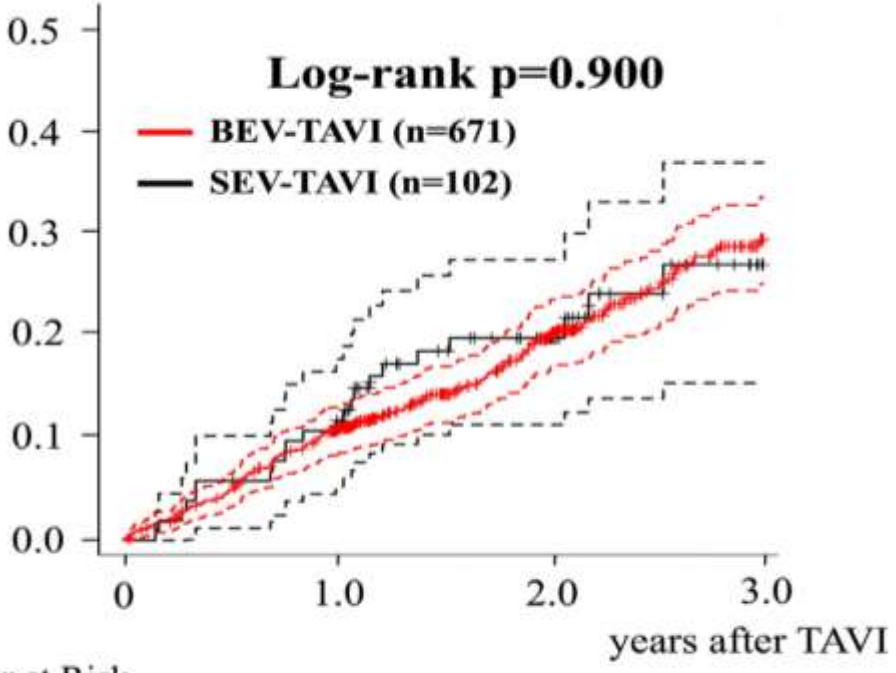
Onishi K, et al. JACC Asia. 2024;4:686–694

Resultados de TAVR en anillo grande

Transcatheter Aortic Valve Implantation in Japanese Patients With Large Annulus

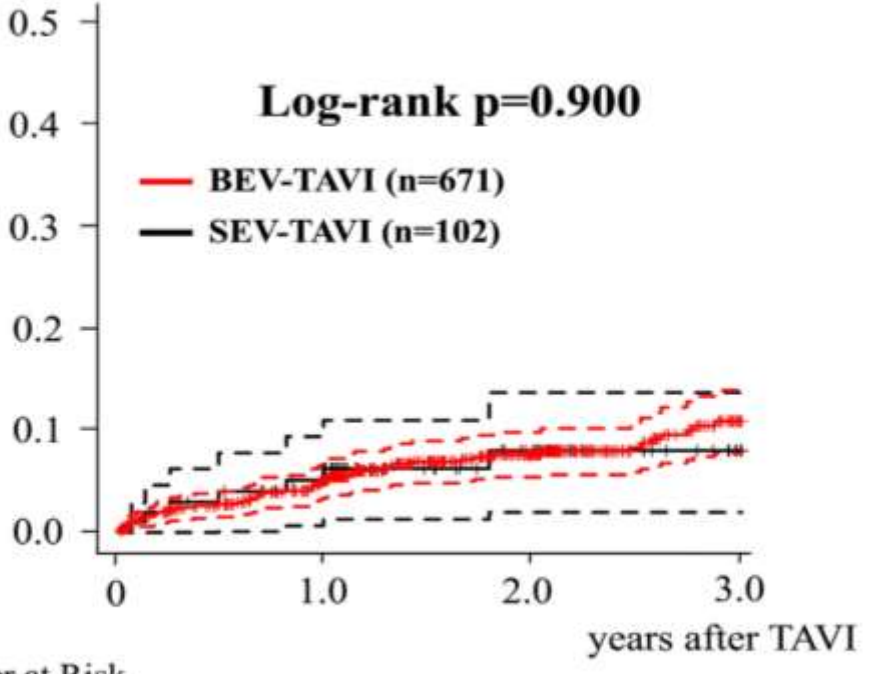
The OCEAN-TAVI Registry

All-cause mortality



Number at Risk				
BEV-TAVI	671	561	356	193
SEV-TAVI	102	84	40	26

Heart-Failure Rehospitalization



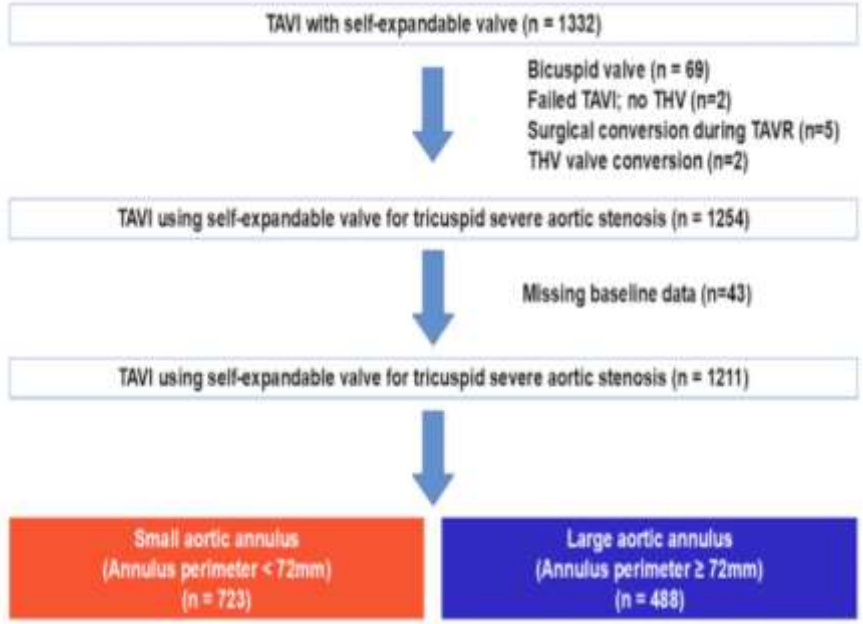
Number at Risk				
BEV-TAVI	671	534	306	197
SEV-TAVI	102	84	53	30

Onishi K, et al. JACC Asia. 2024;4:686–694

Resultados de TAVR en anillo grande

Impact of Annulus Size on Bioprosthetic Valve Failure after Self-Expanding Transcatheter Heart Valves Replacement

	Small annulus (n = 723)	Large annulus (n = 488)	p-value
Age, years	85 ± 5	84 ± 5	<0.001
Male	85 (11.8%)	232 (47.5%)	<0.001
Body surface area, /m²	1.36 ± 0.15	1.49 ± 0.18	<0.001
Frail (Clinical frailty scale ≥ 4)	429/723 (59.3%)	271/488 (55.5%)	0.189
NYHA III or IV	278/722 (38.5%)	191/483 (39.5%)	0.717
Hypertension	617 (85.3%)	437 (89.5%)	0.032
Dyslipidemia	428 (59.2%)	278 (57.0%)	0.44
Diabetes mellitus	194 (26.8%)	153 (31.4%)	0.088
Atrial fibrillation	153 (21.2%)	118 (24.2%)	0.216
Chronic kidney disease	508 (70.3%)	353 (72.3%)	0.435
Coronary artery disease	197 (27.2%)	159 (32.6%)	0.046
Previous Stroke	85 (11.8%)	68 (13.9%)	0.263
Any pacing device	50 (6.9%)	30 (6.1%)	0.598
Pulmonary disease	124 (17.2%)	84 (17.2%)	0.977
STS risk score	8.4 ± 5.6	7.5 ± 4.9	0.005
Echocardiographic findings			
Indexed effective orifice area, cm²	0.45 ± 0.16	0.42 ± 0.13	<0.001
Aortic valve peak velocity, m/sec	4.64 ± 0.85	4.65 ± 0.87	0.857
Mean pressure gradient, mmHg	51.1 ± 20.4	51.4 ± 19.6	0.802
Left ventricular ejection fraction, %	62.8 ± 10.6	58.5 ± 12.9	<0.001
Computed tomographic findings			
Aortic annulus perimeter, mm	66.2 ± 4.0	76.6 ± 3.4	<0.001
Diameter derived perimeter, mm	21.1 ± 1.3	24.4 ± 1.1	<0.001
Procedural index			
Transfemoral access	669 (92.5%)	427 (87.5%)	0.003
Local anesthesia	445 (61.5%)	272 (55.7%)	0.044
TAVR for failed surgical prosthesis	52 (7.2%)	9 (1.8%)	<0.001
Classical CoreValve	72 (10.0%)	80 (16.4%)	0.001
Valve sizes			<0.001
23 mm	183 (25.3%)	6 (1.2%)	
26 mm	511 (70.7%)	110 (22.5%)	
29 mm	29 (4.0%)	372 (76.2%)	
Implanted prosthesis size against perimeter			<0.001
Nominal range or over-sizing	655 (90.6%)	349 (71.5%)	
Under-sizing	68 (9.4%)	139 (28.5%)	



Postprocedural echocardiographic findings			
Indexed effective orifice area, cm²	1.21 ± 0.34	1.23 ± 0.31	0.234
Severe patient-prosthesis mismatch	16/705 (2.3%)	7/478 (1.5%)	0.325
Aortic valve peak velocity, m/sec	2.13 ± 0.52	2.01 ± 0.47	<0.001
Mean pressure gradient, mmHg	9.4 ± 5.5	8.5 ± 4.7	0.003
Mean pressure gradient ≥ 20 mmHg	31/710 (4.4%)	13/477 (2.7%)	0.142
Aortic regurgitation ≥ moderate	28/715 (3.9%)	23/483 (4.8%)	0.477
Aortic regurgitation ≥ mild	281/715 (39.3%)	228/483 (47.2%)	0.007

Hioki et al. The OCEAN- TAVI Investigators. The American Journal of Cardiology 251, 2025:10–17

Resultados de TAVR en anillo grande

Impact of Annulus Size on Bioprosthetic Valve Failure after Self-Expanding Transcatheter Heart Valves Replacement

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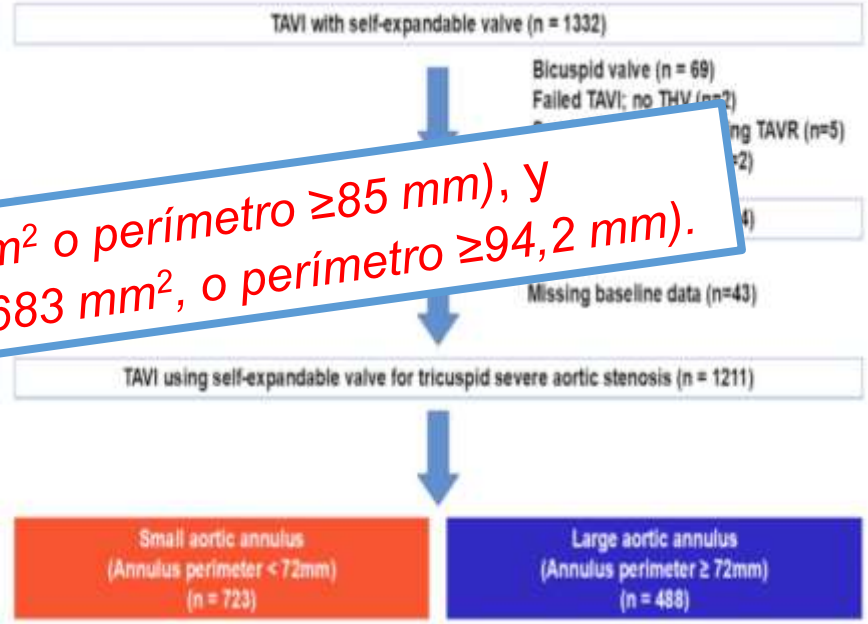
- Grande (diámetro >27mm, área ≥575 mm² o perímetro ≥85 mm), y
- Extragrande (diámetro >29mm, área ≥683 mm², o perímetro ≥94,2 mm).



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Resultados de TAVR en anillo grande

Impact of Annulus Size on Bioprosthetic Valve Failure after Self-Expanding Transcatheter Heart Valves Replacement

	Small annulus (n = 723)	Large annulus (n = 488)	p-value
In-hospital events			
All-cause death	11 (1.5%)	10 (2.0%)	0.49
Stroke	37 (5.1%)	15 (3.1%)	0.085
Life-threatening or major bleeding	55 (7.6%)	40 (8.2%)	0.708
Major vascular complication	33 (4.6%)	16 (3.3%)	0.265
New onset atrial fibrillation	15 (2.1%)	14 (2.9%)	0.375
New permanent pacemaker implantation	80 (11.1%)	71 (14.5%)	0.072
New onset left bundle branch block	218 (30.2%)	127 (26.0%)	0.119

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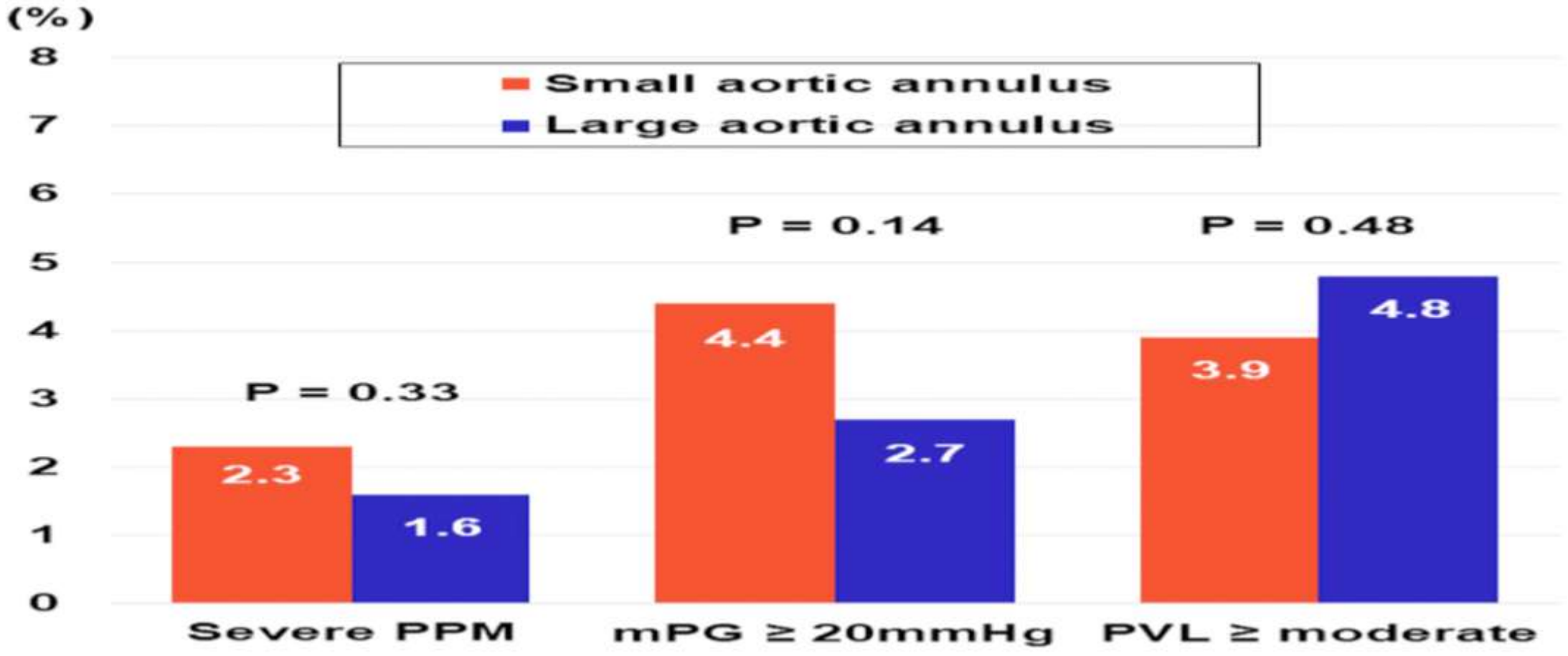
Resultados de TAVR en anillo grande

Impact of Annulus Size on Bioprosthetic Valve Failure after Self-Expanding Transcatheter Heart Valves Replacement



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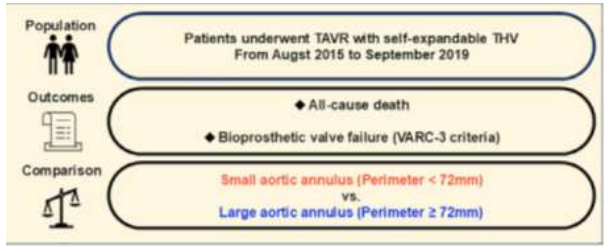

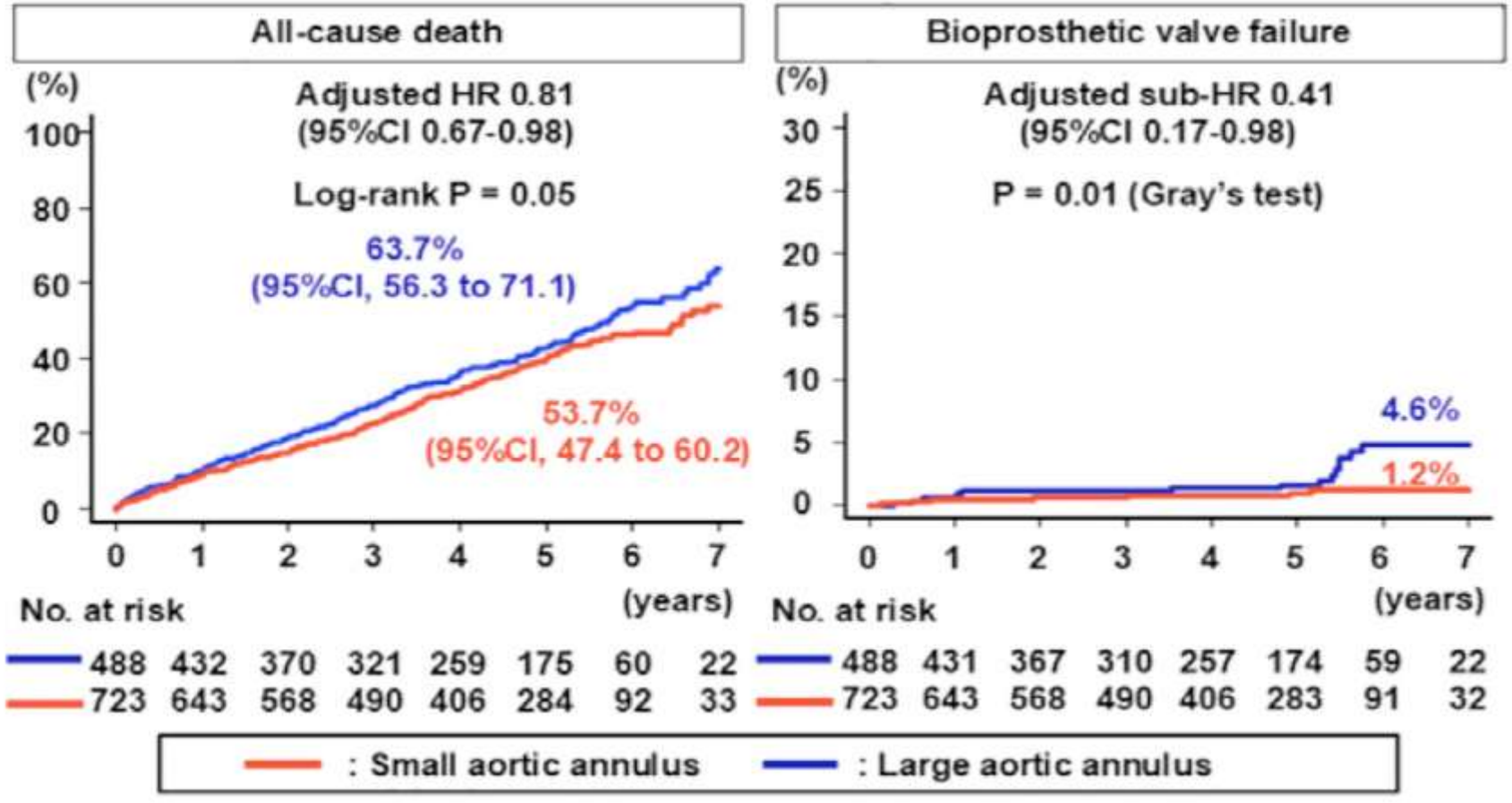

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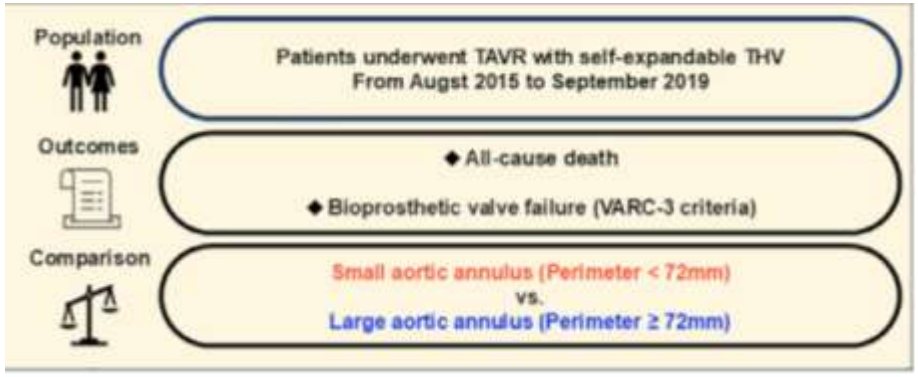
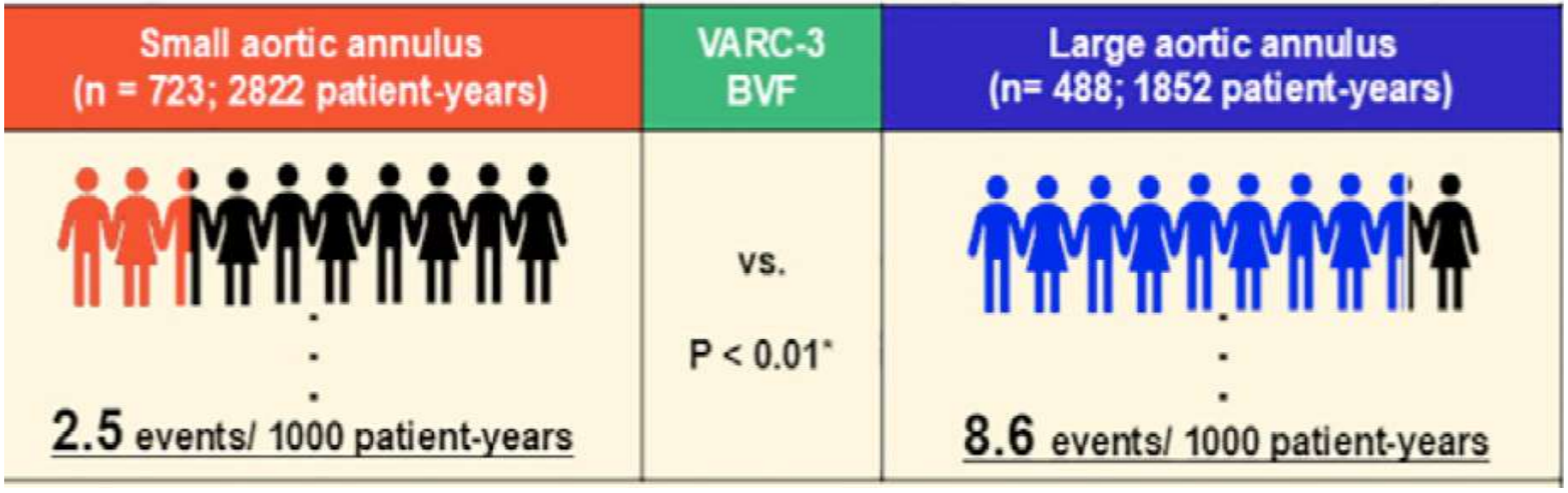




Hioki et al. The OCEAN- TAVI Investigators. The American Journal of Cardiology 251, 2025:10–17

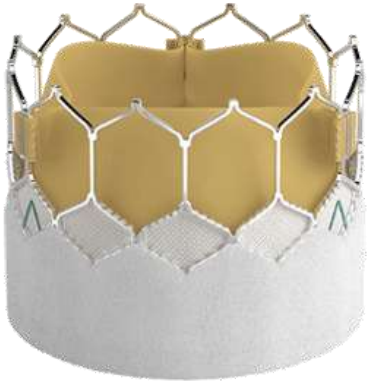
Agenda

4 ¿Válvulas para “Anillo Ao. Grande”?

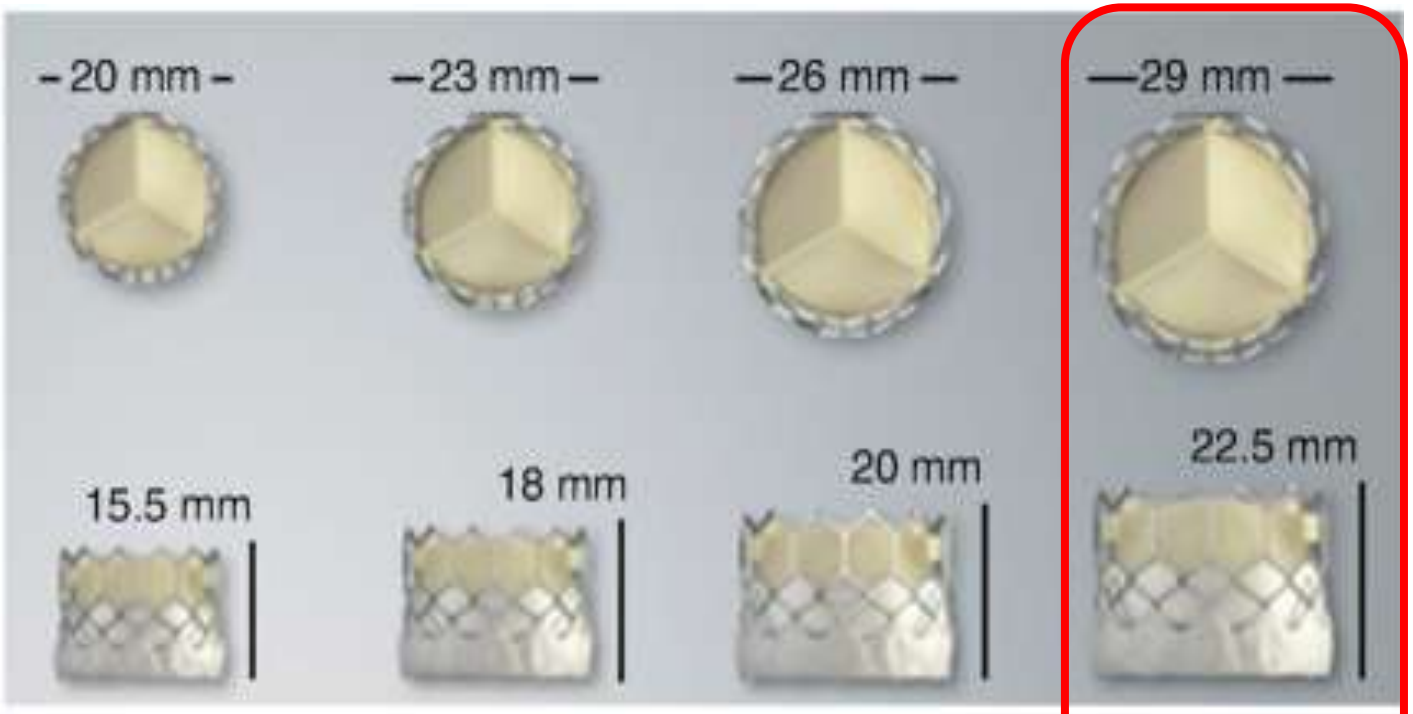
Opciones de Válvulas para Anillo Grande

Balón expandibles

ES 3 Ultra

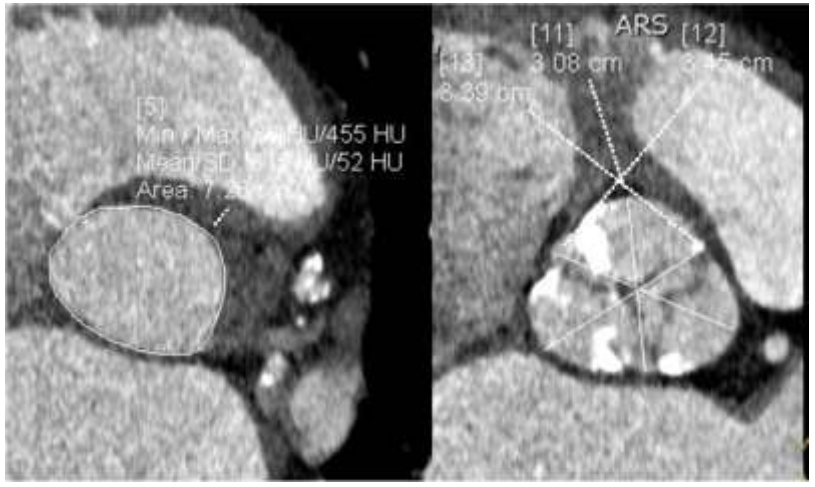


ES 3 Ultra Resilia



Annulus Sizing		20 mm	23 mm	26 mm	29 mm
Native Valve Annulus Size (CT)	Area	273 - 345 mm^2	338 - 430 mm^2	430 - 546 mm^2	540 - 683 mm^2
	Area Derived Diameter	18.6 - 21 mm	20.7 - 23.4 mm	23.4 - 26.4 mm	26.2 - 29.5 mm

Opciones de Válvulas para Anillo Grande



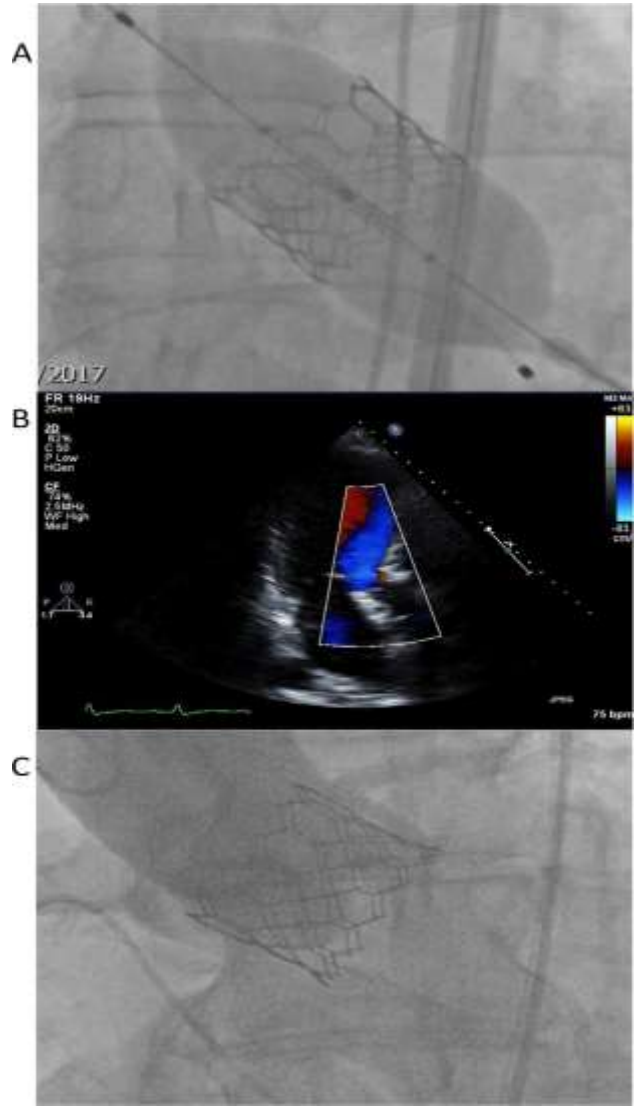
Transcatheter Aortic Valve Implantation In Patients With a Large Aortic Annulus

Peter Barr, MBChB, FRACP[a,*], John Ormiston, MBChB, FRACP[a], Jim Stewart, MBChB, FRACP[a], Parma Nand, MBBS, FRACS[b], Tharumenthiran Ramanathan, MBBS, FRACS[b], Mark Webster, MBChB, FRACP[a]

Table 2 SAPIEN 3 valve sizing guidelines.

Native annulus	338–430 mm^2	430–546 mm^2	540–683 mm^2
SAPIEN 3 valve	23 mm	26 mm	29 mm

The SAPIEN 3 valve
(Edwards Lifesciences, Irvine, CA, USA)



Deployment of a 29 mm SAPIEN 3 into a 726 mm^2 left ventricular outflow tract

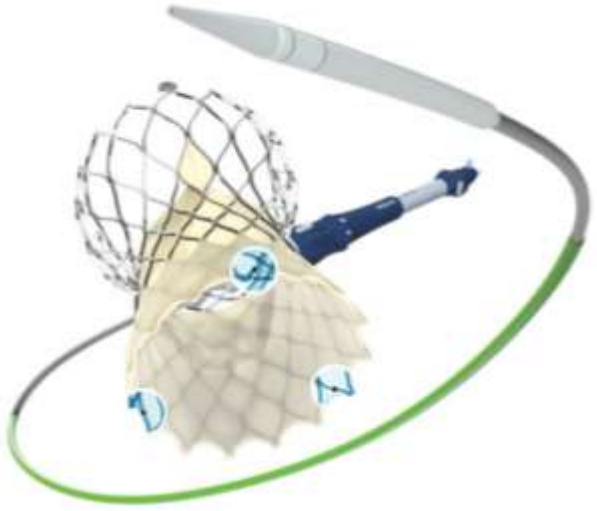
Heart, Lung and Circulation (2018) 27, e11–e14

Opciones de Válvulas para Anillo Grande

Myval Size Matrix & Technical Specs.	Area 314 mm²  20 mm	Area 363 mm²  21.5 mm	Area 415 mm²  23 mm	Area 471 mm²  24.5 mm	Area 531 mm²  26 mm	Area 594 mm²  27.5 mm	Area 661 mm²  29 mm	Area 731 mm²  30.5 mm	Area 804 mm²  32 mm
Perimeter	62.83 mm	67.54 mm	72.26 mm	76.97 mm	81.68 mm	86.39 mm	91.11 mm	95.82 mm	100.53 mm
Python Expandable Introducer Sheath	14 Fr	14 Fr	14 Fr	14 Fr	14 Fr	14 Fr	14 Fr	14 Fr	14 Fr
Native Annulus Area (CT Derived)	270 – 330 mm²	314 – 380 mm²	360 – 440 mm²	410 – 500 mm²	460 – 560 mm²	510 – 630 mm²	570 – 700 mm²	630 – 770 mm²	700 – 840 mm²
Area-derived diameter	18.5 – 20.5 mm	20.0 – 22.0 mm	21.4 – 23.7 mm	22.8 – 25.2 mm	24.2 – 26.7 mm	25.5 – 28.3 mm	26.9 – 29.9 mm	28.3 – 31.3 mm	29.9 – 32.7 mm

Opciones de Válvulas para Anillo Grande

Corevalve Evolut Flex (Medtronic, USA)



Evolut FX
23 mm Valve

Aortic annulus diameter:
18-20 mm

Evolut FX
26 mm Valve

Aortic annulus diameter:
20-23 mm

Evolut FX
29 mm Valve

Aortic annulus diameter:
23-26 mm

Evolut FX
34 mm Valve

Aortic annulus diameter:
26-30 mm

14 Fr sin introductor (18 Fr con)

18 Fr sin (22 Fr con)

Opciones de Válvulas para Anillo Grande

Navitor™ Transcatheter Aortic Valve

Catalog Number	Valve Size (mm)	Annulus Use Range Diameter (mm)[2]	Annulus Area (mm^2)[2]	Annulus Perimeter (mm)[2]
NVRO-23	23	19-21	277–346	60–66
NVRO-25	25	21–23	338–415	66–73
NVRO-27	27	23–25	405–491	72–79
NVRO-29	29	25–27	479–573	79–85
NVRO-35	35	27–30	559–707	85–95

Consideraciones respecto al **"Tipo de Válvula"**

Comparación **SAPIEN 3 29 mm**. Vs **EVOLUT R 34mm.**

ORIGINAL ARTICLE

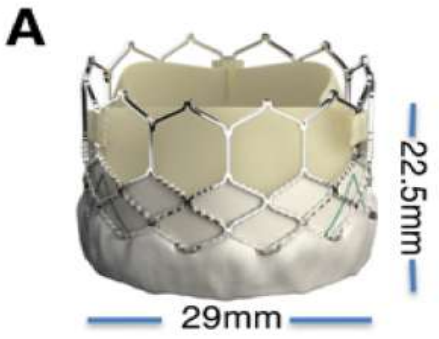
Third-Generation Balloon and Self-Expandable Valves for Aortic Stenosis in Large and Extra-Large Aortic Annuli From the TAVR-LARGE Registry

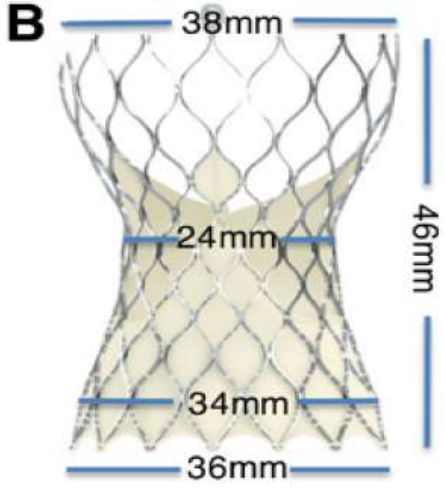
Table 3. Procedural Characteristics, Complications, and In-Hospital Outcomes by Valve Type Post-Transcatheter Aortic Valve Replacement

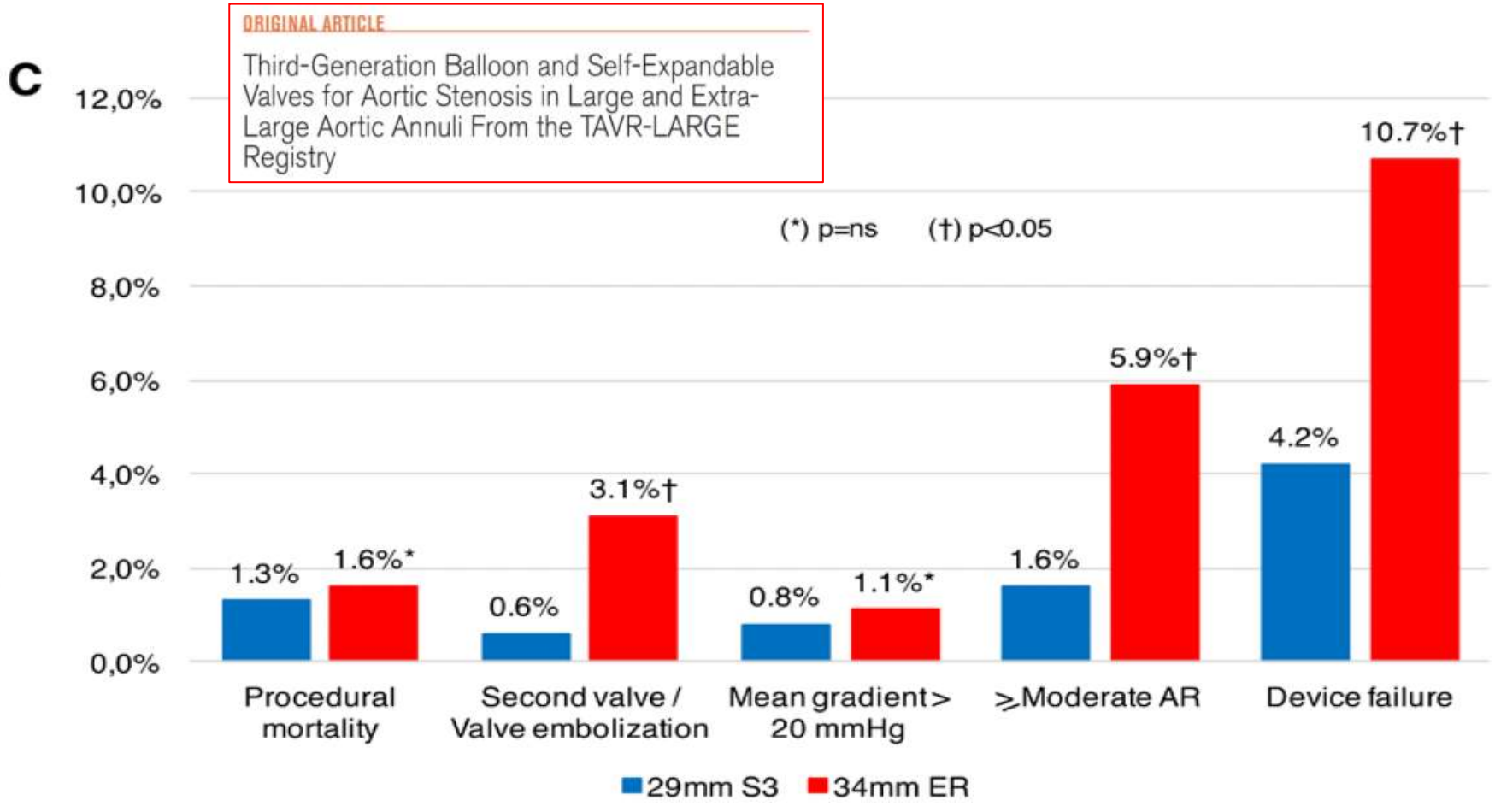
	Overall (n=833)	S3 (n=640)	ER (n=193)	*P* Value
Procedural characteristics				
General anesthesia	150 (22.1%)	122 (23.6%)	28 (17.3%)	0.093*
Transfemoral approach	750 (90.0%)	568 (88.8%)	182 (94.3%)	0.024*
Predilatation	414 (54.5%)	300 (50.8%)	114 (67.5%)	<0.001*
Postdilatation	126 (15.1%)	71 (11.1%)	55 (28.5%)	<0.001*
Implantation depth from left coronary sinus, mm	3.1 (0.4–6.2)	2.0 (0.3–4.0)	7.1 (5.1–10.0)	<0.001
Implantation depth from noncoronary sinus, mm	4.0 (0.5–6.0)	2.6 (0.3–4.0)	6.0 (4.0–8.0)	<0.001
Oversizing by area, %	9.0 (1.9–19.4)	6.1 (0.0–10.3)	46.1 (33.4–56.1)	<0.001
Contrast amount, mL	120 (80–155)	110 (79–150)	130 (80–175)	0.010
Device success	763 (94.3%)	596 (95.8%)	167 (89.3%)	0.001*

Circ Cardiovasc Interv. 2020;13:e009047.
DOI: 10.1161/CIRCINTERVENTIONS.120.009047

Consideraciones respecto al **"Tipo de Válvula"**







Circ Cardiovasc Interv. 2020;13:e009047.
DOI: 10.1161/CIRCINTERVENTIONS.120.009047

Consideraciones respecto al **"Tipo de Válvula"**

Transcatheter Aortic Valve Implantation in Japanese Patients With Large Annulus

The OCEAN-TAVI Registry

TABLE 2 Procedural and Periprocedural Data

	Total (N = 773)	Balloon-Expandable Valve (n = 671)	Self-Expandable Valve (n = 102)	*P* Value
Periprocedural complications				
Major vascular complication	19 (2.5)	17 (2.5)	2 (2.0)	0.728
Coronary occlusion	7 (0.9)	6 (0.9)	1 (1.0)	0.932
Aortic root rupture	1 (0.1)	1 (0.1)	0 (0.0)	0.696
Second valve	5 (0.7)	3 (0.4)	2 (2.0)	0.076
Conversion to open surgery	2 (0.3)	2 (0.3)	0 (0.0)	0.581
Permanent pacemaker implantation	53 (6.9)	41 (6.1)	12 (11.8)	0.035
New onset of CLBBB	150 (21.3)	125 (20.4)	25 (27.5)	0.124
New onset of AF	27 (3.5)	24 (3.6)	3 (3.0)	0.753
Ischemic stroke	20 (2.6)	15 (2.2)	5 (4.9)	0.114
Acute kidney injury	74 (9.6)	64 (9.5)	10 (9.8)	0.932
In-hospital death	7 (0.9)	7 (1.0)	0 (0.0)	0.300
Technical success	749 (97.0)	650 (96.9)	99 (97.0)	0.918
Device success	708 (91.6)	617 (92.0)	91 (89.2)	0.354

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JACC Asia. 2024;4:686–694

Agenda

5 Mensajes finales

Mensajes Finales

- ✓ La ventaja de la TAVI Autoexpandible para lograr una mejor hemodinámica en anillos pequeños, no parece jugar un papel relevante en anillos grandes.

- ✓ En anillos grandes:
  - La TAVI Balón-Expandible puede ser superior en términos de menor grado de Leak Paravalvular y de tasa de Implante de marcapasos permanente, pero a costa de mayor tasa de ruptura del anillo.
  - La TAVI Auto-Expandible puede tener mas riesgo de embolización y de necesidad de una segunda prótesis.

Mensajes Finales

- ✓ En pacientes con un anillo grande, disponemos hoy día de válvulas tanto Balón-Expandibles como Auto-Expandibles para un adecuado implante Valvular Aórtico, con similar tasa de éxito del procedimiento.
- ✓ La seguridad, en términos de eventos mayores, no parece depender del tipo de válvula utilizada en anillos grandes.

¡GRACIAS!

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Resultados de TAVR en anillo grande

ORIGINAL ARTICLE

Third-Generation Balloon and Self-Expandable Valves for Aortic Stenosis in Large and Extra-Large Aortic Annuli From the TAVR-LARGE Registry

Table 6. Clinical Outcomes After Transcatheter Aortic Valve Replacement in Patients With Large vs Extra-Large Aortic Annuli

	Overall (n=833)	Large (n=709)	Extra-Large (n=124)	*P* Value
In-hospital clinical outcomes				
In-hospital mortality	19 (2.3%)	18 (2.5%)	1 (0.8%)	0.337*
Stroke	16 (1.9%)	11 (1.6%)	5 (4.0%)	0.076*
Major vascular complications	42 (5.0%)	34 (4.8%)	8 (6.5%)	0.437†
Bleeding complications				
Life-threatening	20 (2.4%)	17 (2.4%)	3 (2.4%)	1.000*
Major	19 (2.3%)	14 (2.0%)	5 (4.0%)	0.184*
Acute kidney injury stage 2–3	25 (3.7%)	23 (4.0%)	2 (1.9%)	0.405*
New permanent pacemaker implantation‡	116 (16.5%)	104 (17.3%)	12 (11.8%)	0.165†
Device success	763 (94.3%)	650 (94.3%)	113 (94.2%)	0.940†
Periprocedural complications				
Annular rupture	6 (0.7%)	5 (0.7%)	1 (0.8%)	1.000*
Cardiac tamponade	14 (1.7%)	13 (1.8%)	1 (0.8%)	0.706*
Coronary obstruction	1 (0.1%)	1 (0.1%)	0 (0%)	1.000*
Valve embolization	7 (0.8%)	6 (0.8%)	1 (0.8%)	1.000*
Second valve required	10 (1.2%)	8 (1.1%)	2 (1.6%)	0.650*
Predischarge echocardiographic results				
Aortic valve mean gradient, mm Hg	9.0 (6.9–11.0)	9.0 (7.0–2.3)	8.2 (6.3–11.0)	0.366
Aortic valve area, cm^2	1.9 (1.6–2.3)	1.9 (1.6–2.3)	1.9 (1.6–2.4)	0.852
Aortic regurgitation ≥grade 2	133 (16.3%)	113 (16.3%)	20 (16.5%)	0.951†
Moderate-to-severe aortic regurgitation	21 (2.6%)	17 (2.5%)	4 (3.3%)	0.537*

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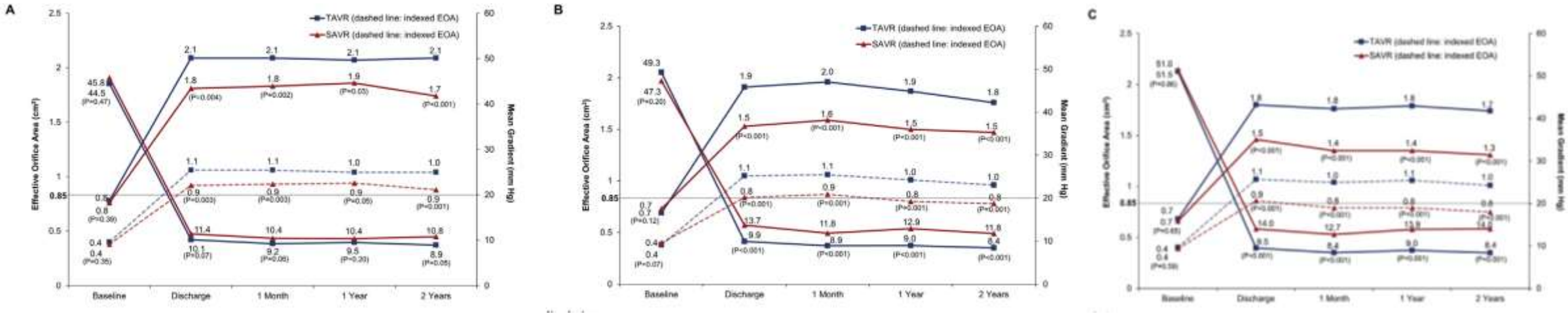
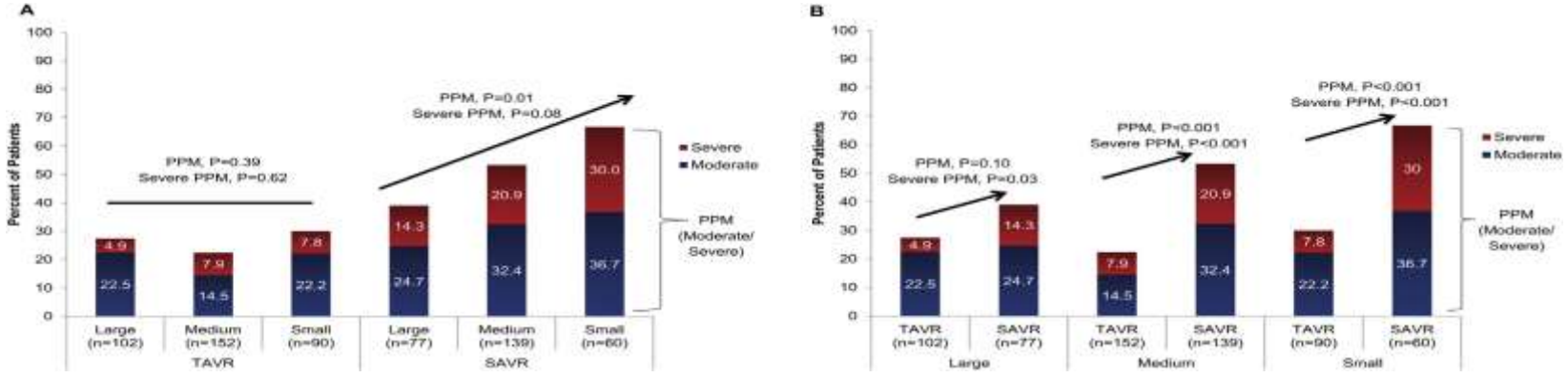
Resultados de TAVR en anillo grande

Impact of Annular Size on Outcomes After Surgical or Transcatheter Aortic Valve Replacement

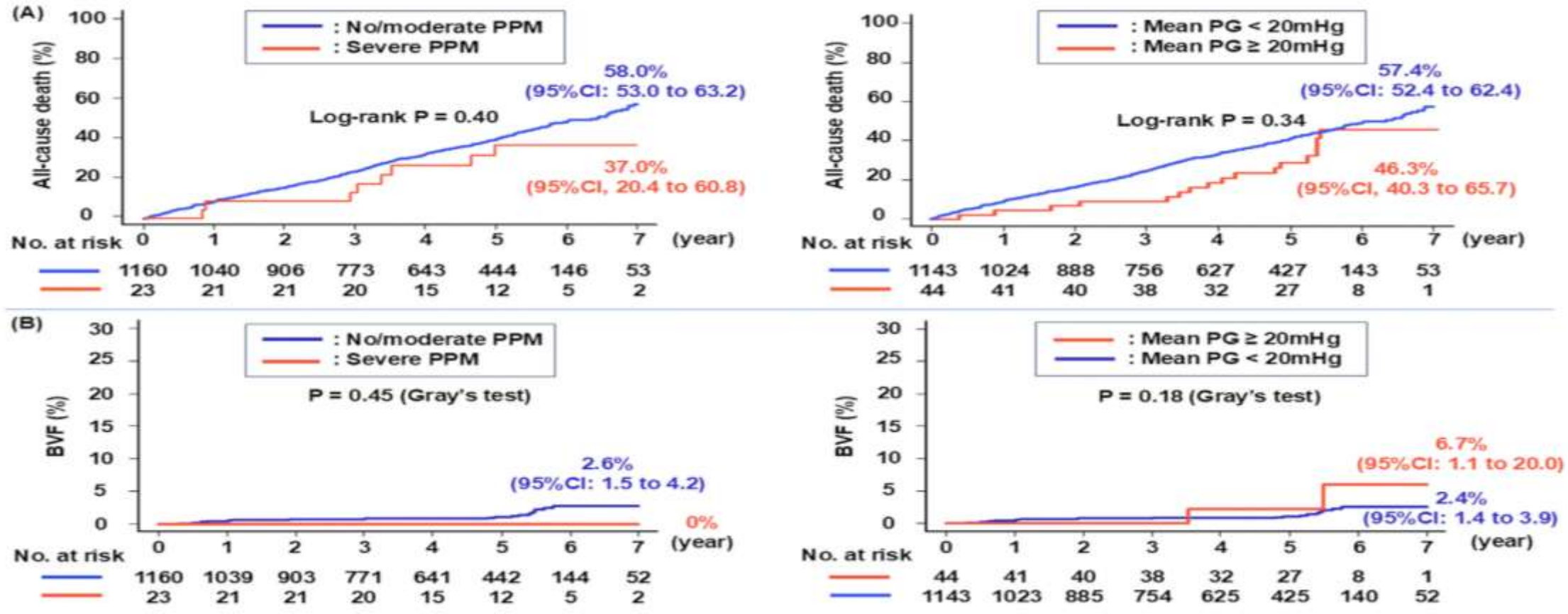




Deeb, et al. Ann Thorac Surg 2018;105:1129–36

Resultados de TAVR en anillo grande

Impact of Annulus Size on Bioprosthetic Valve Failure after Self-Expanding Transcatheter Heart Valves Replacement



Hioki et al. The OCEAN- TAVI Investigators. The American Journal of Cardiology 251, 2025:10–17

Resultados de TAVR en anillo grande

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Comparación SAPIEN 3 29 mm. Vs EVOLUT R 34mm.

Table 1. Baseline Characteristics According to Valve Type

	Overall (n=833)	S3 (n=640)	ER (n=193)	*P* Value
Variable				
Age, y	80 (74.6–85.0)	80 (74.5–84.2)	81 (75.0–86.0)	0.277
Women	54 (6.5%)	38 (5.9%)	16 (8.3%)	0.245
Body mass index, kg/m²	27.4 (24.6–31.0)	27.4 (24.6–30.9)	27.3 (24.2–31.2)	0.910
Body surface area, m²	2.0 (1.9–2.1)	2.0 (1.9–2.1)	1.9 (1.8–2.1)	0.001
Diabetes mellitus	238 (28.6%)	180 (28.2%)	58 (30.1%)	0.612
Coronary artery disease	479 (57.5%)	372 (58.1%)	107 (55.4%)	0.508
Prior cardiac surgery	143 (17.2%)	103 (16.1%)	40 (20.7%)	0.135
Atrial fibrillation	349 (42.2%)	270 (42.5%)	79 (41.1%)	0.736
Chronic obstructive pulmonary disease	215 (25.8%)	155 (24.3%)	60 (31.1%)	0.057
Prior permanent pacemaker	128 (15.4%)	94 (14.7%)	34 (17.7%)	0.309
Prior stroke	101 (12.1%)	72 (11.3%)	29 (15.1%)	0.152
Peripheral vascular disease	156 (18.7%)	113 (17.7%)	43 (22.3%)	0.149
eGFR, mL/min	59.9 (44.9–81.0)	60.6 (46.3–81.3)	57.3 (40.0–78.8)	0.146
Euroscore II, %	3.7 (2.1–6.5)	3.7 (2.1–6.4)	4.0 (2.5–7.6)	0.059
STS score, %	3.6 (2.3–6.4)	3.6 (2.3–6.2)	4.0 (2.3–7.0)	0.273

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