HOSPITAL ÁLVARO CUNQUEIRO

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TAVI & Revascularización Coronaria

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SERVIZO GALEGO de SAÚDE

CARDIOLOGÍA Área Sanitaria de Vigo

Fundación Biomédica Galicia Sur

IIS Galicia Sur

Declaración de Interéss

Ningún conflicto de interés en relación al tema de esta presentación

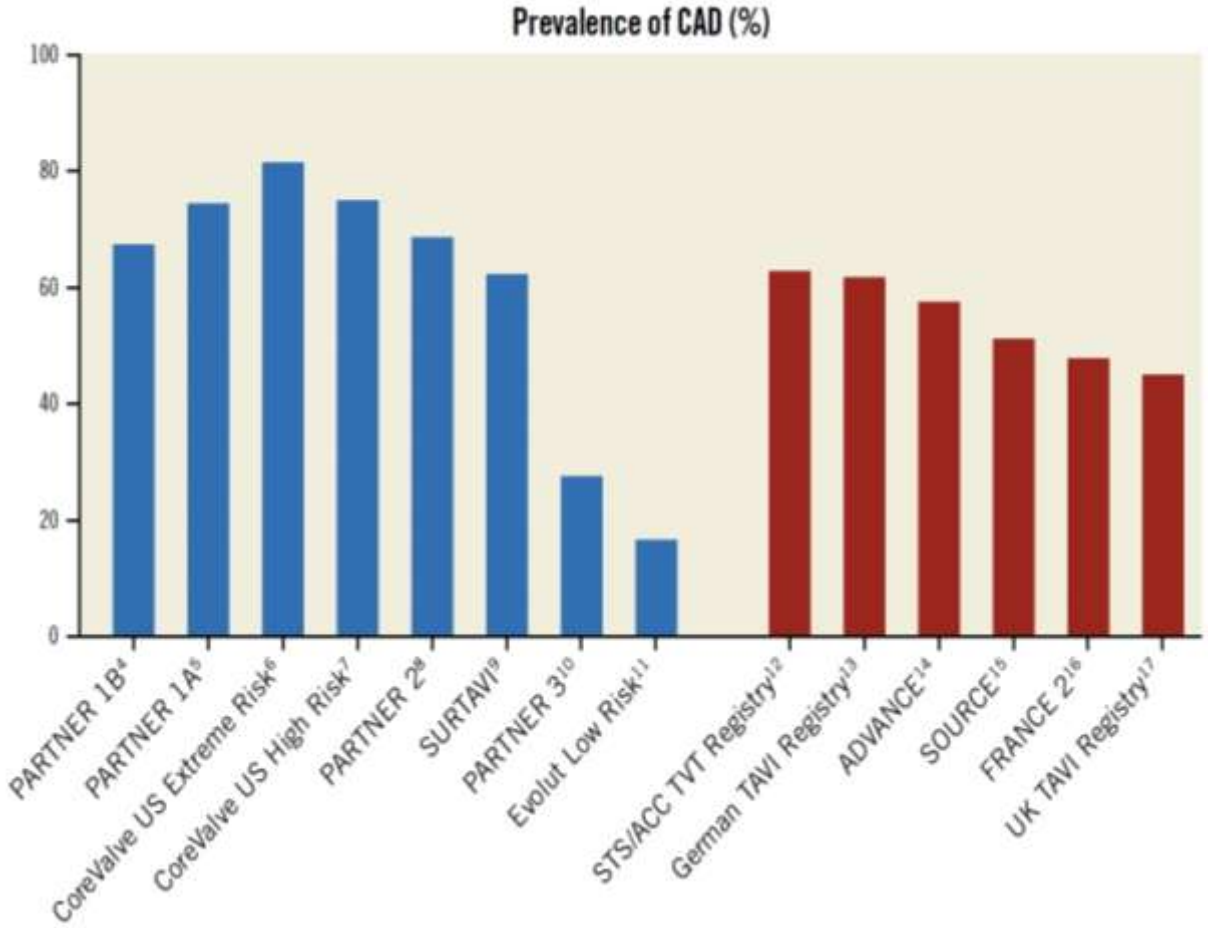
Agenda

1. Introducción: Patología Coronaria & TAVI
2. Resultados de la revascularización & TAVI
3. Costes
4. Mensajes finales

Agenda

1 Introducción: Patología Coronaria & TAVI

Prevalencia de patología coronaria en pacientes tratados con TAVI



Generalmente los pac. con Enf. Coronaria severa (SYNTAX score >22, TCI) y aquellos con ICP reciente son excluidos de los ensayos TAVI de riesgo intermedio y bajo.

EuroIntervention 2023;19:37-52

Canadian Journal of Cardiology 40 (2024) 218e234. https://doi.org/10.1016/j.cjca.2023.09.023

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Patología Coronaria & TAVI

- La cirugía de revascularización coronaria (CABG) en el momento del reemplazo valvular aórtico quirúrgico (SAVR) ha sido el estándar de oro en candidatos quirúrgicos con enfermedad coronaria significativa concomitante

- Si bien, las opciones de tratamiento (ICP Vs Cirugía de revascularización) para la enfermedad coronaria significativa estable (sintomática o asintomática) en candidatos a TAVI varían considerablemente entre diferentes instituciones.

- No existe consenso sobre la evaluación ni el manejo de la enfermedad coronaria en pacientes sometidos a TAVI, ni las guías clínicas ofrecen recomendaciones con suficiente nivel de evidencia, pues se basan en datos de estudios no aleatorizados o en opiniones de expertos.

Efecto de la EAo sobre la anatomía y fisiología coronaria

Reduction in stroke volume, systolic and mean arterial pressure, which may cause reduced coronary perfusion pressure
Decreased density of coronary microvasculature
Attenuated and delayed systolic forward compression wave of coronary blood flow
Increased resting diastolic backward expansion wave
Reduction in resting microvascular resistance, with inability to reduce further in response to hyperaemia
Upregulation of vasoactive factors, leading to increased resting blood flow
Microvascular dysfunction impairing hyperaemic response
Reversal of normal endocardial-epicardial blood flow ratio at rest
Reduced diastolic coronary perfusion phase
Attenuated coronary flow reserve

EuroIntervention 2023;19:37-52

Diagnóstico de severidad de la patología coronaria en TAVI

- Metanálisis, 7 estudios, 1.275 pac. de TAVI
- Precisión diagnóstica del TAC previo a la TAVI con la angiografía.
- La sensibilidad, la especificidad y los valores predictivos positivos (VPP) y negativos (VPN) fueron del 95%, 65%, 71% y 94 %, respectivamente.

El diagnóstico debe basarse fundamentalmente en:

- El nivel sintomático del paciente.
- La severidad real de las lesiones coronarias.

van den Boogert et al. Neth Heart J. 2018;26:591-599.

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2 Resultados de la revascularización & TAVI

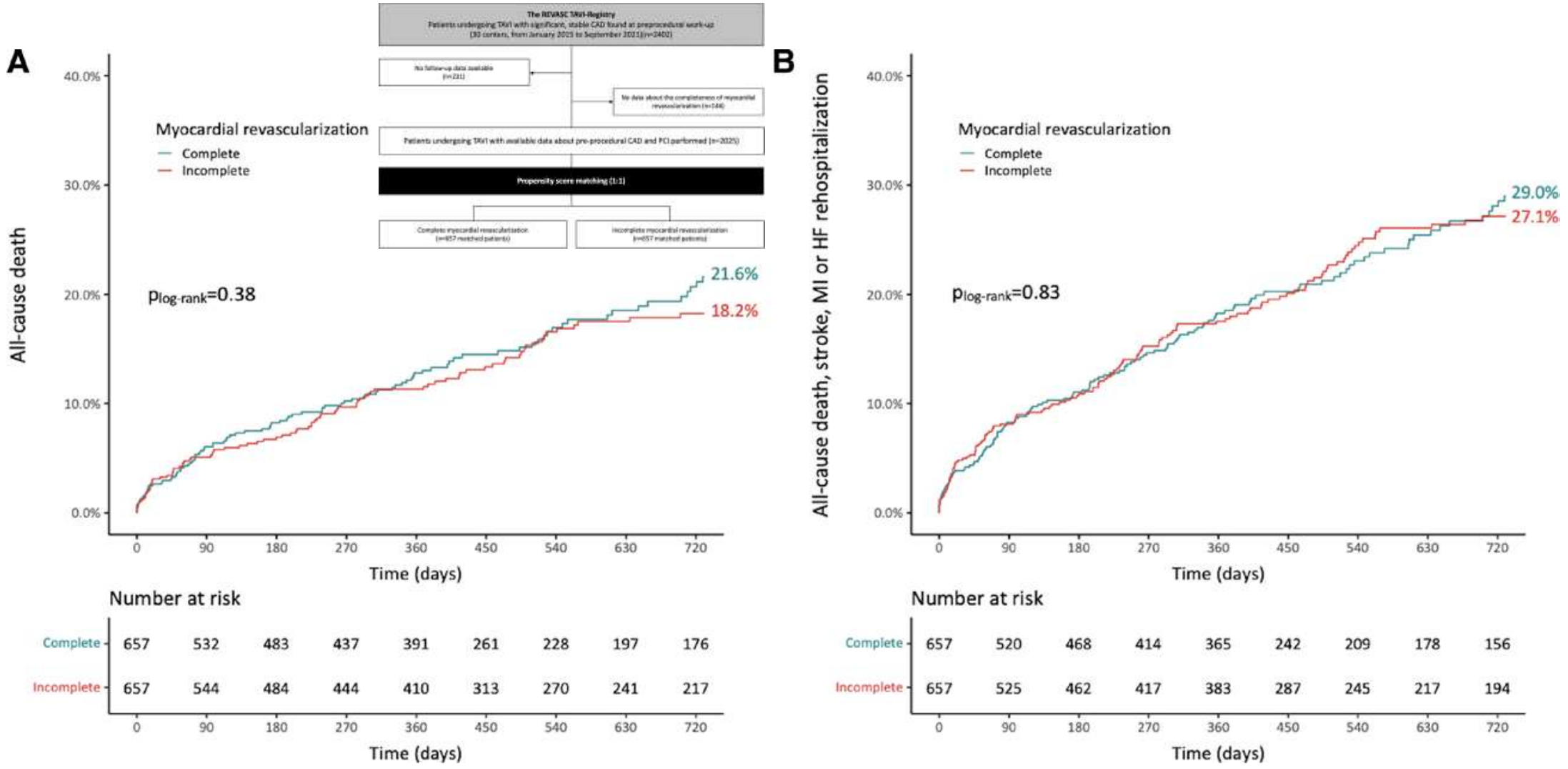
Resultados de ICP & TAVI según **Severidad** Enf. Coronaria

			of relevant CAD	of CAD (%)	CAD pts)	revascularization among CAD pts			
Stefanini[28]	2014	445	SYNTAX Score: low SS 0-22, high SS >22	65.5 SS 0-22: 46.5 SS >22: 18	31.2 (48.4)	Low SS: bSS 10.1, rSS 4.0 High SS: bSS 33.2, rSS 21.2	Up to 1 year	bSS >22 associated with 2-fold increased risk of 1-year cardiovascular mortality (p=0.029) Higher rSS associated with increased ischemic outcomes	Severity of CAD and less complete revascularization associated with impaired 1-year outcomes Higher bSS received less complete revascularization
Khawaja[29]	2015	271	QCA: coronary stenosis ≥70 % (or ≥50 % if left main or vein graft) SYNTAX Score	34.3	9.2 (26.9)		Median of 683 days	SS threshold of 9 independently predicted mortality (HR 1.95, p=0.006) High SS (>33) associated with mortality (p= 0.007), conversely CAD per se was not (p=0.805)	No effect of CAD (p=0.805) and PCI among CAD pts (p=0.918) on mortality at 30 days and 1 year
Shamekhi[30]	2017	666	SYNTAX Score: low SS 0-24, high SS >24 SYNTAX Score II	65.6	24.3 (37.1)	Low SS: bSS 7.0, rSS 2 High SS: bSS 38.5, rSS 11	Median of 593 days	Higher bSS (p=0.001), rSS (p=0.01), and SS-II (p<0.001) associated with increased 3-year mortality bSS, rSS and SS-II did not independently predict mortality	Severity of CAD at baseline and after PCI associated with survival after TAVI
Paradis[31]	2017	377	QCA-derived SYNTAX Score: low SS 1-22, intermediate SS 23-32, high SS ≥33	78.2	42.2 (53.6)	Low SS: bSS 11.5, rSS 6.4 Intermediate SS: bSS 27.7, rSS 16.4 High SS: bSS 45.9, rSS 33.8	Median of 452 days	CAD presence, bSS, rSS threshold of 8, and CABG-SS did not impact on 30-day and 1-year outcomes	Neither severity of CAD, nor completeness of revascularization after PCI or CABG were associated with worse clinical outcomes

Resultados contradictorios (heterogeneidad poblaciones, nivel de revasc. completa, etc)

Interventional Cardiology Review 2018;13(2):69–76. DOI: https://doi.org/10.15420/icr.2018:2:2

ICP & TAVI: Revascularización **Completa o Incompleta**



Circ Cardiovasc Interv. 2022;15:e012417. DOI: 10.1161/CIRCINTERVENTIONS.122.012417

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ICP & TAVI en SCA: Revascularización **Completa o Incompleta**

Predictores de Mortalidad " Co-Morbilidades"

	Univariate analysis			Multivariable analysis		
	Hazard ratio	95% CI	p	Hazard ratio	95% CI	p
Age	1.00	0.96–1.04	.96			
Previous MI	1.55	0.94–2.58	.09			
Previous stroke	2.20	1.09–4.46	.03	2.28	1.11–9.29	.02
Pacemaker	2.02	1.10–3.72	.02	2.32	1.24–4.33	.008
PAD	1.93	1.12–3.31	.02	1.95	1.24–4.33	.02
GFR > 80 mL/min	0.67	0.42–1.07	.09	0.18	0.37–0.89	.04
Angina	0.88	0.44–1.75	.72			
ACS	2.29	0.83–6.33	.10	2.89	1.01–8.22	.05
CAD	0.99	0.61–1.61	.98			
Number of vessel disease	1.03	0.84–1.27	.30			
Left main coronary disease	2.24	1.17–4.29	.014			
Complete revascularization	0.91	0.68–1.21	.51			
LVEF	0.99	0.97–1.01	.49			
New atrial fibrillation	0.16	0.02–1.13	.07			
Acute kydney injury (class 2–3)	1.36	1.03–1.79	.03	3.52	1.34–9.29	.01

Catheter Cardiovasc Interv. 2020;95:19–27. DOI: 10.1002/ccd.28211

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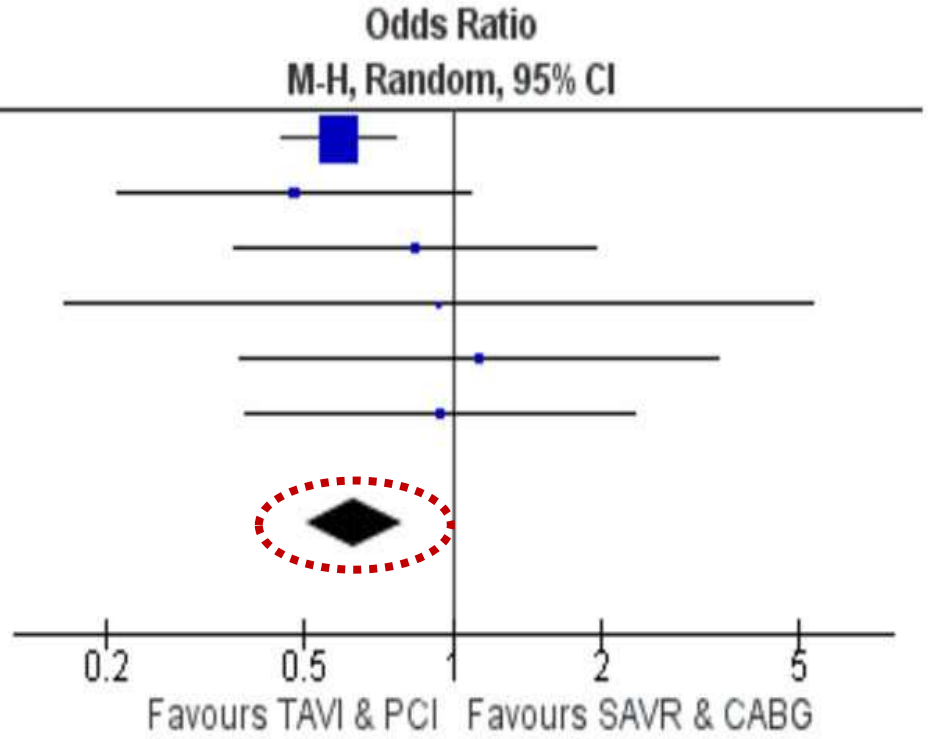
ICP+TAVI Vs **CABG+TAVI**

Mortalidad a 30 días (-37% ICP+TAVI vs Cirugía+TAVI)

Study or Subgroup	TAVI & PCI Events	Total	SAVR & CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Abugroun 2020	59	2185	1306	29020	73.1%	0.59 [0.45, 0.77]
Barbanti 2018	9	236	18	236	7.6%	0.48 [0.21, 1.09]
Baumbach 2019	7	112	34	464	7.2%	0.84 [0.36, 1.95]
Kresoja 2015	2	42	4	79	1.7%	0.94 [0.16, 5.34]
Søndergaard 2019	7	169	6	163	4.1%	1.13 [0.37, 3.44]
Wendt 2013	7	59	23	184	6.3%	0.94 [0.38, 2.32]
Total (95% CI)		**2803**		**30146**	**100.0%**	**0.63 [0.51, 0.80]**
Total events	91		1391			

Heterogeneity: Tau² = 0.00; Chi² = 3.16, df = 5 (P = 0.67); I² = 0%

Test for overall effect: Z = 3.94 (P < 0.0001)



J Card Surg. 2022;37:2072–203. DOI: 10.1111/jocs.16511

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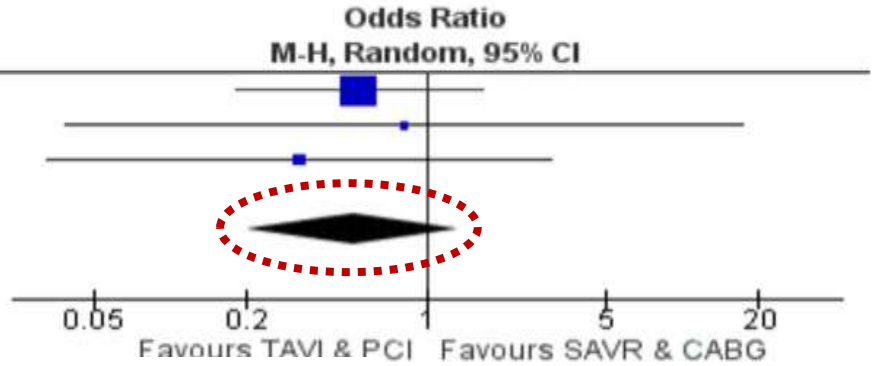
ICP+TAVI Vs **CABG+TAVI**

IAM a 30 días (- 48% ICP+TAVI vs Cirugía+TAVI)

Study or Subgroup	TAVI & PCI Events	Total	SAVR & CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Barbanti 2018	5	236	9	236	73.0%	0.55 [0.18, 1.65]
Baumbach 2019	0	112	2	464	9.7%	0.82 [0.04, 17.25]
Søndergaard 2019	1	169	3	163	17.3%	0.32 [0.03, 3.08]
Total (95% CI)		**517**		**863**	**100.0%**	**0.52 [0.20, 1.33]**
Total events	6		14			

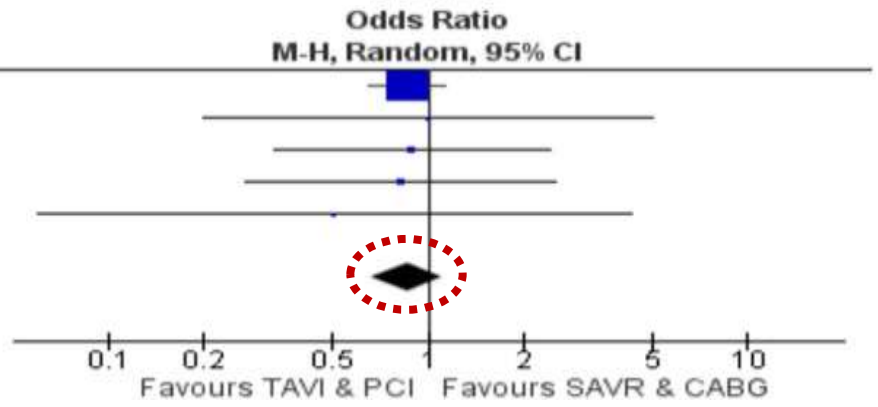
Heterogeneity: Tau² = 0.00; Chi² = 0.28, df = 2 (P = 0.87); I² = 0%
Test for overall effect: Z = 1.37 (P = 0.17)



ACV a 30 días (- 14% ICP+TAVI vs Cirugía+TAVI)

Study or Subgroup	TAVI & PCI Events	Total	SAVR & CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Abugroun 2020	55	2185	841	29020	84.3%	0.87 [0.66, 1.14]
Barbanti 2018	3	236	3	236	2.5%	1.00 [0.20, 5.01]
Baumbach 2019	5	112	23	464	6.6%	0.90 [0.33, 2.41]
Søndergaard 2019	6	169	7	163	5.2%	0.82 [0.27, 2.49]
Wendt 2013	1	59	6	184	1.4%	0.51 [0.06, 4.34]
Total (95% CI)		**2761**		**30067**	**100.0%**	**0.86 [0.67, 1.11]**
Total events	70		880			

Heterogeneity: Tau² = 0.00; Chi² = 0.28, df = 4 (P = 0.99); I² = 0%
Test for overall effect: Z = 1.15 (P = 0.25)



J Card Surg. 2022;37:2072–203. DOI: 10.1111/jocs.16511

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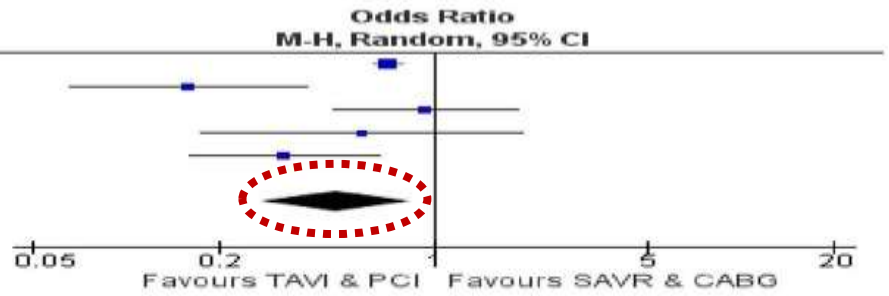
ICP+TAVI Vs **CABG+TAVI**

Fracaso Renal a 30 días (- 51% ICP+TAVI vs Cirugía+TAVI)

Study or Subgroup	TAVI & PCI Events	Total	SAVR & CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Abugroun 2020	430	2185	7429	29020	29.8%	0.71 [0.64, 0.79]
Barbanti 2018	6	236	33	236	17.0%	0.16 [0.07, 0.39]
Baumbach 2019	11	112	48	464	20.5%	0.94 [0.47, 1.88]
Kresoja 2015	4	42	12	79	12.5%	0.59 [0.18, 1.95]
Søndergaard 2019	12	169	31	163	20.2%	0.33 [0.16, 0.66]
Total (95% CI)		**2744**		**29962**	**100.0%**	**0.49 [0.28, 0.85]**
Total events	463		7553			

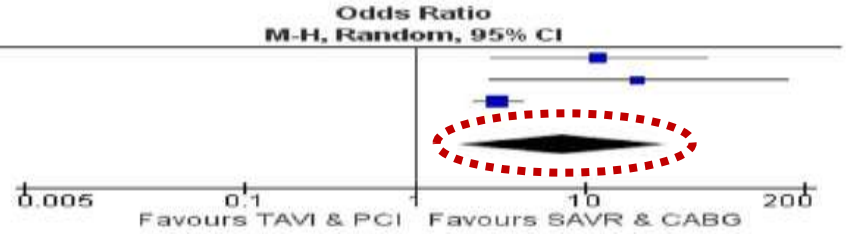
Heterogeneity: Tau² = 0.27; Chi² = 15.88, df = 4 (P = 0.003); I² = 75%
Test for overall effect: Z = 2.53 (P = 0.01)



Complic. Vasculares Mayores a 30 días (x7 ICP+TAVI vs Cirugía+TAVI)

Study or Subgroup	TAVI & PCI Events	Total	SAVR & CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI	Year
Barbanti 2018	22	236	2	236	31.0%	12.03 [2.80, 51.76]	2018
Søndergaard 2019	19	169	1	163	23.7%	20.52 [2.71, 155.17]	2019
Abugroun 2020	46	2185	203	29020	45.4%	3.05 [2.21, 4.22]	2020
Total (95% CI)		**2590**		**29419**	**100.0%**	**7.33 [1.80, 29.85]**	
Total events	87		206				

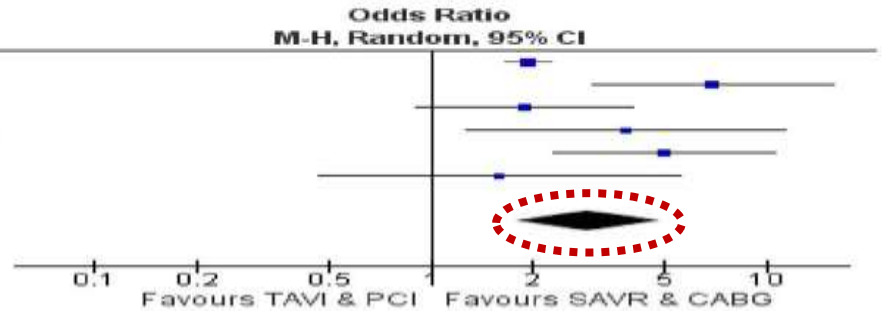
Heterogeneity: Tau² = 1.10; Chi² = 7.73, df = 2 (P = 0.02); I² = 74%
Test for overall effect: Z = 2.78 (P = 0.005)



Marcapasos permanente a 30 días (x3 ICP+TAVI vs Cirugía+TAVI)

Study or Subgroup	TAVI & PCI Events	Total	SAVR & CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Abugroun 2020	205	2185	1451	29020	27.7%	1.97 [1.69, 2.29]
Barbanti 2018	41	236	7	236	15.9%	6.88 [3.02, 15.68]
Baumbach 2019	11	112	25	464	17.3%	1.91 [0.91, 4.01]
Kresoja 2015	10	42	6	79	11.9%	3.80 [1.27, 11.35]
Søndergaard 2019	38	169	9	163	17.0%	4.96 [2.31, 10.65]
Wendt 2013	4	59	8	184	10.2%	1.60 [0.46, 5.52]
Total (95% CI)		**2803**		**30146**	**100.0%**	**2.96 [1.80, 4.85]**
Total events	309		1506			

Heterogeneity: Tau² = 0.22; Chi² = 15.25, df = 5 (P = 0.009); I² = 67%
Test for overall effect: Z = 4.30 (P < 0.0001)



J Card Surg. 2022;37:2072–203. DOI: 10.1111/jocs.16511

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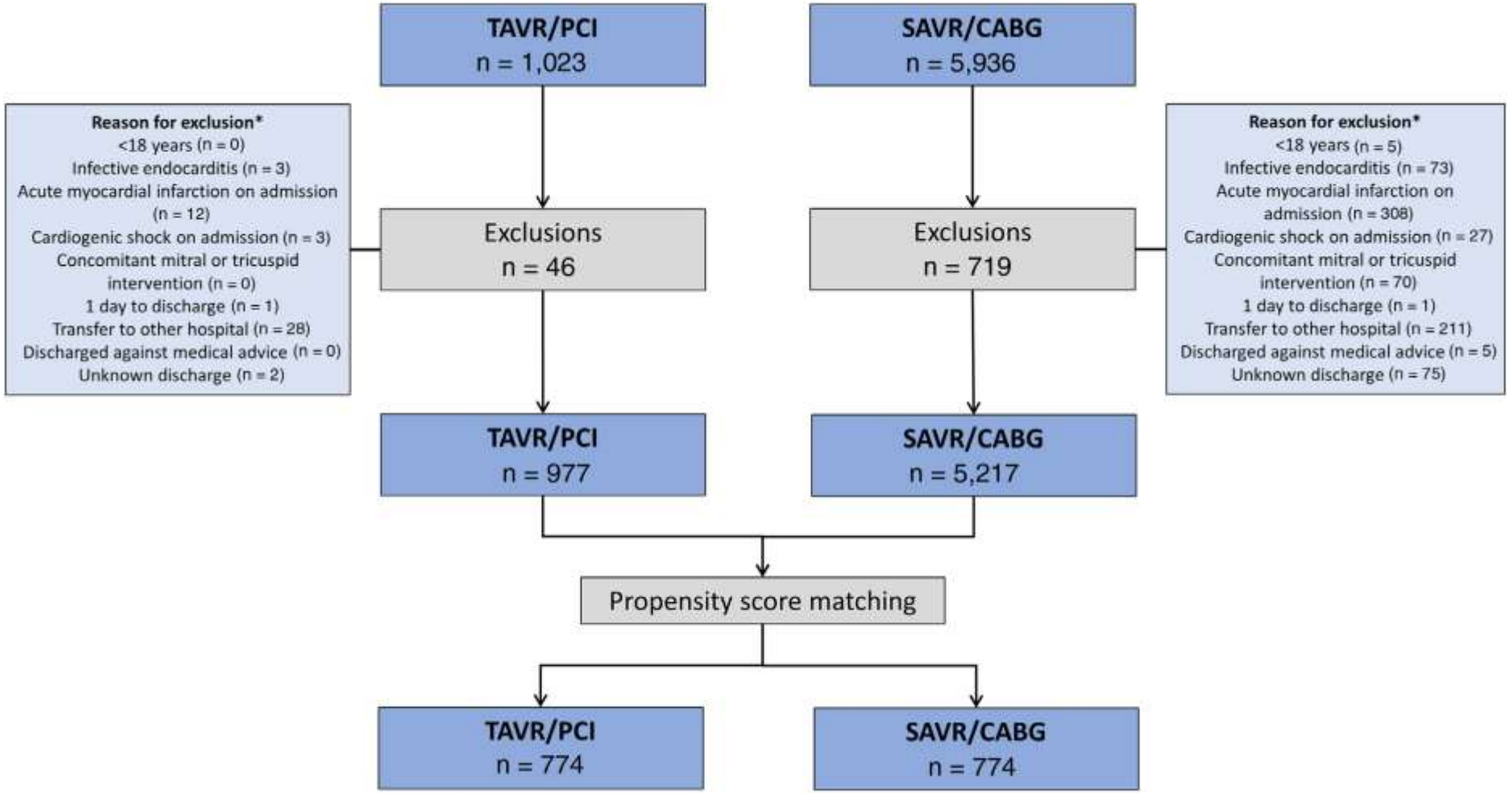
ICP+TAVI Vs **CABG+TAVI**



*More than one reason for exclusion may apply

Rev Esp Cardiol. 2023;76(8):600–608 . https://doi.org/10.1016/j.rec.2022.12.011

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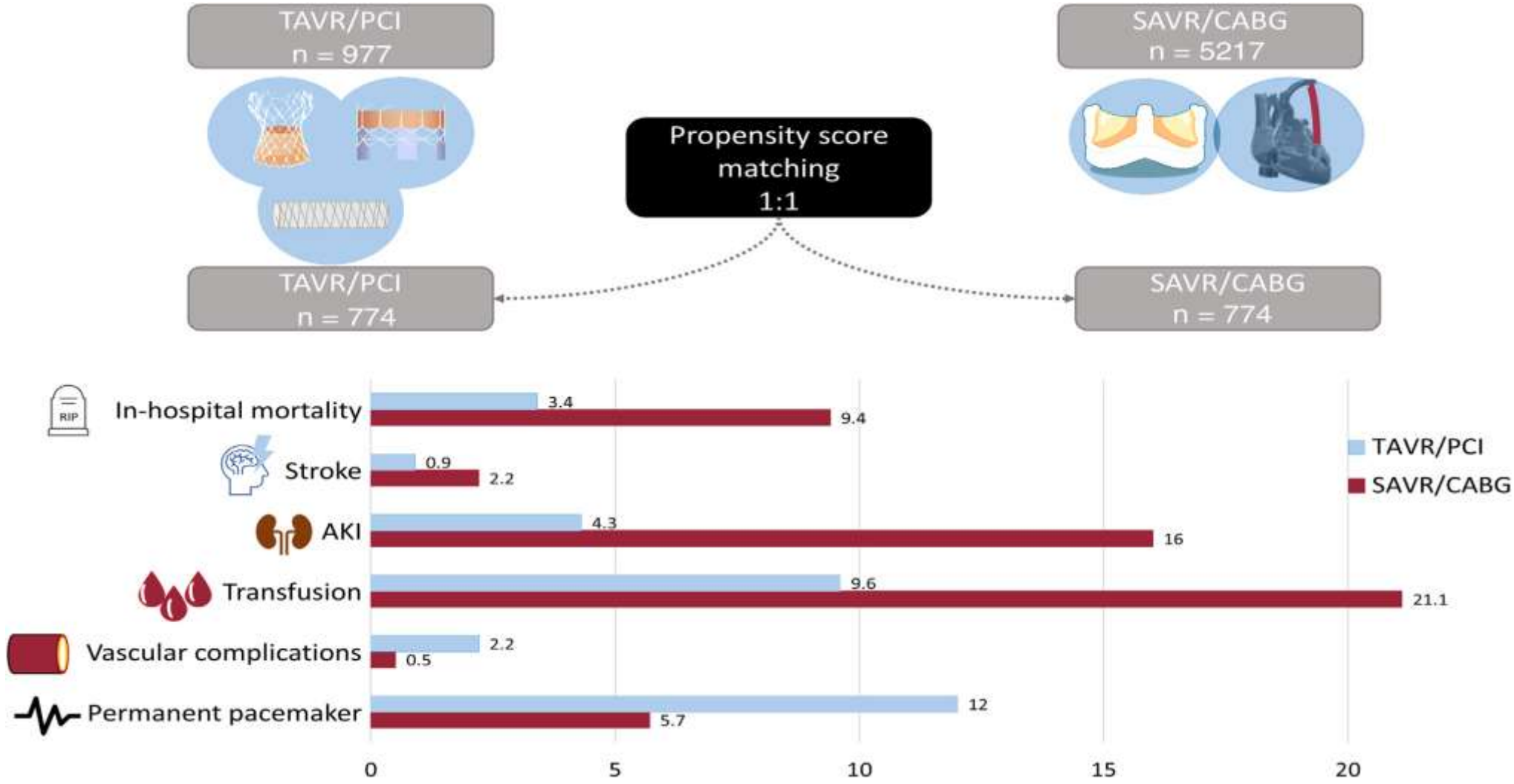
ICP+TAVI Vs **CABG+TAVI**



Rev Esp Cardiol. 2023;76(8):600–608 . https://doi.org/10.1016/j.rec.2022.12.011

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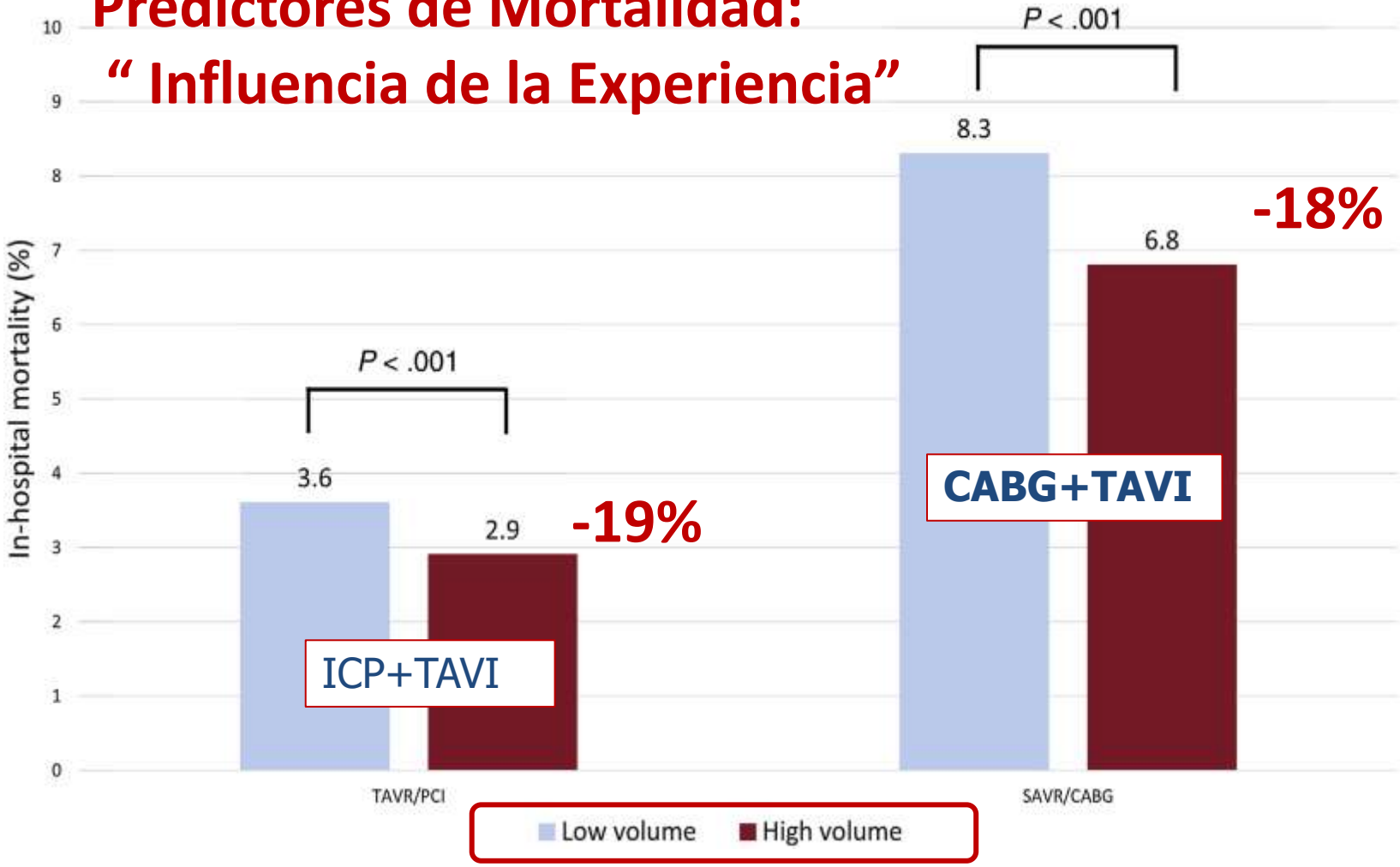
ICP+TAVI Vs **CABG+TAVI**

Predictores de Mortalidad:
" Influencia de la Experiencia"



Rev Esp Cardiol. 2023;76(8):600–608 . https://doi.org/10.1016/j.rec.2022.12.011

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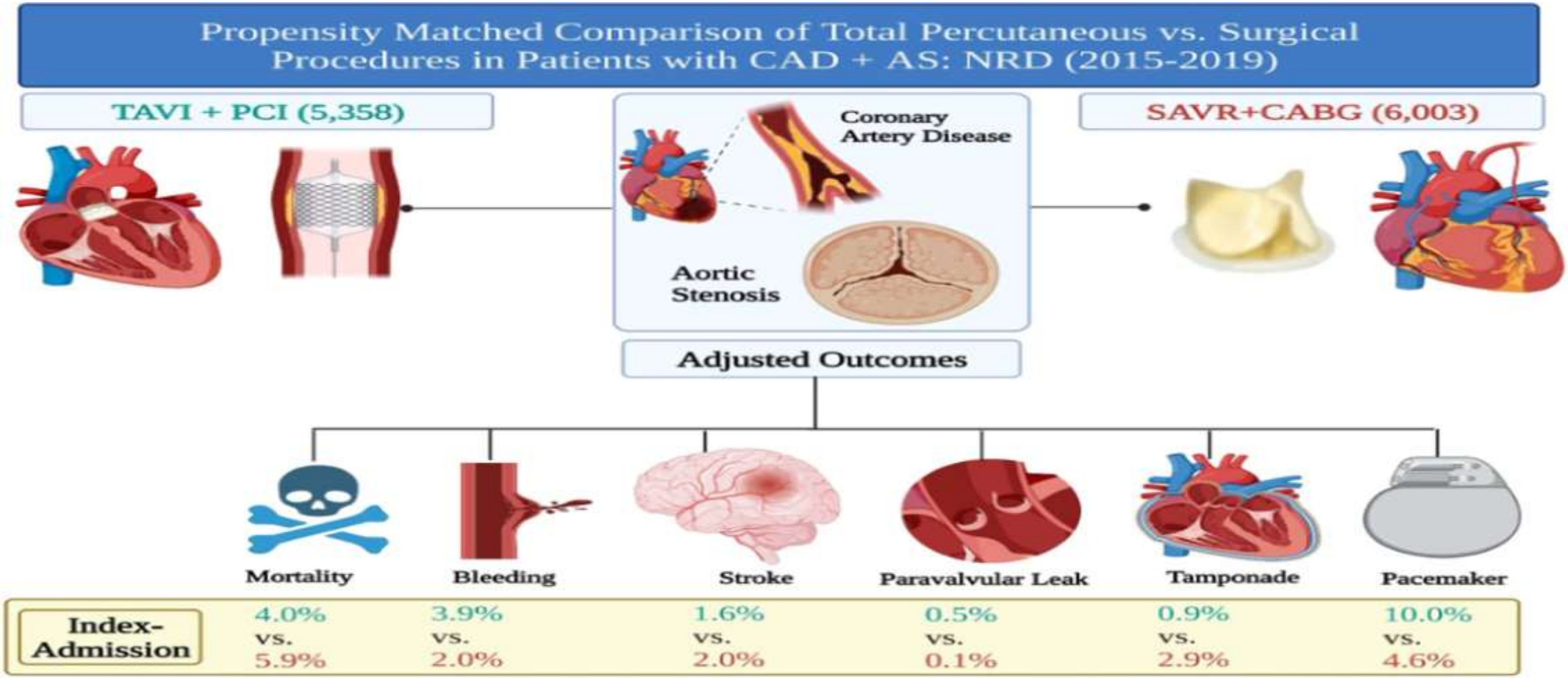
ICP+TAVI Vs **CABG+TAVI**



Catheter Cardiovasc Interv. 2023;102:946–957. DOI: 10.1002/ccd.30832

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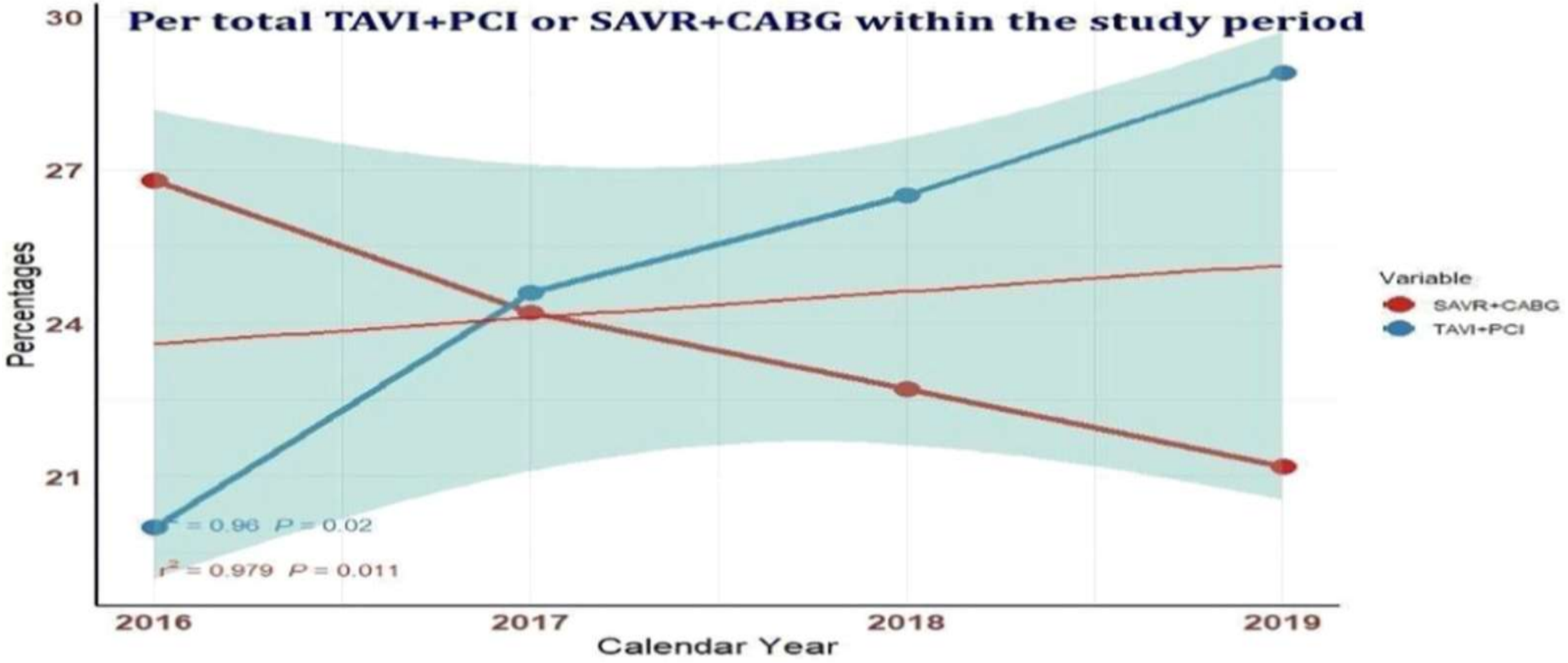
ICP+TAVI Vs **CABG+TAVI**



Catheter Cardiovasc Interv. 2023;102:946–957. DOI: 10.1002/ccd.30832

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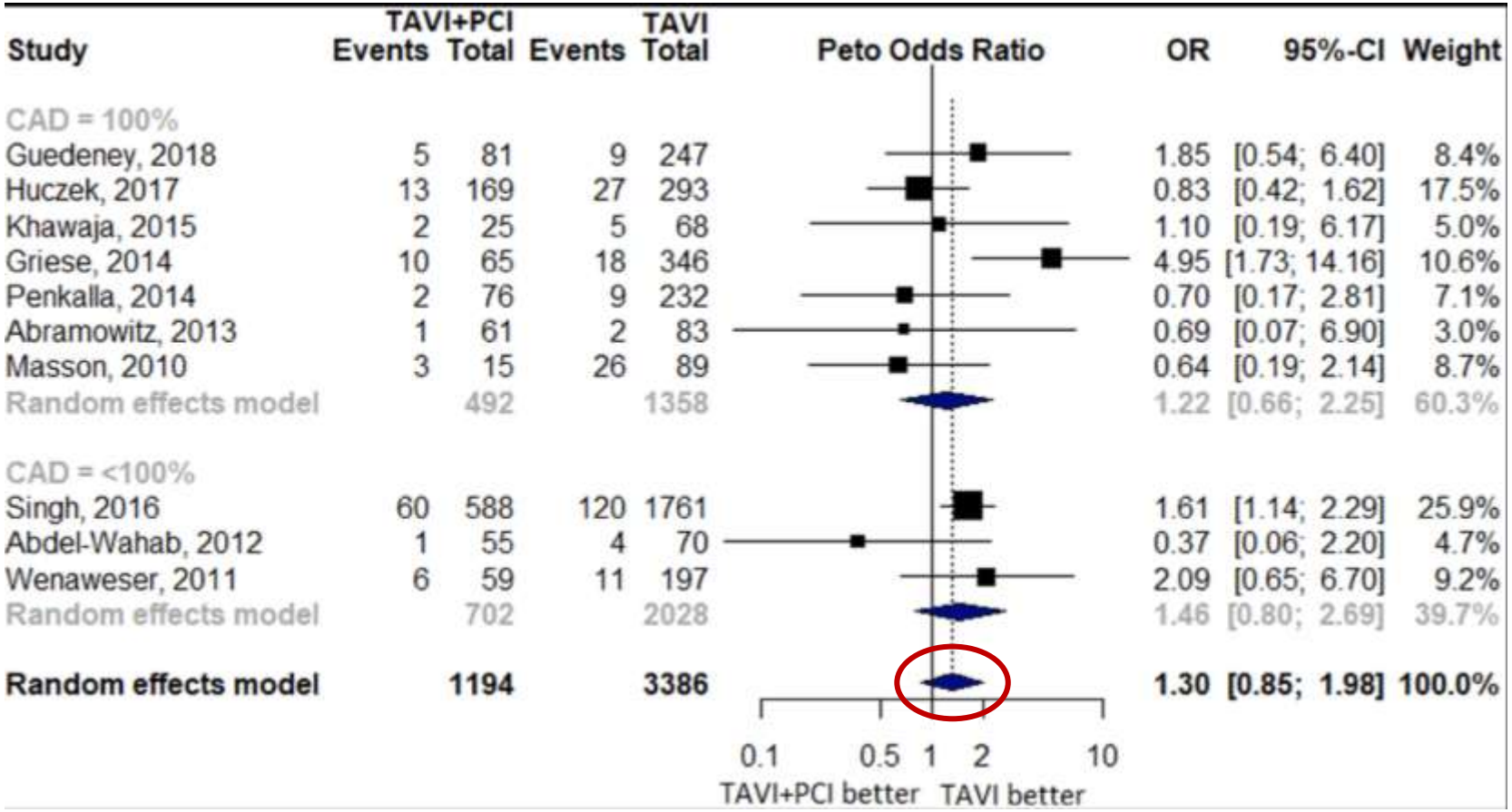
ICP +TAVI Vs TAVI aislada

Pacientes con Cardiopatía Isquémica ESTABLE

Mortalidad a 30 días (+30% ICP+TAVI vs TAVI)



Am J Cardiol. 2019 Dec 1;124(11):1757-1764.
doi: 10.1016/j.amjcard.2019.08.024.

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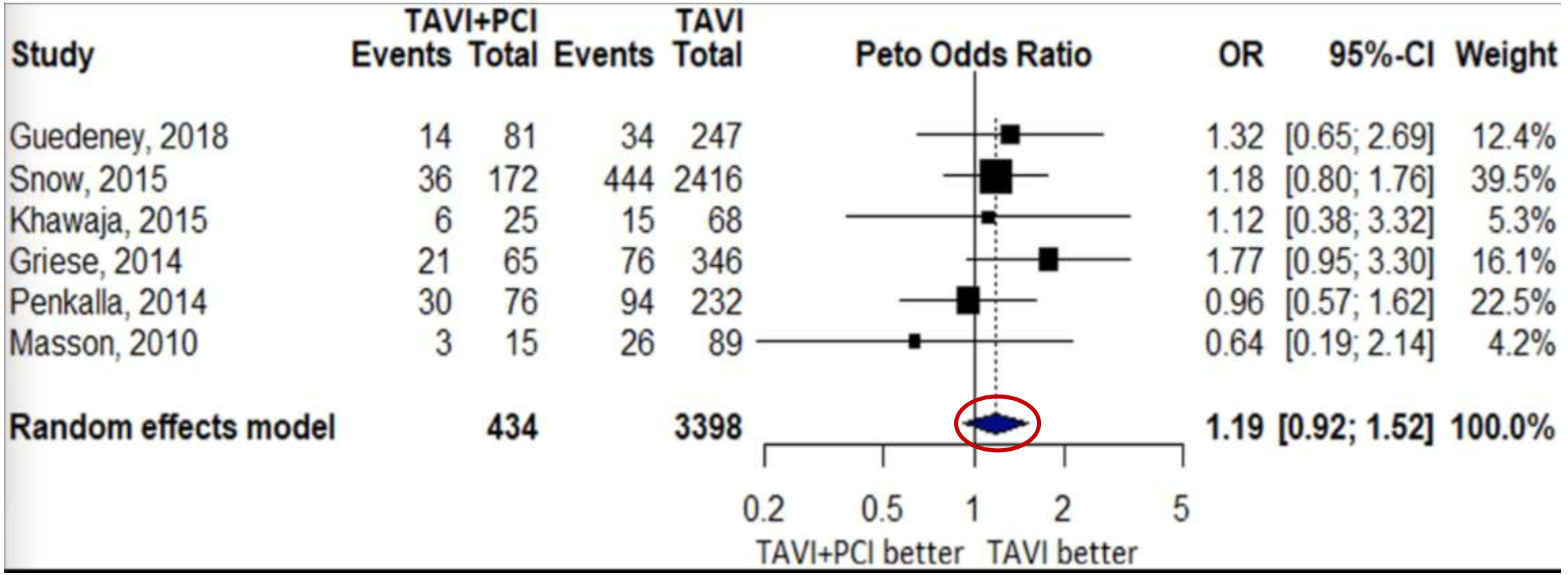
ICP +TAVI Vs TAVI aislada

Pacientes con Cardiopatía Isquémica ESTABLE

Mortalidad a 1 año (+19% ICP+TAVI vs TAVI)



Am J Cardiol. 2019 Dec 1;124(11):1757-1764.
doi: 10.1016/j.amjcard.2019.08.024.

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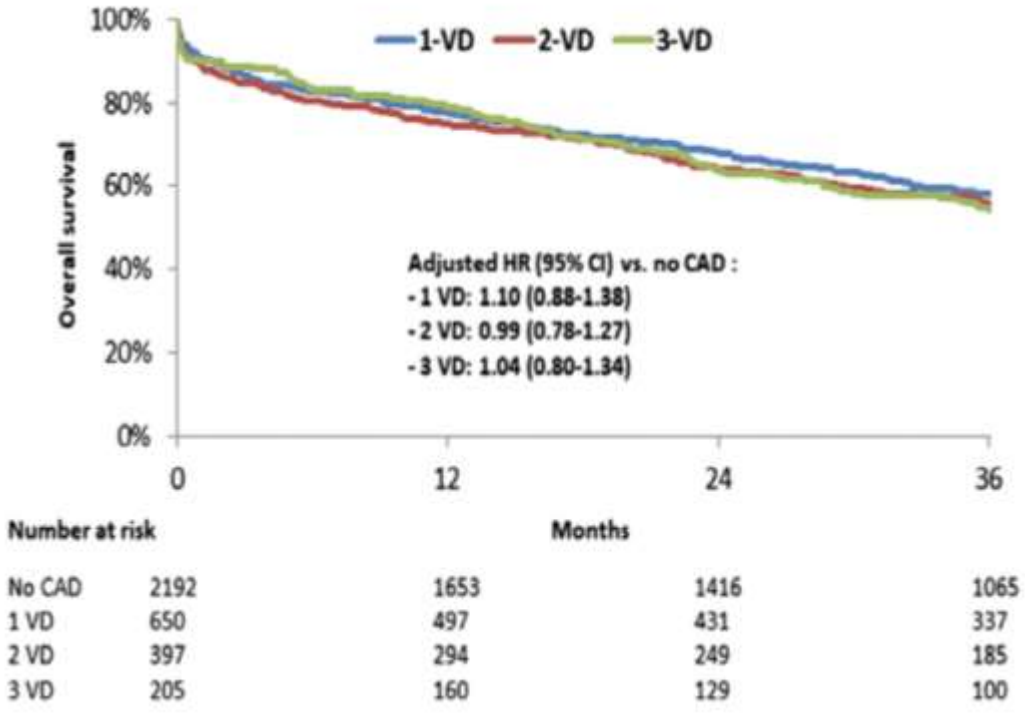
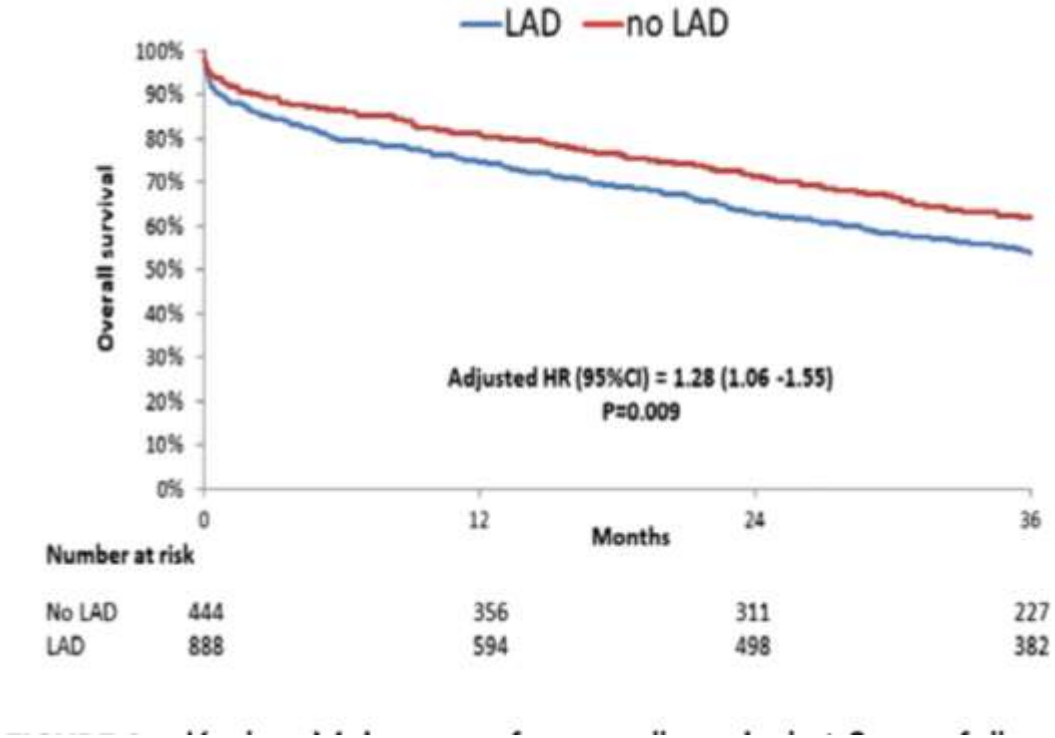
ICP +TAVI Vs TAVI aislada

Pacientes con Cardiopatía Isquémica ESTABLE





En el registro nacional francés de TAVI (FRANCE 2), solo las lesiones significativas de la arteria descendente anterior izquierda (DA) se asociaron con un aumento de la mortalidad a los 3 años (HR: 1,42; [IC] del 95 %: 1,10-1,87).

Puymirat E, et al. Clin Cardiol. 2017;40:1316-22.

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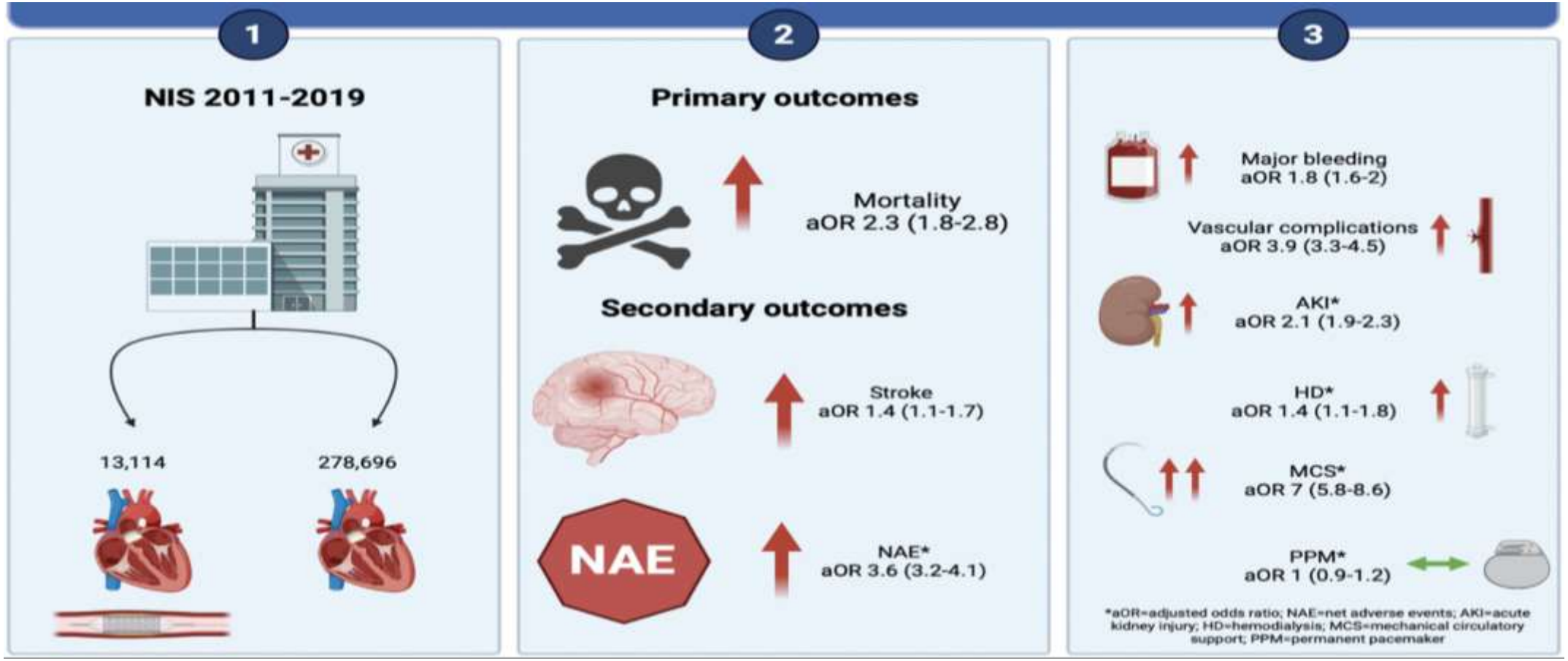
Eventos hospitalarios tras ICP+TAVI vs TAVI aislada



Curr Probl Cardiol 2024;49:101913

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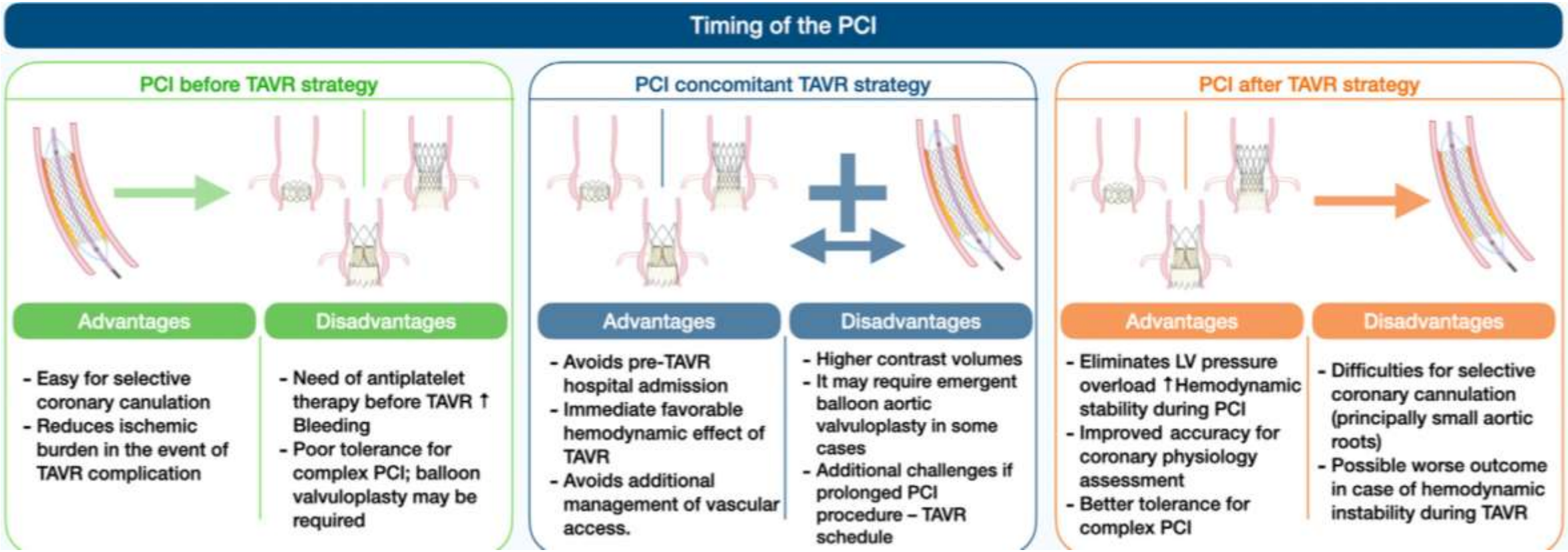
TAVI & Revascularización Coronaria

¿ En que momento revascularizar ?



Canadian Journal of Cardiology 40 (2024) 218e234.
https://doi.org/10.1016/j.cjca.2023.09.023

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PCI en pacientes con **Cardiopatía Isquémica ESTABLE** y TAVI

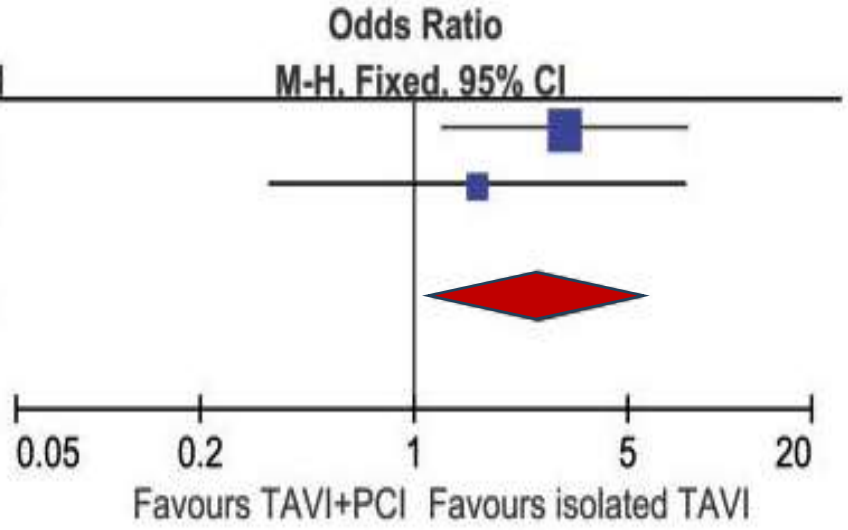
¿ En que momento revascularizar ?

Thirty-day all-cause mortality rate in performing staged PCI and TAVI

Study or Subgroup	TAVI+PCI Events	Total	isolated TAVI Events	Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Griese 2014	7	48	18	346	64.1%	3.11 [1.23, 7.90]
Wenaweser 2011	2	23	11	197	35.9%	1.61 [0.33, 7.76]
Total (95% CI)		**71**		**543**	**100.0%**	**2.57 [1.16, 5.69]**
Total events	9		29			

Heterogeneity: Chi² = 0.50, df = 1 (P = 0.48); I² = 0%

Test for overall effect: Z = 2.33 (P = 0.02)



European Journal of Cardio-Thoracic Surgery 54 (2018) 1052–1059
doi:10.1093/ejcts/ezy240

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PCI Post-TAVI: **ACCESO CORONARIO**

- Necesidad de ICP post-TAVI entre el 2% a 1 año y el 16 % a 5 años de seguimiento.
- Alrededor del 2/3 de los procedimientos de ACI/ICP post-TAVI se realizan en el contexto de un SCA y 1/3 es debido a isquemia asintomática, angina estable o la evaluación de la insuficiencia cardíaca.
- Un estudio teórico prospectivo de TAC post-TAVI sugirió que entre el 10 - 20 % de los pacientes presentan riesgo de acceso coronario comprometido.

Catheter Cardiovasc Interv. 2018;92:818-26. Catheter Cardiovasc Interv. 2020;96:E535-41
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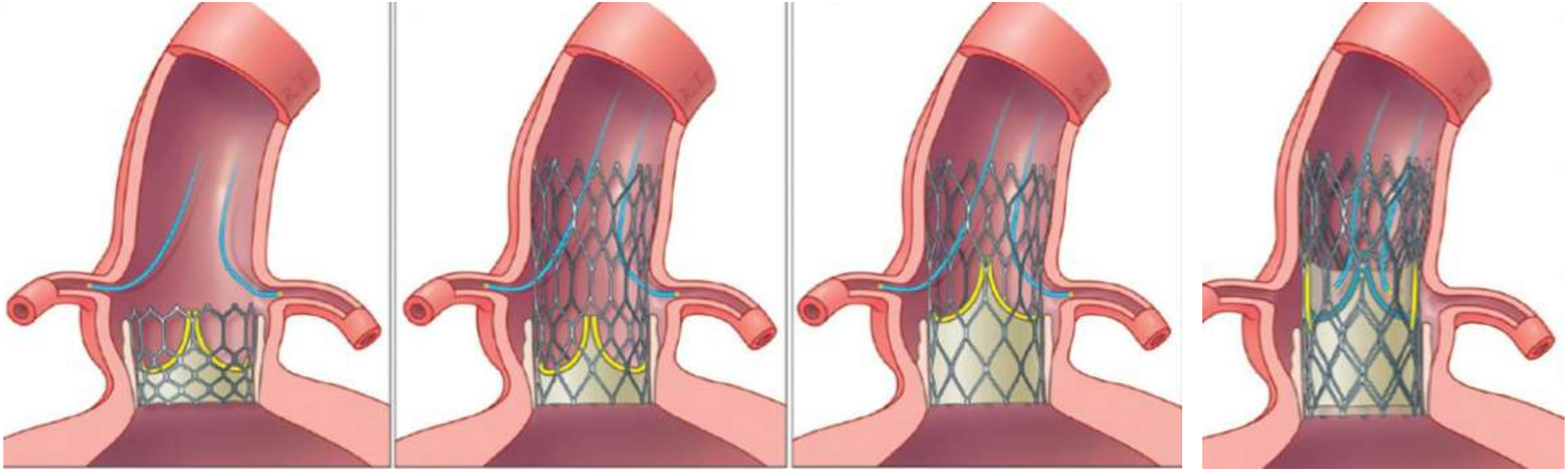
EuroIntervention. 2020;16: e1005-13.

PCI post-TAVI: **Factibilidad del ACCESO CORONARIO**



Cuanto mas altos sean los velos valvulares mayores las dificultades para canalizar selectivamente los ostium coronarios.

Agenda

3 Costes

ICP + TAVI Vs TAVI aislada

¿ Costes ?

	TAVI-Only	TAVI -PCI
LOS	4.7±5.7	9.1±8.7
Total cost*	72,378.4±36,891.3	104,198.9±61,005.9

Agenda

5 Mensajes finales

Mensajes finales

1) Es muy frecuente la patología coronaria en pacientes tratados con TAVI (40-80%)
2) El nivel de severidad y extensión de la patología coronaria debe conocerse previamente a la TAVI
3) La necesidad de revascularización debe basarse fundamentalmente en el estado sintomático-clínico del paciente.
4) Salvo que coincida la aparición de una SCA con el momento de implante de TAVI, la revascularización debe efectuarse en un momento diferente a la TAVI, preferentemente antes.
5) Cuando se revasculariza en el mismo acto, los resultados de la revascularización con ICP + TAVI son mejores que los de Cirugía Coronaria+TAVI
6) No parece que el nivel de la revascularización (completa o incompleta) sea determinante en el pronóstico (quizás se debiera insistir mas en el efecto de la revascularización funcionalmente adecuada o inadecuada)
7) El tratamiento antitrombótico debe seguir las consideraciones relacionadas con el implante de stent, y el nivel de riesgo de sangrado/isquemia del paciente.
8) La necesidad de revascularización coronaria (con ICP o Cirugía) incrementa los costes.
9) El implante de TAVI comporta aspectos no resueltos en su diseño de cara a la necesidad de futuras revascularizaciones en estos pacientes.

¡GRACIAS!

SERVIZO GALEGO de SAÚDE

CARDIOLOGÍA
Área Sanitaria de Vigo

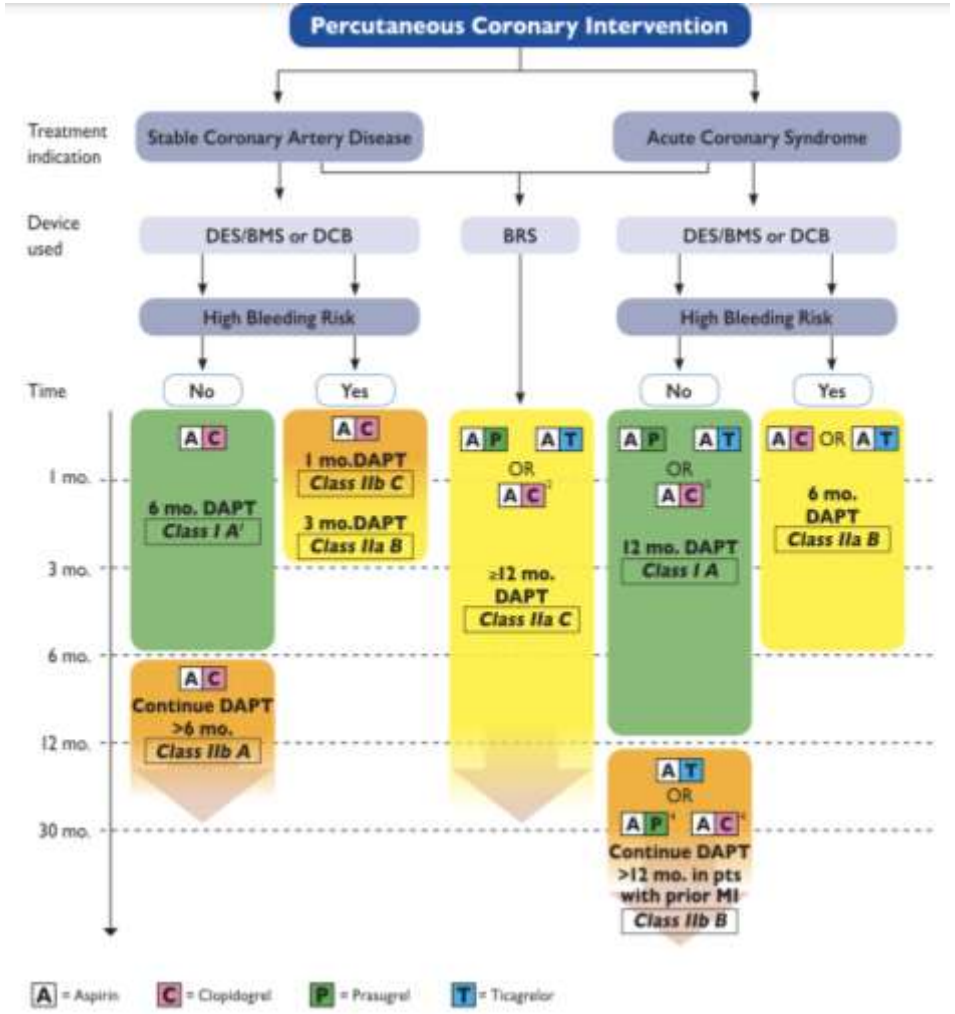
Fundación Biomédica Galicia Sur

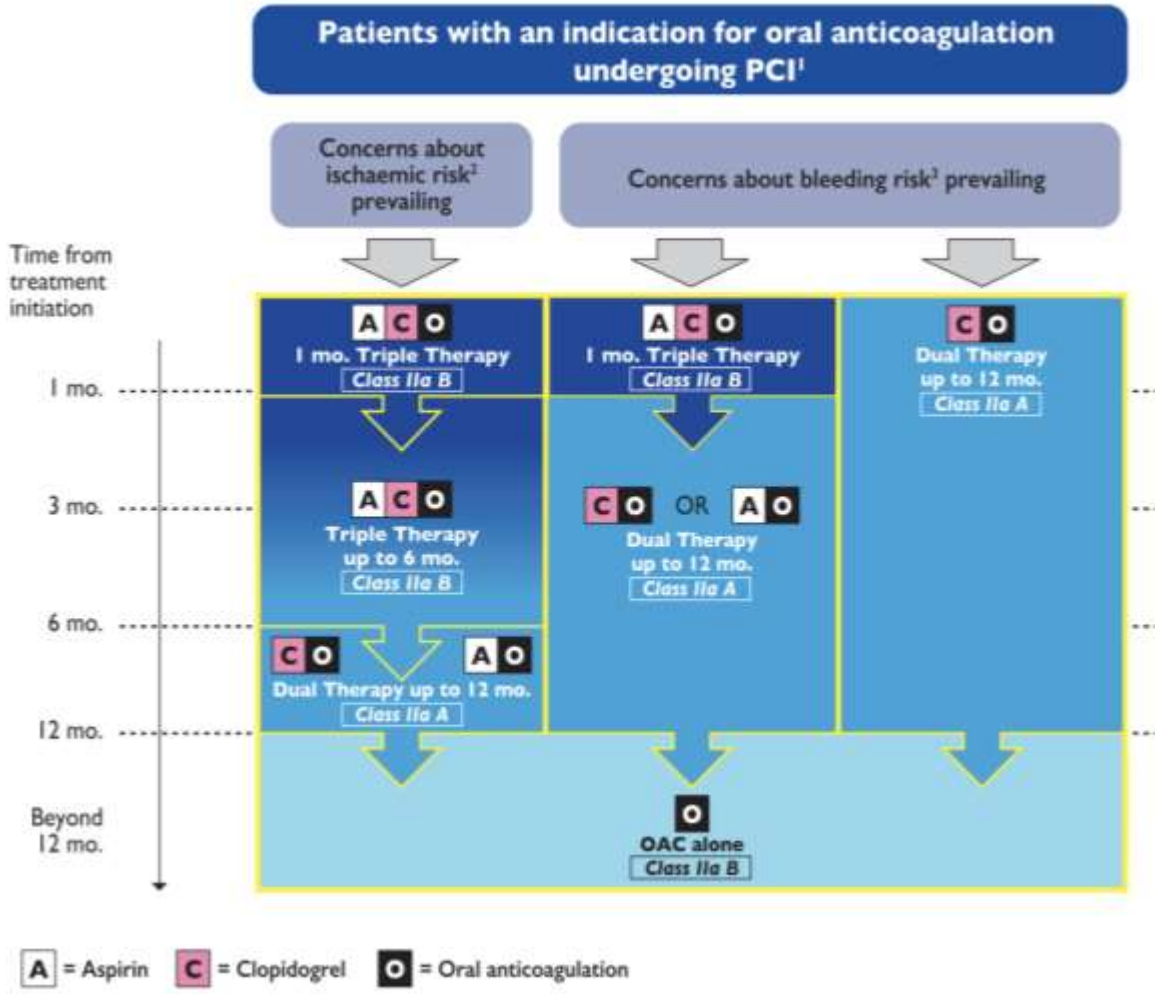
IIS Galicia Sur

Agenda

3 Guías Clínicas

PCI y TAVI: **Tratamiento Antitrombótico**





European Heart Journal (2018) 39, 213–254 ESC GUIDELINES
doi:10.1093/eurheartj/ehx419

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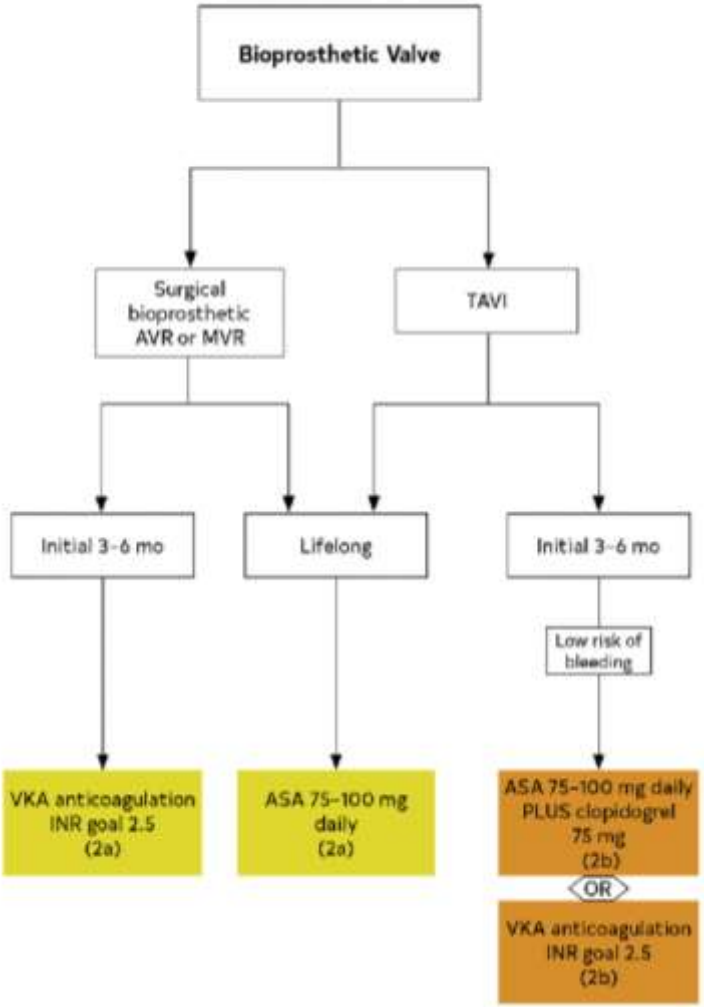
PCI y TAVI: **Tratamiento Antitrombótico**

2b	B-NR	10. For patients with a bioprosthetic TAVI who are at low risk of bleeding, dual-antiplatelet therapy with aspirin 75 to 100 mg and clopidogrel 75 mg may be reasonable for 3 to 6 months after valve implantation (12,13,29).
2b	B-NR	11. For patients with a bioprosthetic TAVI who are at low risk of bleeding, anticoagulation with a VKA to achieve an INR of 2.5 may be reasonable for at least 3 months after valve implantation (23,31-33).
3: Harm	B-R	12. For patients with bioprosthetic TAVI, treatment with low-dose rivaroxaban (10 mg daily) plus aspirin (75-100 mg) is contraindicated in the absence of other indications for oral anticoagulants (30).

El equilibrio entre el beneficio de la reducción de eventos isquémicos y el riesgo de sangrado sigue siendo el principal determinante en la toma de decisiones, ya que los pacientes con TAVI a menudo tienen sangrado alto concomitante factores de riesgo, incluida la edad >75 años.



JACC VOL . 77 , NO . 4 , 2021: e25 - 1971
2020 ACC/AHA Guidelines,

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PCI y TAVI: **Tratamiento Antitrombótico**

- El tratamiento antitrombótico después de TAVI sigue siendo controvertido.
- La monoterapia (ya sea terapia antiplaquetaria única [SAPT] o terapia anticoagulante oral [ACO]) se asocia con mejores resultados clínicos que la terapia dual (terapia antiplaquetaria dual [DAPT] o SAPT + ACO).
- En consecuencia, el tratamiento estándar después de TAVI es aspirina, mientras que los pacientes con una indicación para ACO deben recibirla como monoterapia.
- Sin embargo, el tratamiento también debe ajustarse a factores específicos del paciente, como la carga de enfermedad coronaria y, en particular, la ICP reciente, y la DAPT debe prescribirse de acuerdo con las guías de práctica clínica existentes para pacientes con síndromes coronarios agudos recientes y/o ICP.
- El equilibrio entre el beneficio de la reducción de eventos isquémicos y el riesgo de sangrado sigue siendo el principal determinante en la toma de decisiones, ya que los pacientes con TAVI a menudo tienen sangrado alto concomitante

PCI y TAVI: **ACCESO CORONARIO**

- Necesidad de ICP post-TAVI entre el 2% a 1 año y el 16 % a 5 años de seguimiento.
- Alrededor del 2/3 de los procedimientos de ACI/ICP post-TAVI se realizan en el contexto de un SCA y 1/3 es debido a isquemia asintomática, angina estable o la evaluación de la insuficiencia cardíaca.
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Catheter Cardiovasc Interv. 2020;96:E535-41. Cardiovasc Revasc Med. 2021;28:42-9.
EuroIntervention. 2020;16: e1005-13.

PCI y TAVI: **Factibilidad del ACCESO CORONARIO**

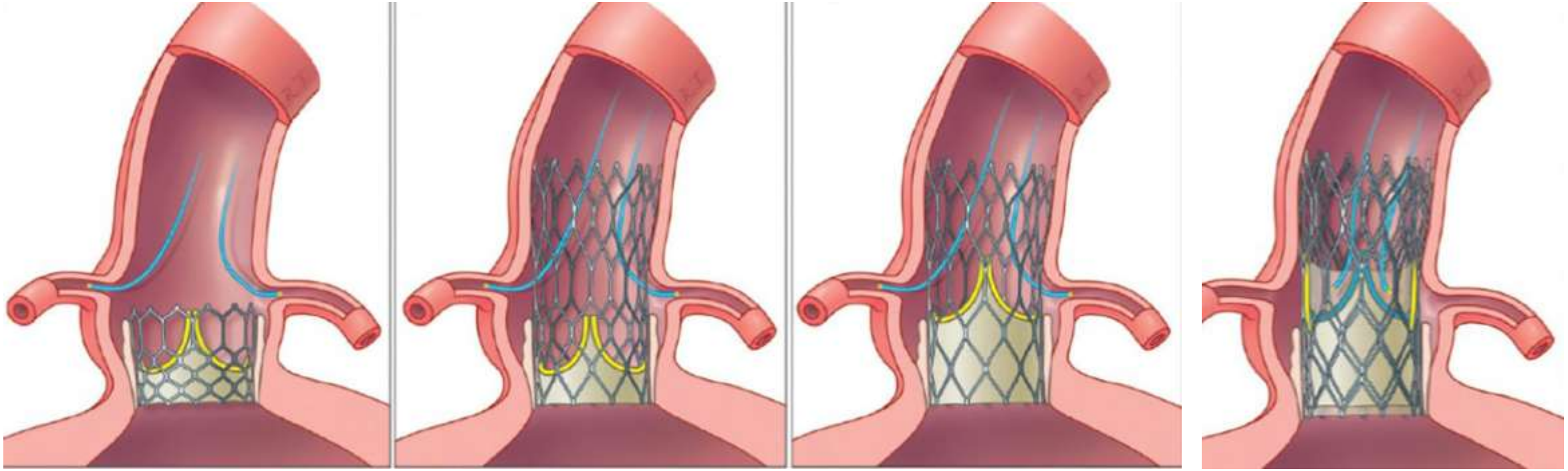
Table 3. Feasibility of coronary access with different THV in available studies.

Study author, year	Valve type (n)	ACS	RCA CA success	RCA CA selective	LCA CA success	LCA CA selective	PCI, n; success, %
Blumenstein et al. 2015[55]	SAPIEN XT (n=19) CoreValve (n=10) ACURATE (n=4) Other (n=2)	13.3%	94.3%	77.1%	97.1%	79.4%	n=8; 100%
Boukantar et al. 2017[66]	CoreValve (n=16)	43.8%	58%	16%	75%	44%	n=7; 85.7%
Htun et al. 2017[67]	CoreValve (n=28)	90.0%	100%	90%	100%	97%	n=29; 100%
Zivelonghi et al. 2017[54]	Evolut R (n=25) SAPIEN 3 (n=41)	0%	100%	94%	98%	97%	n=17; 100%
Tanaka et al. 2019[61]	CoreValve/Evolut (n=41)	56.5%	50%	31.3%	87.5%	57.1%	n=30; 93.3%
Ferreira-Neto et al. 2019[53]	SAPIEN XT (n=28)	64.3%	100%	81.5%	100%	82.6%	n=13; 100%
Couture et al. 2020[97]	Evolut R/PRO (n=10)	10.0%	NA	60%	NA	40%	n=2; 50%
Nai Fovino et al. 2020[52]	SAPIEN XT/3 (n=36) CoreValve/Evolut R/Pro (n=8) Jena (n=2) Lotus (n=2)	35.0%	100% IA vs 75% SA	94% IA vs 25% SA	100% IA vs 100% SA	97% IA vs 50% SA	n=26; 96.2%
Barbanti et al. 2020[51]	SAPIEN (n=96) Evolut (n=123) ACURATE (n=72) Portico (n=9)	0%	96.0%	88.0%	95.3%	68.3%	n=0; 0%
Kim et al. 2021[98]	SAPIEN (n=201) ACURATE (n=62) CoreValve/Evolut (n=140) Portico (n=16) Other (n=30)	100%	98.3%	71.6%	99.3%	79.3%	n=243; 91.4%

ACS: acute coronary syndrome; IA: intra-annular; CA: coronary access; LCA: left coronary artery; PCI: percutaneous coronary intervention; RCA: right coronary artery; SA: supra-annular; TAVI: transcatheter aortic valve implantation; THV: transcatheter heart valve

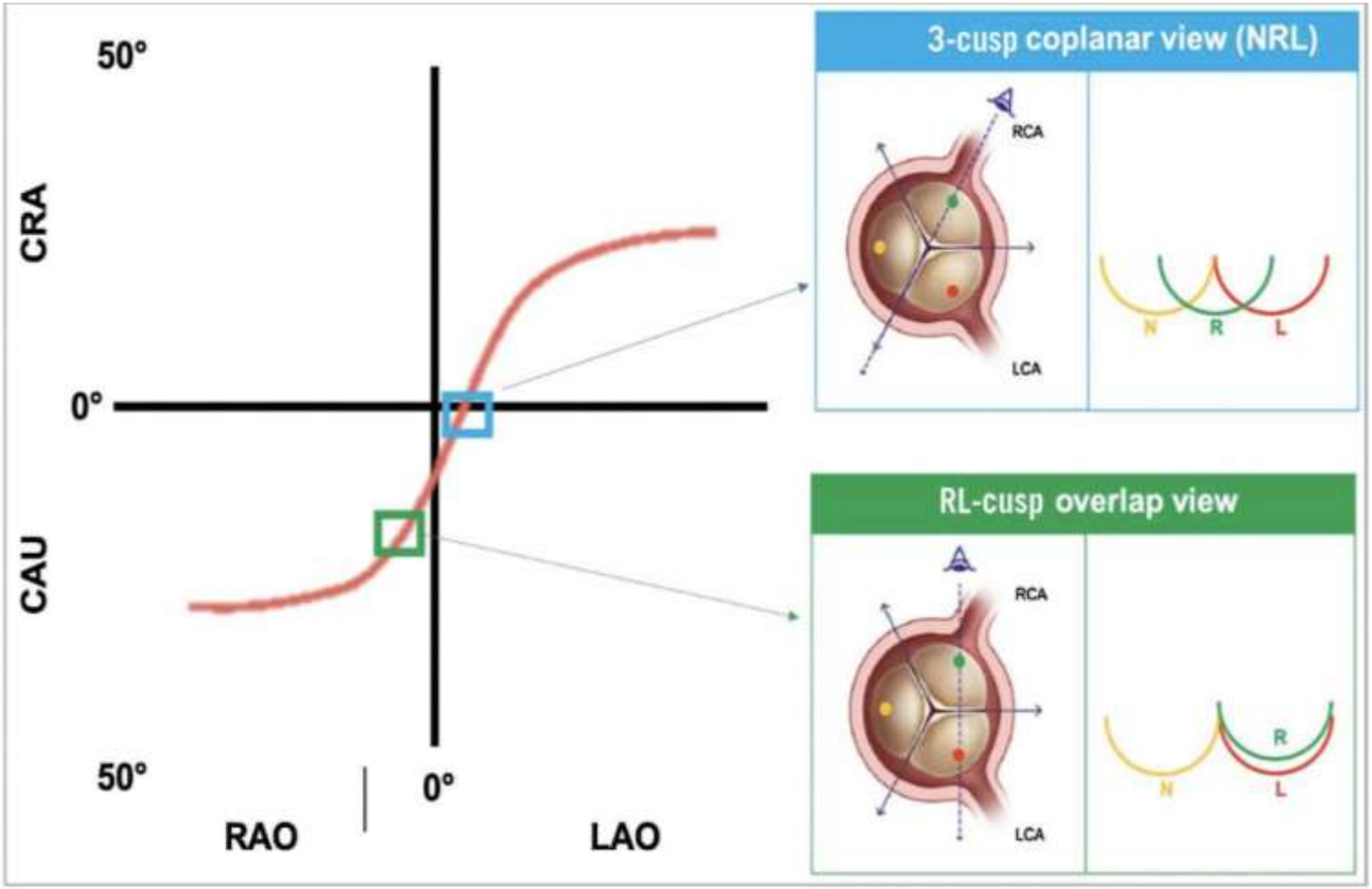
EuroIntervention 2023;19:37-52

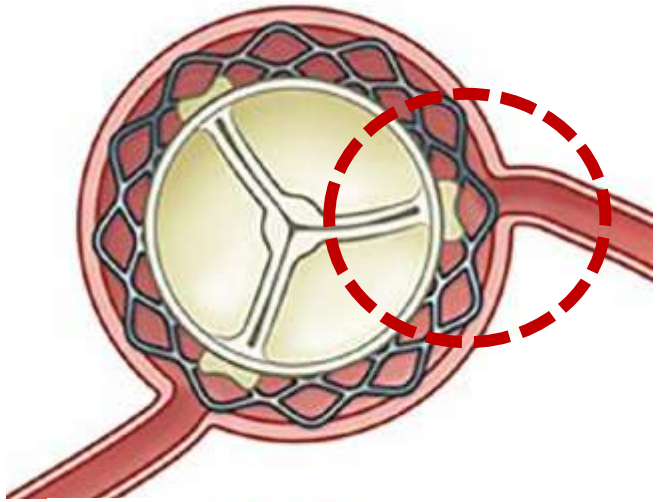
PCI y TAVI: **Factibilidad del ACCESO CORONARIO**

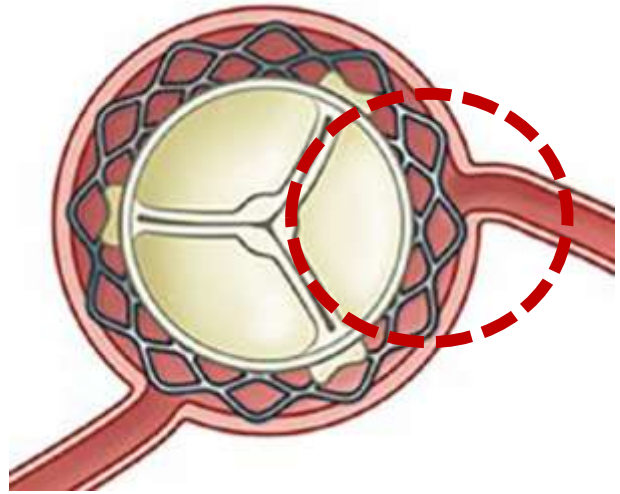


Cuanto mas altos sean los velos valvulares mayores las dificultades para canalizar selectivamente los ostium coronarios.

PCI y TAVI: **Factibilidad del ACCESO CORONARIO**







EuroIntervention 2023;19:37-52

Frontiers in Cardiovascular Medicine doi: 10.3389/fcvm.2021.654892

CARDIOLOGÍA
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PCI en pacientes con Cardiopatía Isquémica ESTABLE y TAVI

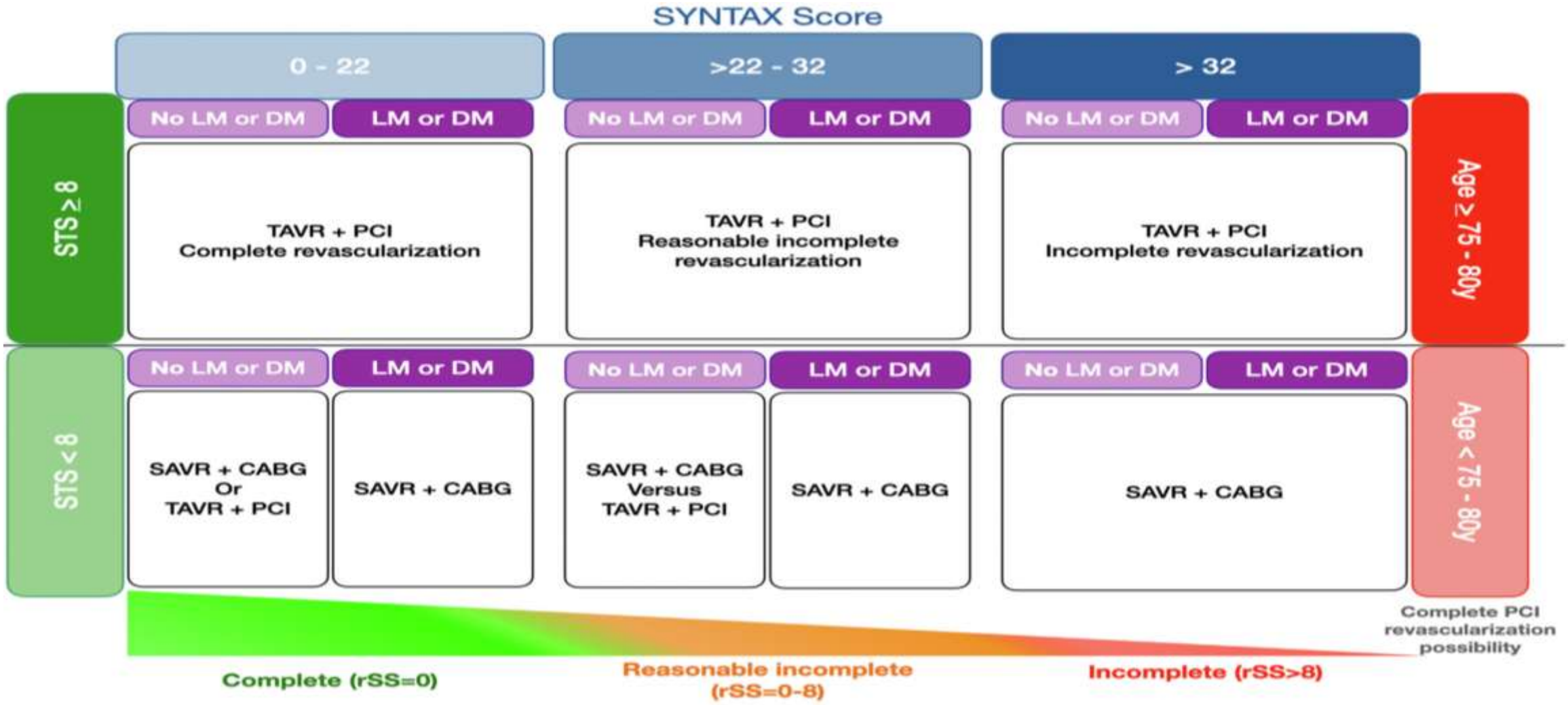
¿ En que momento revascularizar ?

	PCI before TAVI	PCI after TAVI	Combined PCI and TAVI
Advantages	- Easier coronary access (especially for self-expanding THV with a supra-annular leaflet position) - Lower risk of ischaemia-induced haemodynamic instability (i.e., during rapid pacing) - Reduced contrast use compared with concomitant PCI and TAVI	- More reliable FFR/iFR of intermediate lesions - Lower risk of haemodynamic instability during complex PCI (i.e., with rotational atherectomy and impaired LV function) - Reduced contrast use compared with concomitant PCI and TAVI	- Use of the same arterial access - Lower cost
Disadvantages	- Less reliable FFR/iFR assessments of borderline lesions - Higher risk of haemodynamic instability due to AS	- More challenging and potentially compromised coronary access - Less stability and support of the coronary guiding catheter - Potential THV dislodgement	- Larger amount of contrast and higher risk of AKI - Prolonged procedure - Need for DAPT at the time of TAVI, hence increased bleeding risk

AS: aortic stenosis; AKI: acute kidney injury; DAPT: dual antiplatelet therapy; FFR: fractional flow reserve; iFR: instantaneous wave-free ratio; LV: left ventricular; PCI: percutaneous coronary intervention; TAVI: transcatheter aortic valve implantation; THV: transcatheter heart valve

EuroIntervention 2023;19:37-52

TAVI & Revascularización Coronaria



Canadian Journal of Cardiology 40 (2024) 218e234.
https://doi.org/10.1016/j.cjca.2023.09.023

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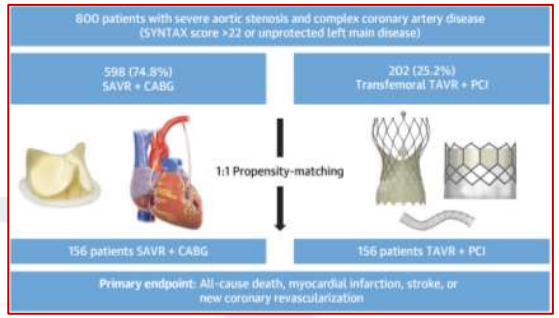
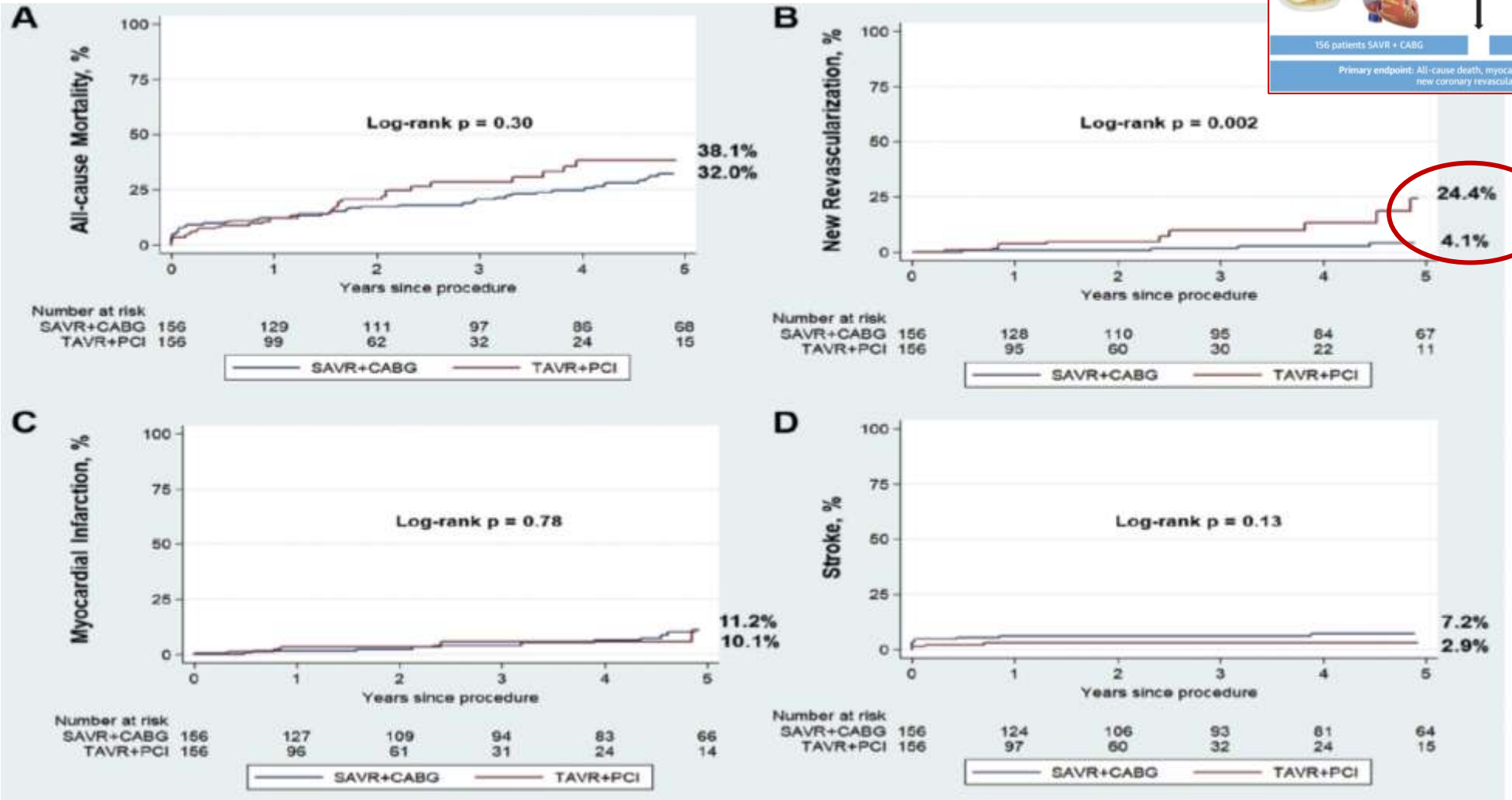
ICP+TAVI Vs **Cirugía Coronaria+TAVI**





J Am Coll Cardiol Intv 2021;14:2490–2499

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ICP+TAVI Vs **CABG+TAVI**

	Crude data		Propensity data	
Number of vessels in revascularization				
	TAVI+PCI	SAVR+CABG	TAVI+PCI	SAVR+CABG
Single artery	4247 (79.2%)	49,154 (58.6%)	4247 (79.2%)	3328 (55.4%)
Two arteries	910 (16.9%)	25,016 (29.8%)	910 (16.9%)	1903 (31.7%)
Three arteries	168 (3.1%)	8090 (9.6%)	168 (3.1%)	645 (10.7%)
Four arteries	33 (0.6%)	1696 (2.0%)	33 (0.6%)	127 (2.2%)
Access used for TAVI				
TA approach	93 (1.8%)	-	93 (1.8%)	-
TV approach	5265 (98.2%)	-	5265 (98.2%)	-
Use of mechanical circulatory support devices				
IABP	188 (3.50%)	4935 (5.90%)	188 (3.50%)	260 (4.30%)
Impella	197 (3.70%)	300 (0.40%)	197 (3.70%)	<11 (0.20%)
ECMO	30 (0.60%)	249 (0.30%)	30 (0.60%)	17 (0.30%)

Catheter Cardiovasc Interv. 2023;102:946–957. DOI: 10.1002/ccd.30832

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ICP & TAVI en SCA: Revascularización **Completa o Incompleta**

Eventos Durante Hospitalización

	All patients (*n* = 540)	CR (*n* = 138)	IR (*n* = 153)	*p*
Death	3.9% (21)	2.9% (4)	4.6% (7)	.45
Myocardial infarction	2.0% (11)	1.5% (2)	1.9% (3)	.73
Stroke	0.7% (4)	1.5% (2)	0 (0)	.13
Vascular complication				.89
Major, %	3.5% (19)	2.9% (4)	3.9% (6)	
Minor, %	8.9% (48)	7.9% (11)	7.8% (12)	
Bleeding				.38
Life-threatening %	5.4% (29)	3.6% (5)	5.9% (9)	
Major, %	10.4% (56)	14.5% (29)	9.2% (14)	
Minor, %	10.6% (57)	7.9% (11)	10.5% (16)	
Acute kidney injury				.25
Class 1	22.6% (122)	22.5% (31)	24.2% (37)	
Class 2	3.3% (18)	3.6% (5)	0.7% (1)	
Class 3	3.9% (21)	5.1% (7)	3.3% (5)	
Sepsis	3.7% (20)	3.6% (5)	5.2% (8)	.50
New PM implantation	10.4% (56)	7.9% (11)	7.8% (12)	.96
New atrial fibrillation	8.7% (47)	10.9% (15)	9.2% (14)	.62

Sin diferencias significativas

Catheter Cardiovasc Interv. 2020;95:19–27. DOI: 10.1002/ccd.28211

CARDIOLOGÍA
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Prevalencia de patología coronaria en pacientes tratados con TAVI

En estudios Aleatorizados

Study	Year	Sample size (*n*)	CAD (%)	Definition of CAD	Mean age	STS score	Logistic EuroSCORE	Prognostic importance of CAD
Randomized trials								
PARTNER 1 (5)	2011	348	74.9	Not specified	83.6 ± 6.8	11.8 ± 3.3	29.3 ± 16.5	–
COREVALVE (6)	2014	390	75.4	Not specified	83.2 ± 7.1	7.3 ± 3.0	17.6 ± 13.0	–
PARTNER 2 (12)	2016	1,011	69.2	Not specified	81.5 ± 6.7	5.8 ± 2.1	–	–
SURTAVI (13)	2017	864	62.6	Not specified	79.9 ± 6.2	4.4 ± 1.5	11.9 ± 7.6	–

Frontiers in Cardiovascular Medicine
doi: 10.3389/fcvm.2021.654892

Prevalencia de patología coronaria en pacientes tratados con TAVI

En Estudios Observacionales

SOURCE (30)	2011	1,038	51.7	Not specified	81.7 ± 6.7*	–	25.8 ± 14.4*	CAD not associated with increased 1-year mortality in multivariable analysis
FRANCE 2 (20)	2012	3,195	47.9	Not specified	82.7 ± 7.2	14.4 ± 11.9	21.9 ± 14.3	CAD not associated with increased 1-year mortality
German TAVI registry (31)	2012	1,382	62.2	Not specified	81.5 ± 6.1** 82.1 ± 6.3***	-	23.0 ± 14.6** 16.4 ± 10.7***	CAD was associated with increased in-hospital mortality (OR 1.90, $p < 0.01$) but not in a multivariable logistic regression analysis (OR 1.40, $p = 0.18$)
Italian COREVALVE registry (20)	2013	659	38	PCI or CABG prior to TAVI	81.2 ± 5.8	–	23.1 ± 13.7%	CAD not associated with increased risk of 1-year mortality or MACCE. Complete revascularization was not associated with worse MACCE incidence compared with untreated patients
ADVANCE (21)	2014	1,015	57.8	Not specified	81.1 ± 6.4	–	16.0 (10.3, 25.3)	CAD did not predict 1-year mortality in a univariable model, HR 1.25, $p = 0.159$
German aortic valve registry (28)	2014	3,875	54.4	Not specified	81.1 ± 6.2	–	–	–
SOURCE-XT (22)	2015	2,688	44.2	Not specified	81.4 ± 6.6	7.9 ± 6.6	20.4 ± 12.4	CAD not associated with increased mortality in a multivariable analysis, HR 1.22, $p = 0.055$
UK TAVI registry (24)	2015	2,588	45.2	Stenosis >50% of luminal diameter of the left main stem or the three main coronary arteries or their major epicardial branches as demonstrated in the angiogram	81.31 ± 7.57	–	18.06 (12.08, 28.11)	CAD not associated with mortality at 4 years in a multivariable analysis, HR 1.14, $p = 0.10$
STS/ACC TVT Registry (23)	2016	26,414	63.1	Not specified	82	–	–	–
Singh (25)	2016	22,344	66.9	Not specified	81.2 ± 0.13	–	–	In-hospital mortality was higher

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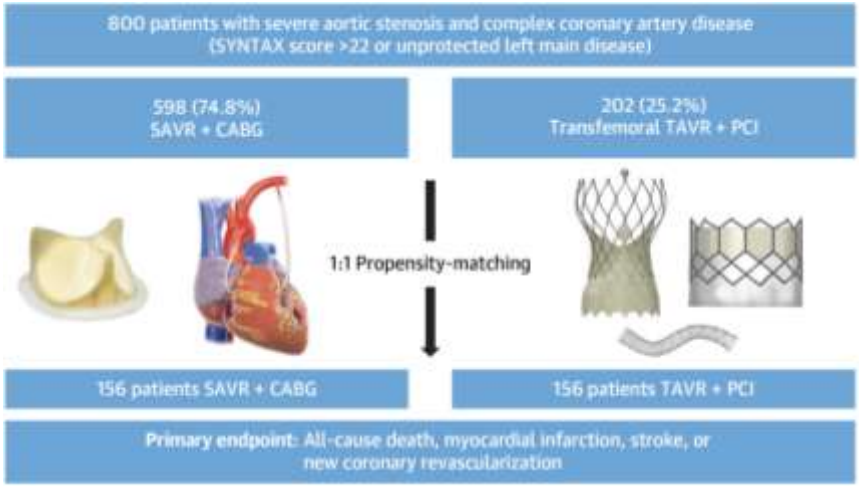
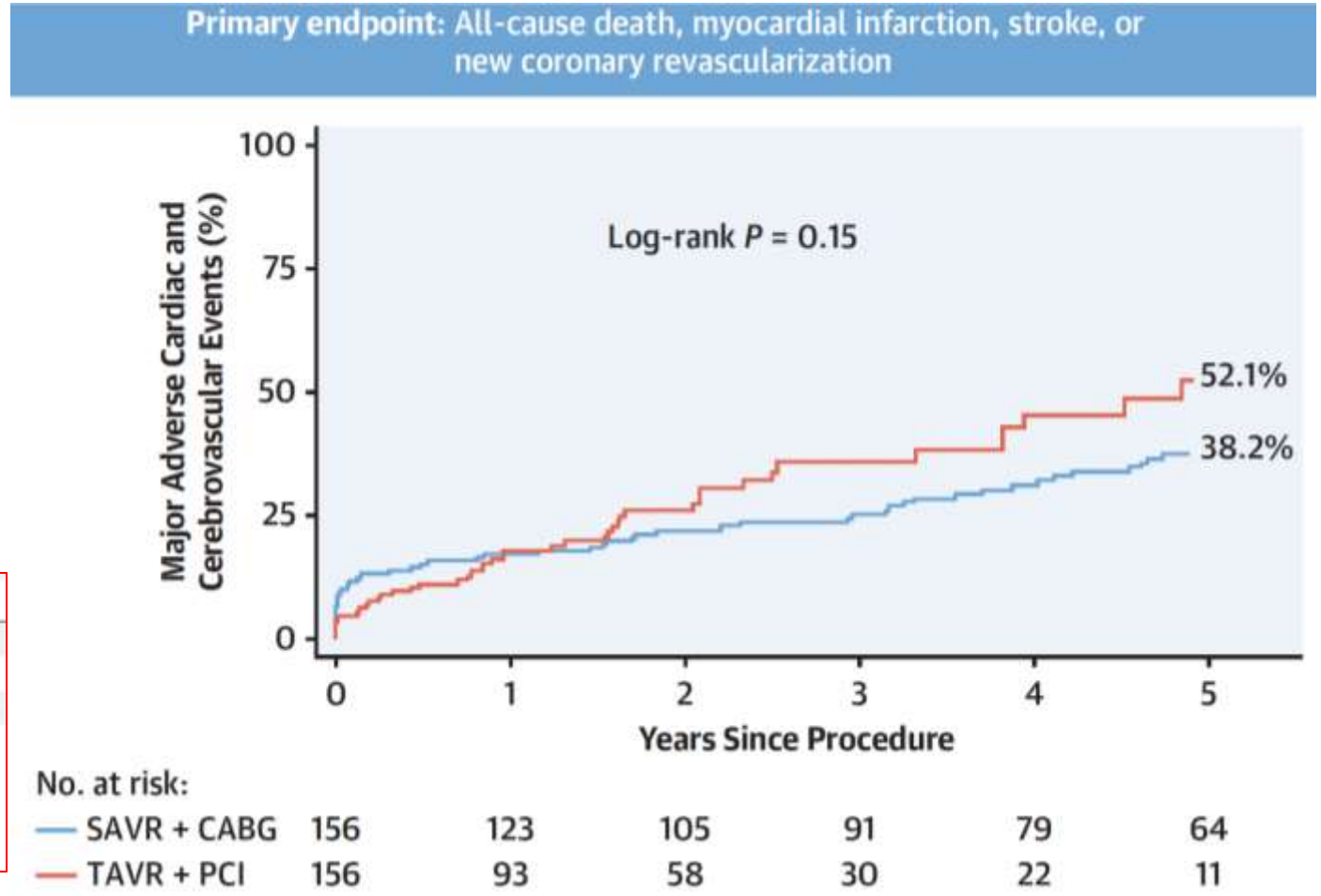
FFR y Diagnóstico de severidad de patología coronaria en TAVI

		Number of lesions	Pre-TAVI	Post-TAVI	References
FFR before and right after TAVI					
LAD	FFR ≤ 0.80	15	0.72 ± 0.12	0.69 ± 0.13	Pesarini et al. (52)
	FFR > 0.80	41	0.88 ± 0.12	0.89 ± 0.13	
Other than LAD	FFR ≤ 0.80	6	0.69 ± 0.12	0.62 ± 0.14	
	FFR > 0.80	71	0.94 ± 0.12	0.95 ± 0.13	
		Reclassification rate		FFR	
				8/133 (6%)	
FFR, all vessels		23	0.87 (0.85–0.92)	0.88 (0.83–0.92)	Scarsini et al. (54)
iFR, all vessels		23	0.88 (0.85–0.96)	0.90 (0.83–0.93)	
FFR/iFR before TAVI and at 14-month follow-up					
FFR, all vessels		23	0.87 (0.85–0.92)	0.88 (0.82–0.92)	Scarsini et al. (54)
iFR, all vessels		23	0.88 (0.85–0.96)	0.91(0.86–0.97)	
Reclassification rate			iFR	FFR	
			7/23 (21.7%)	1/23 (4.3%)	

PCI Vs Cirugía Coronaria y TAVI



	TAVI + PCI	SAVR + CABG	HR (95% CI)	*P* Value
Primary endpoint[2]				
MACCE	15.7	10.3	1.33 (0.89-1.98)	0.15
Secondary endpoints[2]				
All-cause mortality	11.6	8.4	1.25 (0.81-1.94)	0.30
New coronary revascularization	3.3	0.7	5.38 (1.73-16.7)	0.003
Myocardial infarction	1.9	1.5	1.16 (0.41-3.27)	0.78
Stroke	1.3	1.7	0.42 (0.13-1.32)	0.14



J Am Coll Cardiol Intv 2021;14:2490–2499

CARDIOLOGÍA
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ICP+TAVI Vs TAVI sola en pacientes con Cardiopatía Isquémica

Study	Year	Pts (n)	CAD (%)	% PCI (in CAD pts)	Timing of PCI	Stent type (%)	Follow-up	Outcomes	Additional findings
Abdel-Wahab[44]	2012	125	44	44 (100)	Before or combined with TAVI (median of 10 days before)	DES: 71 BMS: 24 DES + BMS: 5	Up to 3 years	No difference in 30-day mortality (2 % vs 6 %, p=0.27) and long-term survival (p=0.36) between PCI + TAVI and isolated TAVI	No difference in 30-day VARC combined (11 % vs 13 %, p=0.74) and individual endpoints
Abramowitz[59]	2014	249	57.8	24.5 (42.4)	Mean of 56.6 ± 29.4 days before TAVI	DES: 86.9 BMS: 11.5 DES + BMS: 1.6	Up to 3 years (mean: 17 months)	No difference in 30-day mortality and VARC endpoints between CAD and no CAD pts, and between PCI and no PCI group among CAD pts	No difference between groups in long-term survival (p=0.68)
Chakravarty[61]	2016	204 TAVI + LM PCI 1188 TAVI alone	128 pairs with 1:1 case-control matching		Before (81.9 %), during (12.7 %) or after (5.4 %) TAVI	BMS: 14.2 DES: 73.0 DES + BMS: 1.0	Up to 1 year	Similar 30-day (p=0.67) and 1-year mortality (p=0.83) between the TAVI + LM PCI pts and matched controls undergoing TAVI alone	Similar outcomes in unprotected vs protected, ostial vs nonostial, and with LM PCI less vs more than 3 months before TAVI Higher mortality in unplanned vs planned LM PCI

Interventional Cardiology Review 2018;13(2):69–76. DOI: https://doi.org/10.15420/icr.2018:2:2

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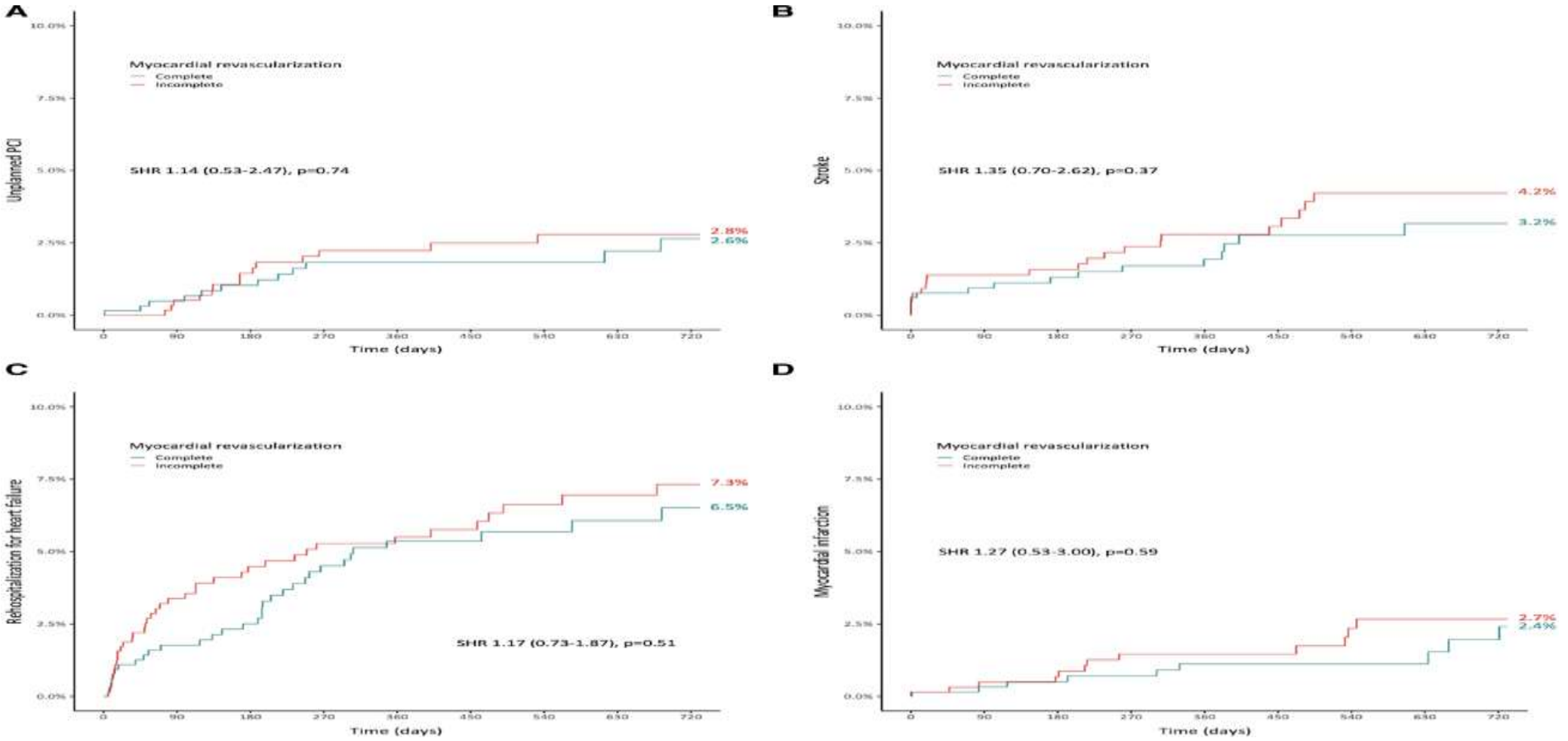
ICP & TAVI: Revascularización Completa o Incompleta



Circ Cardiovasc Interv. 2022;15:e012417. DOI: 10.1161/CIRCINTERVENTIONS.122.012417

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ICP & TAVI: Revascularización Completa o Incompleta

	Overall (n=1314)	Complete revascularization (n=657)	Incomplete revascularization (n=657)	*P* value
Death, n (%)	34 (2.6)	17 (2.6)	17 (2.6)	1.000
Cardiovascular death, n (%)	22 (1.7)	13 (2.0)	9 (1.4)	0.520
Disabling stroke, n (%)	15 (1.2)	7 (1.2)	8 (1.2)	1.000
Not disabling stroke, n (%)	18 (1.5)	7 (1.3)	11 (1.7)	0.481
MI, n (%)	7 (0.6)	4 (0.6)	3 (0.5)	0.725
PPI, n (%)	163 (13.8)	81 (13.7)	82 (13.9)	0.933
New onset LBBB, n (%)	177 (15.0)	91 (15.3)	86 (14.6)	0.745
New onset AF, n (%)	33 (3.0)	20 (3.5)	13 (2.4)	0.293
Life-threatening bleeding, n (%)	25 (1.9)	14 (2.2)	11 (1.7)	0.553
Major bleeding, n (%)	72 (5.5)	39 (6.0)	33 (5.1)	0.469
Minor bleeding, n (%)	100 (7.7)	50 (7.7)	50 (7.7)	1.000
Major vascular complication, n (%)	62 (4.8)	33 (5.1)	29 (4.5)	0.605
Minor vascular complication, n (%)	96 (7.4)	51 (7.9)	45 (6.9)	0.526

Circ Cardiovasc Interv. 2022;15:e012417. DOI: 10.1161/CIRCINTERVENTIONS.122.012417

ICP+TAVI Vs CABG+TAVI

Clinical endpoints	Postmatching		
	TAVI & PCI (n = 774)	SAVR & CABG (n = 774)	*P*
In-hospital all-cause mortality	3.4	9.4	< .001
Periprocedural stroke (CC100)	0.9	2.2	.04
Acute kidney injury (CC135)	4.3	16.0	< .001
Blood transfusion	9.6	21.1	< .001
Pericardial complications[a]	1.4	3.0	.037
Acute myocardial infarction (CC86)	0.5	1.2	.164
Vascular complications[b]	2.2	0.5	.004
Aspiration and specified bacterial pneumonias (CC114)	0.1	1.7	.001
New permanent pacemaker implantation[c]	12.0	5.7	< .001
New onset atrial fibrillation	1.0	2.5	.033
Length of stay in intensive care	0 [0-1]	2 [0-4]	< .001
Length of hospital stay (days)	7 [5-10]	14 [9-23]	< .001
30-day cardiovascular readmission	6.4	6.8	.810

Rev Esp Cardiol. 2023;76(8):600–608 . https://doi.org/10.1016/j.rec.2022.12.011

TAVI & Revascularización Coronaria

Table 2. SAVR+CABG studies; results in patients with severe AS and CAD candidates to SAVR (with or without CABG)

Reference	Study period	Study design	Mean age, years	Follow-up, years	Primary outcomes			HR/OR for mortality (95% CI)	*P*
Roberts et al.[48]	2001-2010	Retrospective single-centre	70	10	Mortality rate	SAVR (n = 443)	SAVR+CABG (n = 428)	HR, 1.01 (0.74 -1.34)	–
						No difference in long-term mortality at 10-year follow-up			
Beach et al.[49]	1991-2010	Retrospective single-centre propensity match	73 ± 9	4.7	Survival rate	SAVR (n = 1082) 1 year: 93% 5 years: 80% 10 years: 55%	SAVR+CABG (n = 1082) 1 year: 93% 5 years: 80% 10 years: 50%	–	–
Thalji et al.[52]	2001-2010	Retrospective single-centre	75 ± 9	4.7	Survival rate	SAVR (n = 265) 39%	SAVR+CABG (n = 1043) 50%	–	0.007

Canadian Journal of Cardiology 40 (2024) 218e234.
https://doi.org/10.1016/j.cjca.2023.09.023

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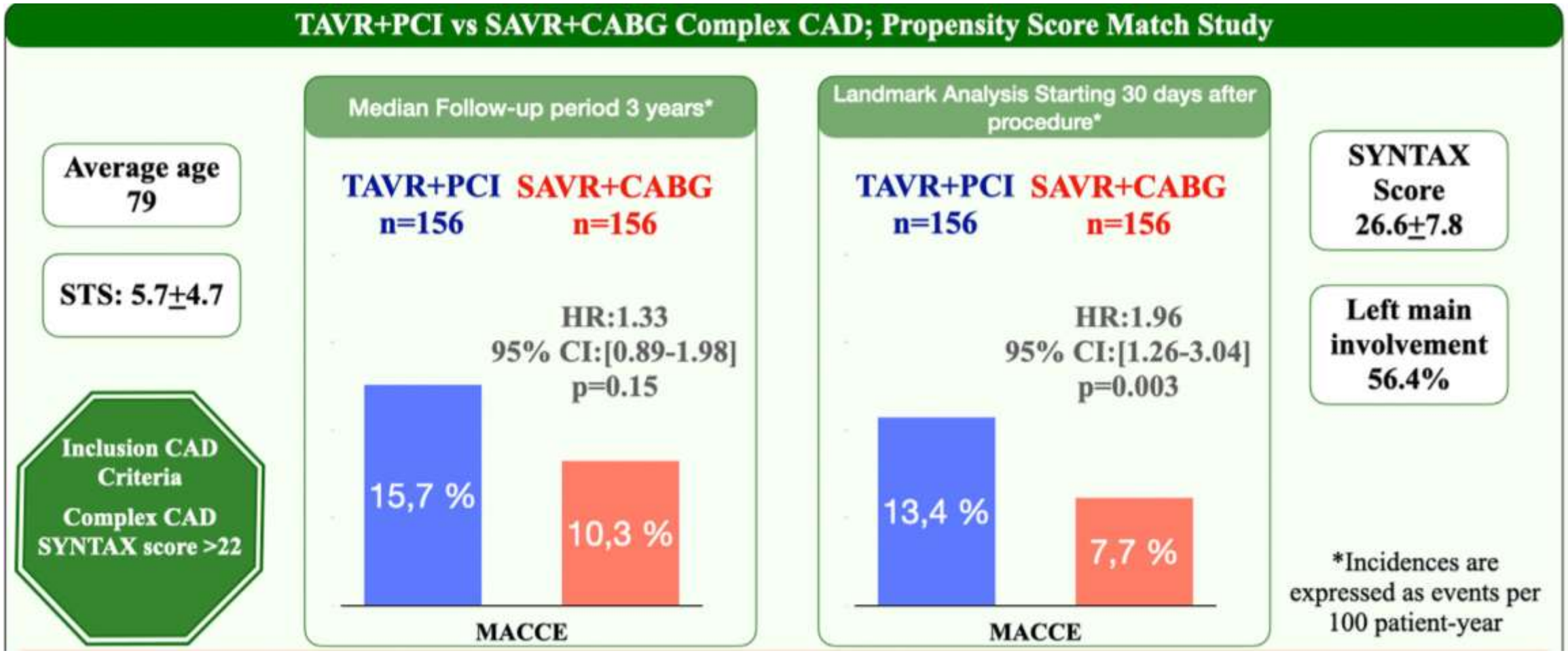

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TAVI & Revascularización Coronaria

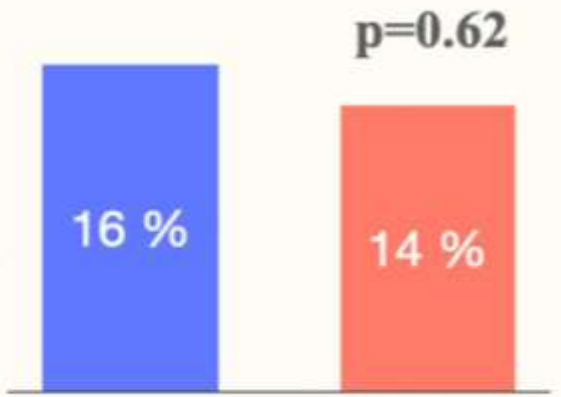
TAVR+PCI vs SAVR+CABG low-intermediate complex CAD; Intermediate surgical risk RCTs

SURTAVI Trial

	TAVR+PCI n=128	SAVR+CABG n=176
Average age	79.5±5.9	
STS	4.8±1.7	

CAD Exclusion criteria

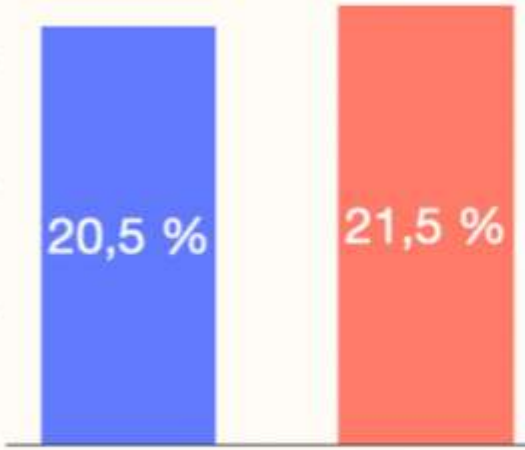
Left main disease
SYNTAX score > 22



All-cause mortality or disabling stroke rate
2 years follow-up

PARTNER 2 Trial

	TAVR+PCI n=39	SAVR+CABG n=148
Average age	81±6.7	
STS	5.8	



Death from any cause or disabling stroke
2 years follow-up

CAD Exclusion criteria

Left main disease
SYNTAX score > 32
Rejection by Heart Team

Canadian Journal of Cardiology 40 (2024) 218e234.
https://doi.org/10.1016/j.cjca.2023.09.023

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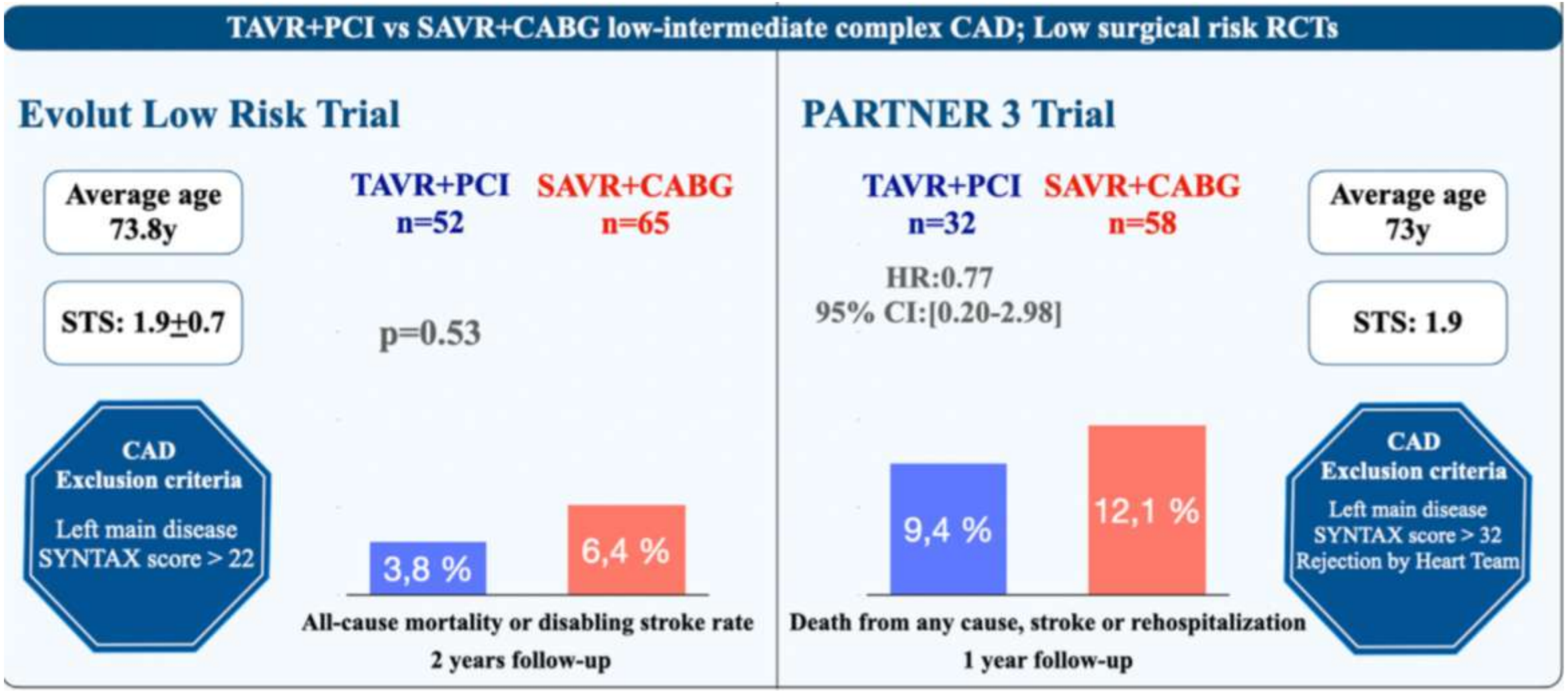

Canadian Journal of Cardiology 40 (2024) 218e234.
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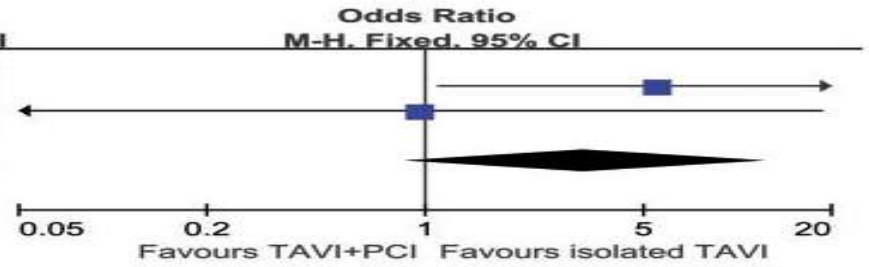
PCI en pacientes con Cardiopatía Isquémica ESTABLE y TAVI

¿ En que momento revascularizar ?

Peri-procedural myocardial infarction in all patients

Study or Subgroup	TAVI+PCI Events	TAVI+PCI Total	isolated TAVI Events	isolated TAVI Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Abdel-Wahab 2012	0	55	0	70		Not estimable
Griese 2014	3	65	3	346	50.1%	5.53 [1.09, 28.04]
Penkalla 2014	0	76	3	517	49.9%	0.96 [0.05, 18.78]
Total (95% CI)		**196**		**933**	**100.0%**	**3.25 [0.87, 12.22]**
Total events	3		6			

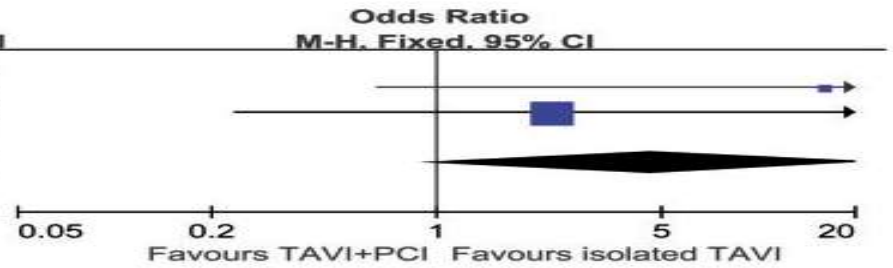
Heterogeneity: Chi² = 1.06, df = 1 (P = 0.30); I² = 5%
Test for overall effect: Z = 1.75 (P = 0.08)



Spontaneous myocardial infarction in all patients

Study or Subgroup	TAVI+PCI Events	TAVI+PCI Total	isolated TAVI Events	isolated TAVI Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Abdel-Wahab 2012	0	55	0	70		Not estimable
Griese 2014	1	65	0	346	17.1%	16.12 [0.65, 400.00]
Penkalla 2014	1	76	3	517	82.9%	2.28 [0.23, 22.25]
Total (95% CI)		**196**		**933**	**100.0%**	**4.65 [0.89, 24.31]**
Total events	2		3			

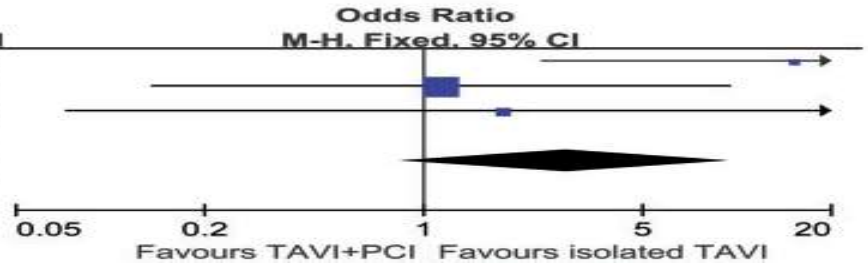
Heterogeneity: Chi² = 0.95, df = 1 (P = 0.33); I² = 0%
Test for overall effect: Z = 1.82 (P = 0.07)



Myocardial infarction in performing simultaneous PCI and TAVI

Study or Subgroup	TAVI+PCI Events	TAVI+PCI Total	isolated TAVI Events	isolated TAVI Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Griese 2014	2	17	3	346	11.1%	15.24 [2.37, 98.16]
Penkalla 2014	1	76	6	517	68.0%	1.14 [0.13, 9.56]
Wenaweser 2011	0	36	1	197	20.9%	1.79 [0.07, 44.92]
Total (95% CI)		**129**		**1060**	**100.0%**	**2.84 [0.85, 9.50]**
Total events	3		10			

Heterogeneity: Chi² = 3.92, df = 2 (P = 0.14); I² = 49%
Test for overall effect: Z = 1.69 (P = 0.09)



European Journal of Cardio-Thoracic Surgery 54 (2018) 1052–1059
doi:10.1093/ejcts/ezy240

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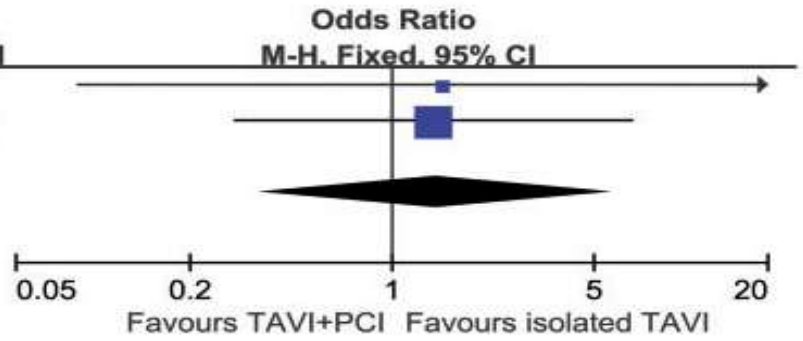
PCI en pacientes con Cardiopatía Isquémica ESTABLE y TAVI

¿ En que momento revascularizar ?

Stroke and TIA in performing simultaneous PCI and TAVI

Study or Subgroup	TAVI+PCI Events	Total	isolated TAVI Events	Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Griese 2014	0	17	6	346	21.1%	1.50 [0.08, 27.65]
Wenaweser 2011	2	36	8	197	78.9%	1.39 [0.28, 6.83]
Total (95% CI)		**53**		**543**	**100.0%**	**1.41 [0.35, 5.72]**
Total events	2		14			

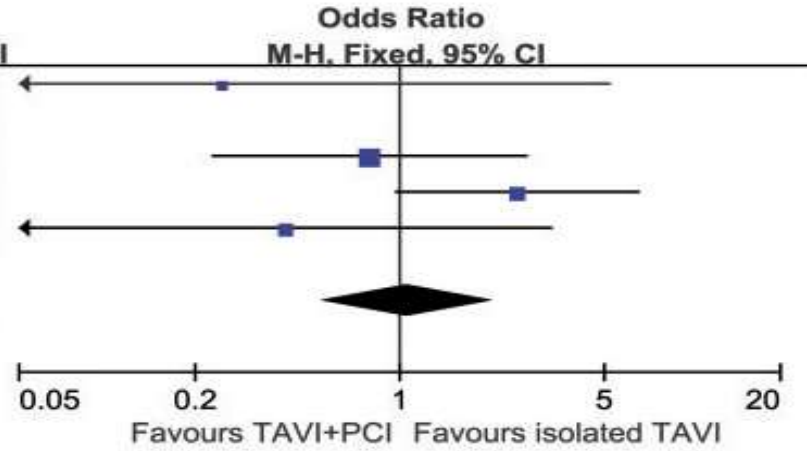
Heterogeneity: Chi² = 0.00, df = 1 (P = 0.97); I² = 0%
Test for overall effect: Z = 0.48 (P = 0.63)



Renal failure AKIN 3 in all patients

Study or Subgroup	TAVI+PCI Events	Total	isolated TAVI Events	Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Abdel-Wahab 2012	0	55	2	70	13.8%	0.25 [0.01, 5.25]
Abramowitz 2014	0	61	0	188		Not estimable
Griese 2014	3	65	20	346	38.1%	0.79 [0.23, 2.74]
Penkalla 2014	6	76	17	517	25.3%	2.52 [0.96, 6.61]
Wenaweser 2011	1	59	8	197	22.9%	0.41 [0.05, 3.32]
Total (95% CI)		**255**		**1130**	**100.0%**	**1.07 [0.54, 2.10]**
Total events	10		47			

Heterogeneity: Chi² = 4.98, df = 3 (P = 0.17); I² = 40%
Test for overall effect: Z = 0.18 (P = 0.86)



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PCI en pacientes con Cardiopatía Isquémica ESTABLE y TAVI

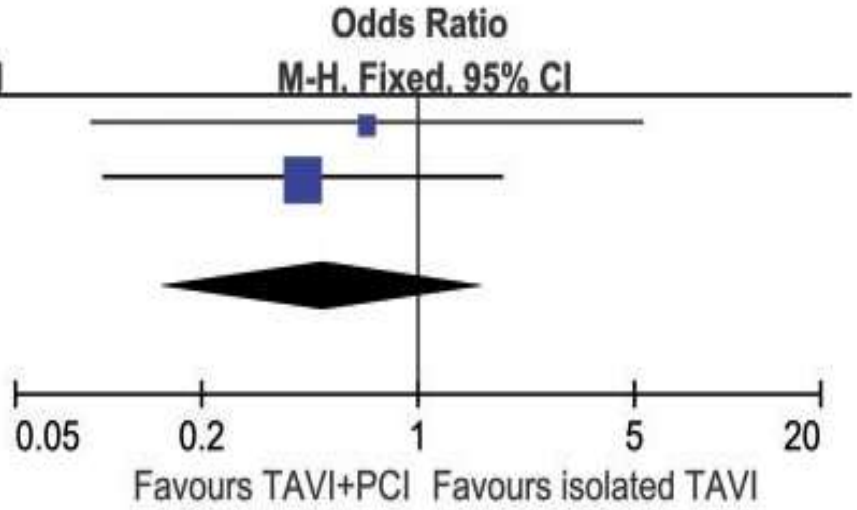
¿ En que momento revascularizar ?

Bleeding complications VARC-2 life-threatening in performing simultaneous PCI and TAVI

Study or Subgroup	TAVI+PCI Events	Total	isolated TAVI Events	Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Griese 2014	1	17	29	346	26.7%	0.68 [0.09, 5.34]
Wenaweser 2011	2	36	24	197	73.3%	0.42 [0.10, 1.88]
Total (95% CI)		**53**		**543**	**100.0%**	**0.49 [0.15, 1.65]**
Total events	3		53			

Heterogeneity: Chi² = 0.14, df = 1 (P = 0.71); I² = 0%

Test for overall effect: Z = 1.15 (P = 0.25)



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PCI en pacientes con Cardiopatía Isquémica ESTABLE y TAVI

¿ En que momento revascularizar ?

1.756 pacientes que se sometieron a TAVI
258 pacientes se sometieron a ICP planificada antes de TAVI (n = 143, 55,4 %),
concomitantemente con TAVI (n = 77, 29,8 %) o
después de TAVI (n = 38, 14,7 %).

Todos los pacientes en el grupo de ICP post-TAVI fueron tratados con válvulas expandibles con balón, y no se observó inestabilidad hemodinámica durante TAVI ni complicaciones relacionadas con ICP.

En un análisis multivariable, el momento de la ICP no se asoció con la tasa de eventos adversos cardíacos y cerebrovasculares mayores a los 2 años:

Concomitante vs pre-TAVI, [HR]: 0,92; [IC] del 95 %: 0,52 a 1,66; p = 0,79;
Post vs pre-TAVI, HR: 0,45; IC del 95 %: 0,18 a 1,16; p = 0,10).

En conclusión, no hubo diferencias significativas en términos de resultados a mediano plazo entre los grupos de PCI pre-TAVI, concomitante y post-TAVI

Ochiai T, et al. Am J Cardiol. 2020;125:1361-8.

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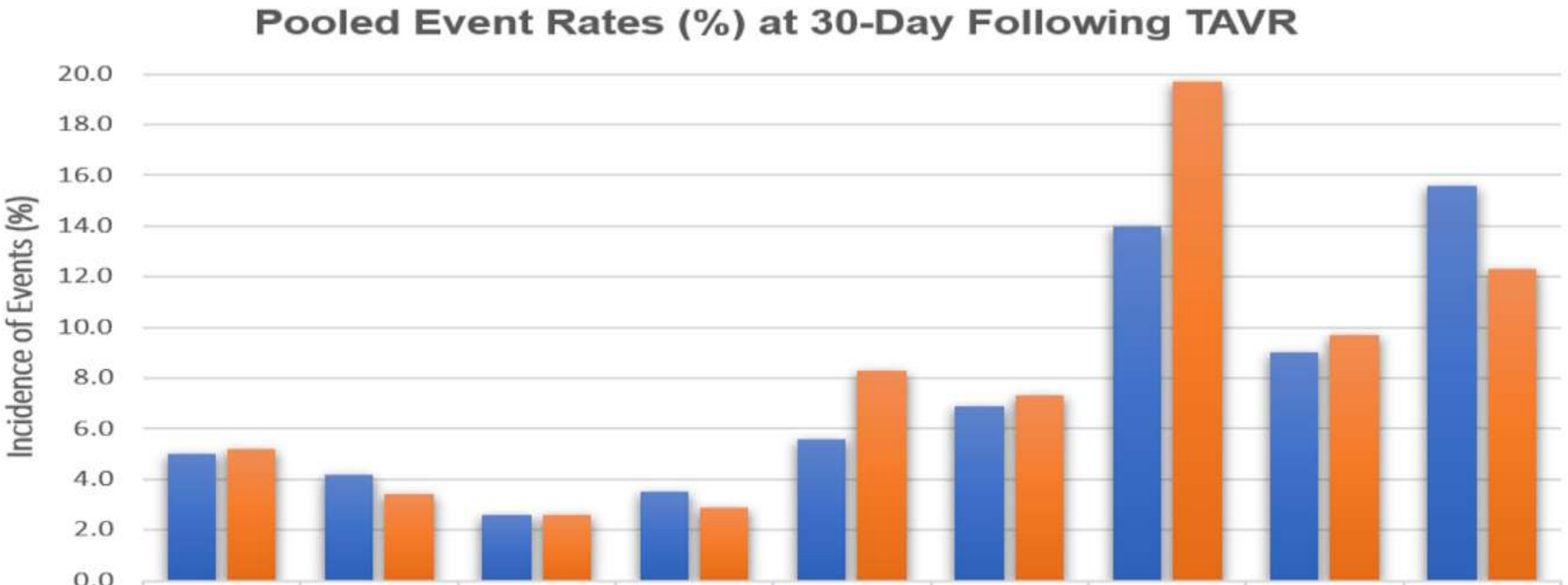
TAVI & Revascularización Coronaria



	All-cause Mortality	CV Mortality	Stroke	MI	AKI	LTB	Any Bleed	MVC	PPM
No PCI	5.0	4.2	2.6	3.5	5.6	6.9	14.0	9.0	15.6
PCI	5.2	3.4	2.6	2.9	8.3	7.3	19.7	9.7	12.3

Curr Probl Cardiol 2022;47:101339. https://doi.org/10.1016/j.cpcardiol.2022.101339

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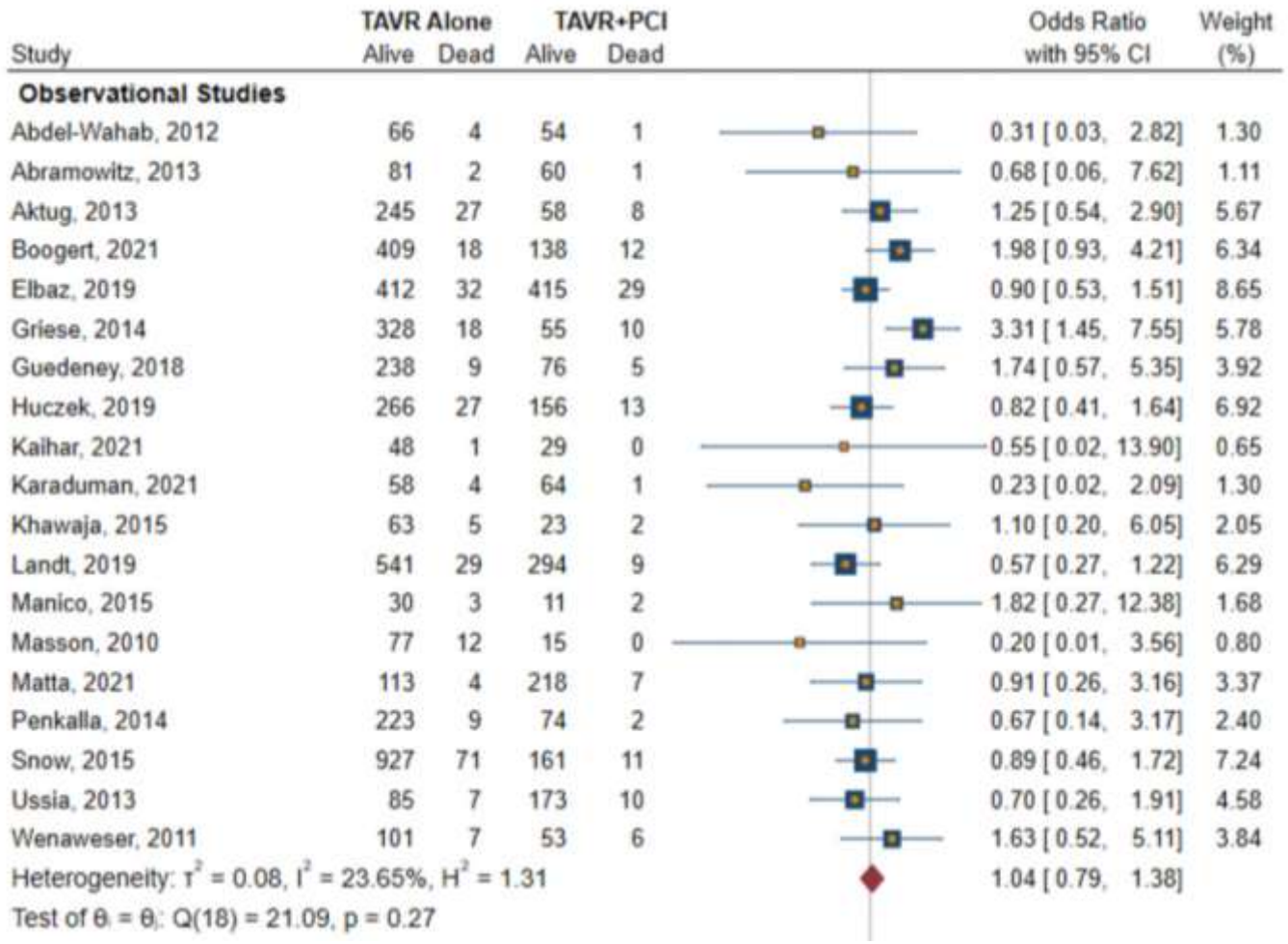

Study	TAVR Alone Alive	TAVR Alone Dead	TAVR+PCI Alive	TAVR+PCI Dead	Odds Ratio with 95% CI	Weight (%)
Observational Studies						
Abdel-Wahab, 2012	66	4	54	1	0.31 [0.03, 2.82]	1.30
Abramowitz, 2013	81	2	60	1	0.68 [0.06, 7.62]	1.11
Aktug, 2013	245	27	58	8	1.25 [0.54, 2.90]	5.67
Boogert, 2021	409	18	138	12	1.98 [0.93, 4.21]	6.34
Elbaz, 2019	412	32	415	29	0.90 [0.53, 1.51]	8.65
Griese, 2014	328	18	55	10	3.31 [1.45, 7.55]	5.78
Guedeney, 2018	238	9	76	5	1.74 [0.57, 5.35]	3.92
Huczek, 2019	266	27	156	13	0.82 [0.41, 1.64]	6.92
Kaihar, 2021	48	1	29	0	0.55 [0.02, 13.90]	0.65
Karaduman, 2021	58	4	64	1	0.23 [0.02, 2.09]	1.30
Khawaja, 2015	63	5	23	2	1.10 [0.20, 6.05]	2.05
Landt, 2019	541	29	294	9	0.57 [0.27, 1.22]	6.29
Manico, 2015	30	3	11	2	1.82 [0.27, 12.38]	1.68
Masson, 2010	77	12	15	0	0.20 [0.01, 3.56]	0.80
Matta, 2021	113	4	218	7	0.91 [0.26, 3.16]	3.37
Penkalla, 2014	223	9	74	2	0.67 [0.14, 3.17]	2.40
Snow, 2015	927	71	161	11	0.89 [0.46, 1.72]	7.24
Ussia, 2013	85	7	173	10	0.70 [0.26, 1.91]	4.58
Wenaweser, 2011	101	7	53	6	1.63 [0.52, 5.11]	3.84
Heterogeneity: $\tau^2 = 0.08$, $I^2 = 23.65\%$, $H^2 = 1.31$					1.04 [0.79, 1.38]	
Test of $\theta_i = \theta_j$: Q(18) = 21.09, p = 0.27						
Clinical Trials						
Patterson, 2021	110	6	116	3	0.47 [0.12, 1.94]	2.80
Søndergaard, 2019	683	12	162	7	2.46 [0.95, 6.34]	4.91
Heterogeneity: $\tau^2 = 0.98$, $I^2 = 72.27\%$, $H^2 = 3.61$					1.18 [0.24, 5.86]	
Test of $\theta_i = \theta_j$: Q(1) = 3.61, p = 0.06						

Curr Probl Cardiol 2022;47:101339. https://doi.org/10.1016/j.cpcardiol.2022.101339

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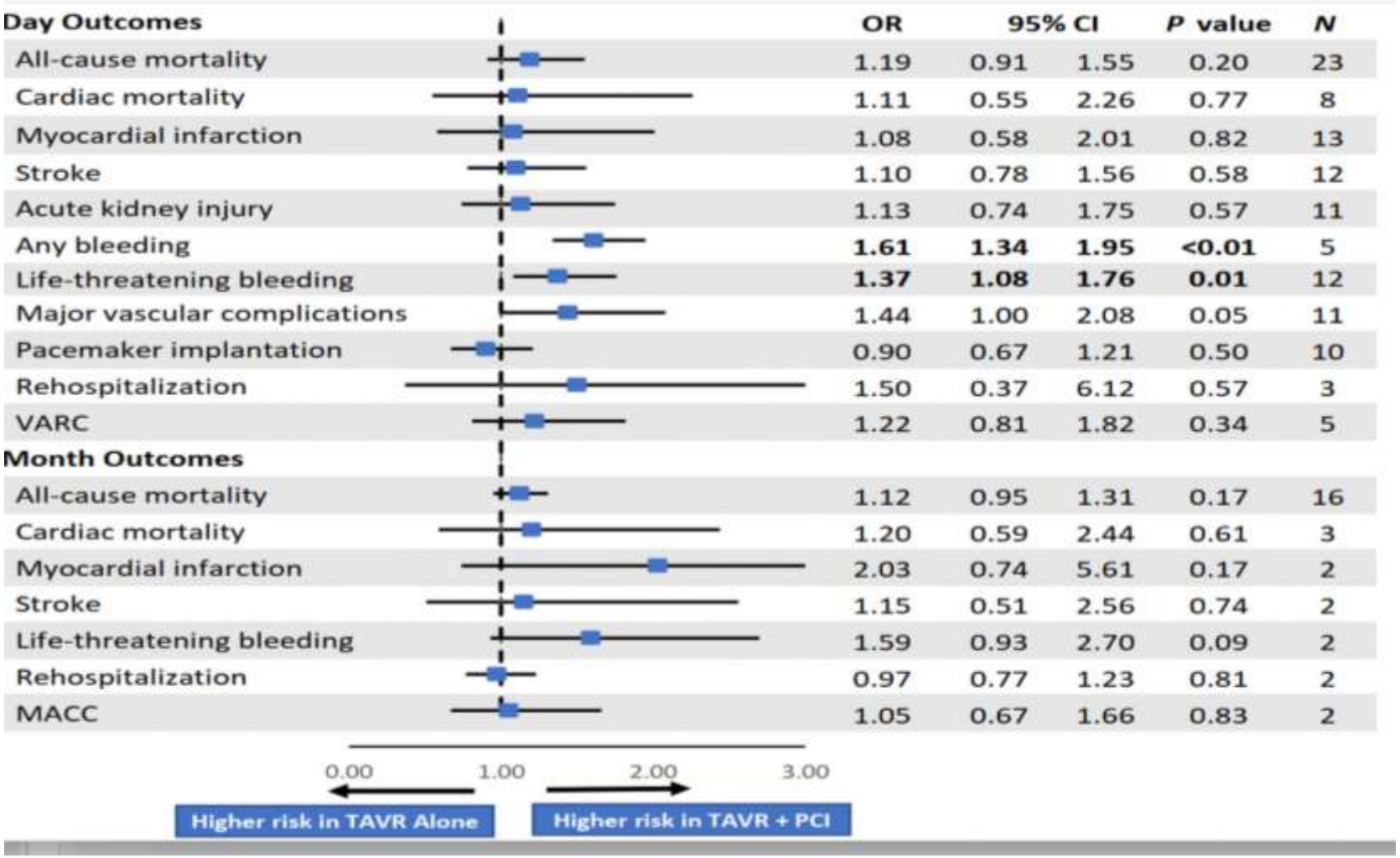

Day Outcomes	OR	95% CI		P value	N
All-cause mortality	1.19	0.91	1.55	0.20	23
Cardiac mortality	1.11	0.55	2.26	0.77	8
Myocardial infarction	1.08	0.58	2.01	0.82	13
Stroke	1.10	0.78	1.56	0.58	12
Acute kidney injury	1.13	0.74	1.75	0.57	11
Any bleeding	**1.61**	**1.34**	**1.95**	**<0.01**	5
Life-threatening bleeding	**1.37**	**1.08**	**1.76**	**0.01**	12
Major vascular complications	1.44	1.00	2.08	0.05	11
Pacemaker implantation	0.90	0.67	1.21	0.50	10
Rehospitalization	1.50	0.37	6.12	0.57	3
VARC	1.22	0.81	1.82	0.34	5
Month Outcomes					
All-cause mortality	1.12	0.95	1.31	0.17	16
Cardiac mortality	1.20	0.59	2.44	0.61	3
Myocardial infarction	2.03	0.74	5.61	0.17	2
Stroke	1.15	0.51	2.56	0.74	2
Life-threatening bleeding	1.59	0.93	2.70	0.09	2
Rehospitalization	0.97	0.77	1.23	0.81	2
MACC	1.05	0.67	1.66	0.83	2

Curr Probl Cardiol 2022;47:101339. https://doi.org/10.1016/j.cpcardiol.2022.101339

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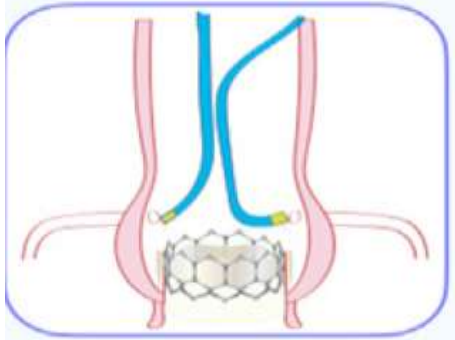
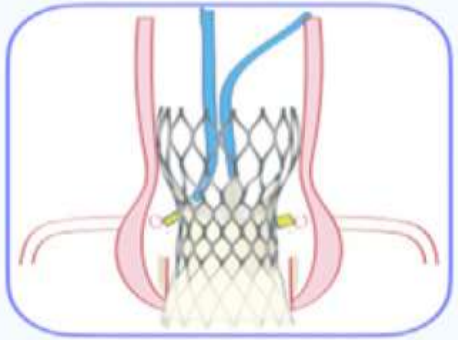
TAVI & Revascularización Coronaria

Coronary re-access after TAVR

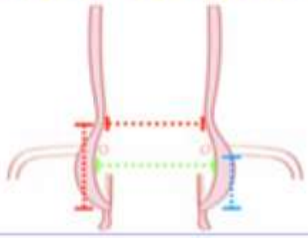
Coronary re-access

- Consider the relationship between aortic root anatomy, THV features and implantation techniques





Aortic Root Anatomy

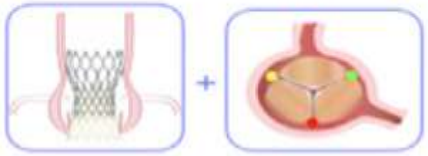


- Sinotubular junction width/ height
- Coronary artery height
- Sinus dimensions

THV features

- Leaflet height
- Open-cell configuration
- Annular leaflet position
- Commissural height
- Frame height

Implantation technique



Commissural alignment and implant depth

Canadian Journal of Cardiology 40 (2024) 218e234.
https://doi.org/10.1016/j.cjca.2023.09.023

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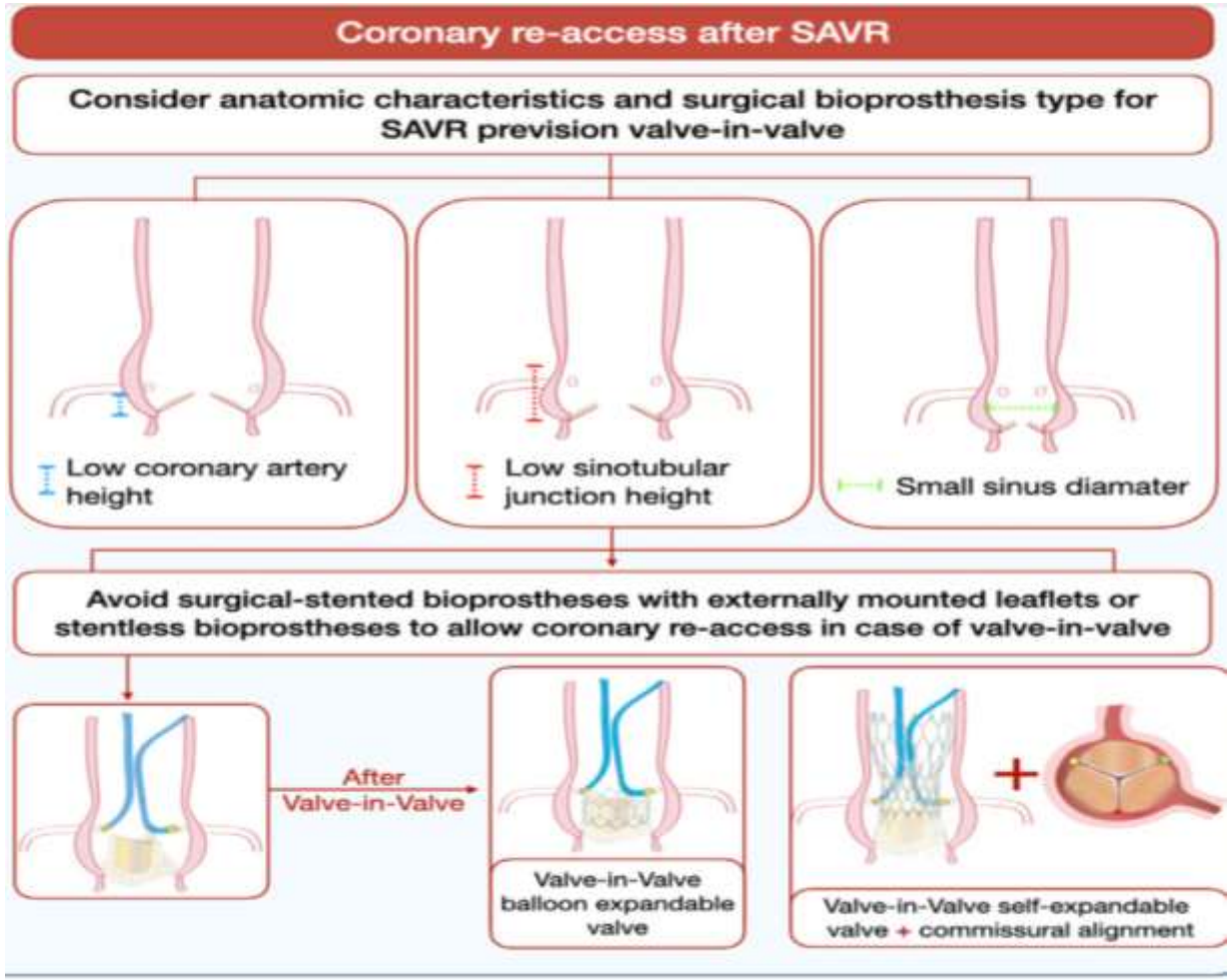
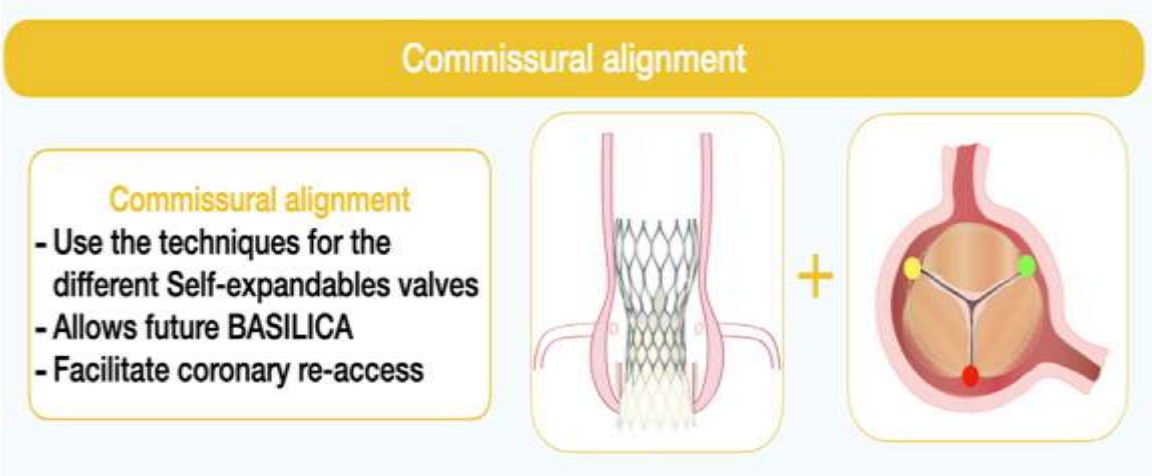
TAVI & Revascularización Coronaria





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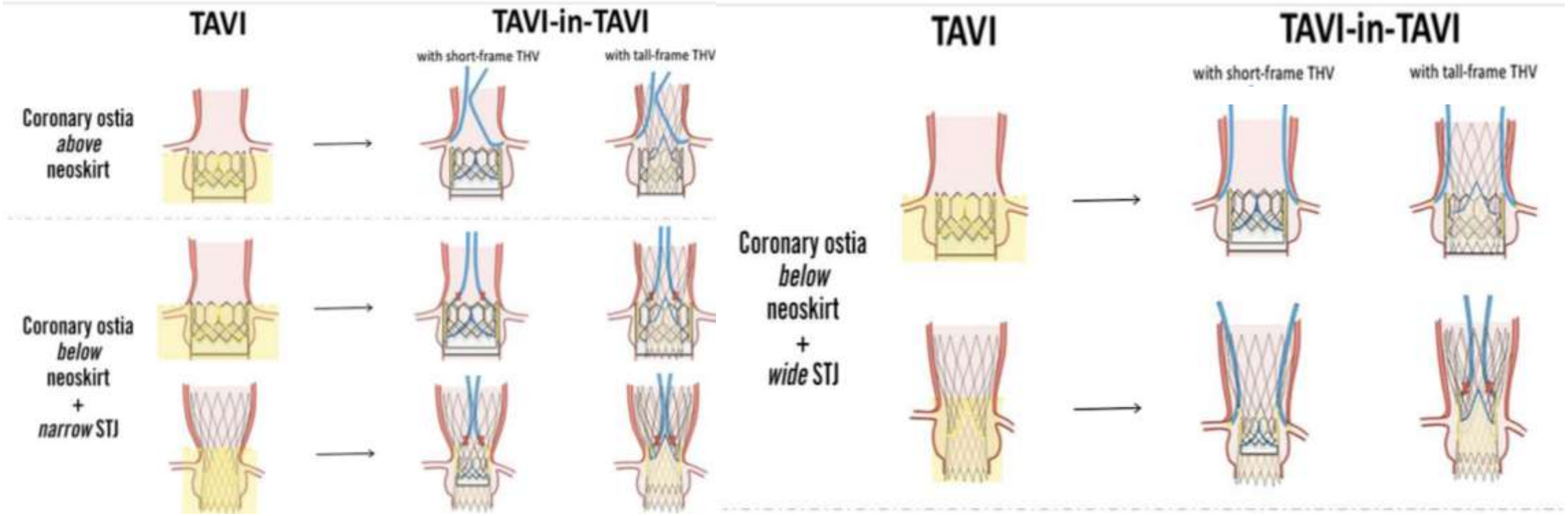
PCI y TAVI: Factibilidad del ACCESO CORONARIO



Acceso coronario tras TAVI-in-TAVI con diferentes combinaciones de válvulas cardíacas transcatéter SAPIEN y CoreValve/Evolut, dependiendo de la anatomía de la raíz aórtica

EuroIntervention 2023;19:37-52

PCI y TAVI: Tratamiento Antitrombótico

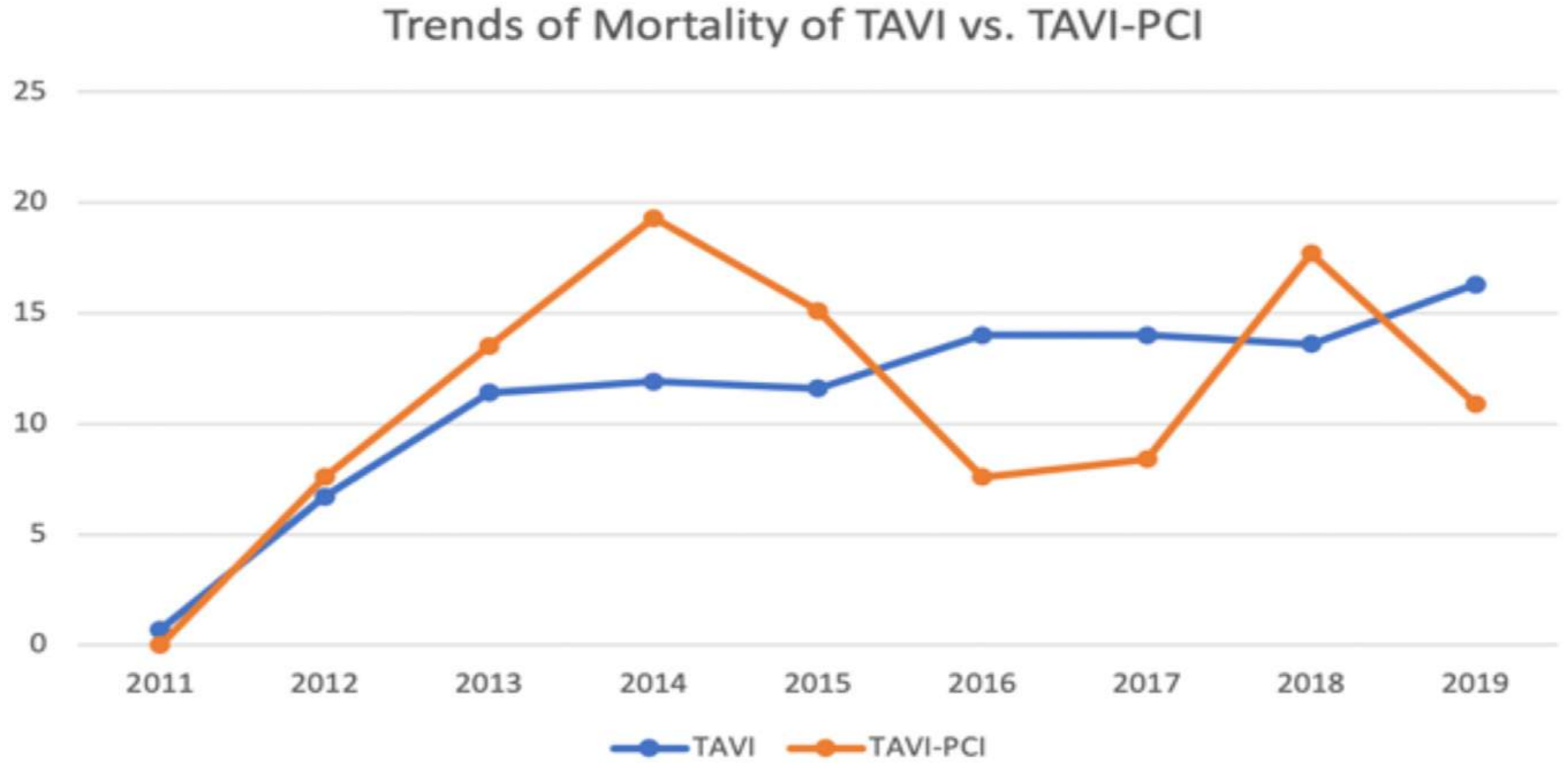
El equilibrio entre el beneficio de la reducción de eventos isquémicos y el riesgo de sangrado sigue siendo el principal determinante en la toma de decisiones, ya que los pacientes con TAVI a menudo tienen sangrado alto concomitante factores de riesgo, incluida la edad >75 años59.

Según esas directrices, en pacientes con alto riesgo de sangrado y sin indicación para ACO, se debe administrar DAPT durante 3 meses seguido de SAPT.

Cuando se indique ACO a largo plazo, se debe suspender la terapia triple después de 1 semana y seguir con ACO + SAPT durante 6 meses.

En casos de riesgo de sangrado alto o muy alto, se debe evitar la terapia triple, y SAPT + ACO se puede suspender después de 1-3 meses y seguir con ACO solo60.

ICP + TAVI Vs TAVI aislada



Curr Probl Cardiol 2024;49:101913

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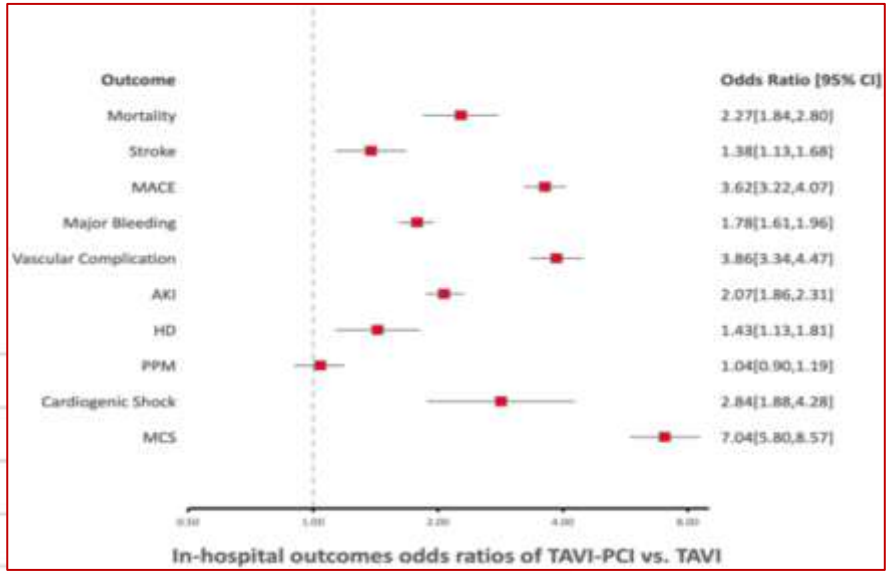
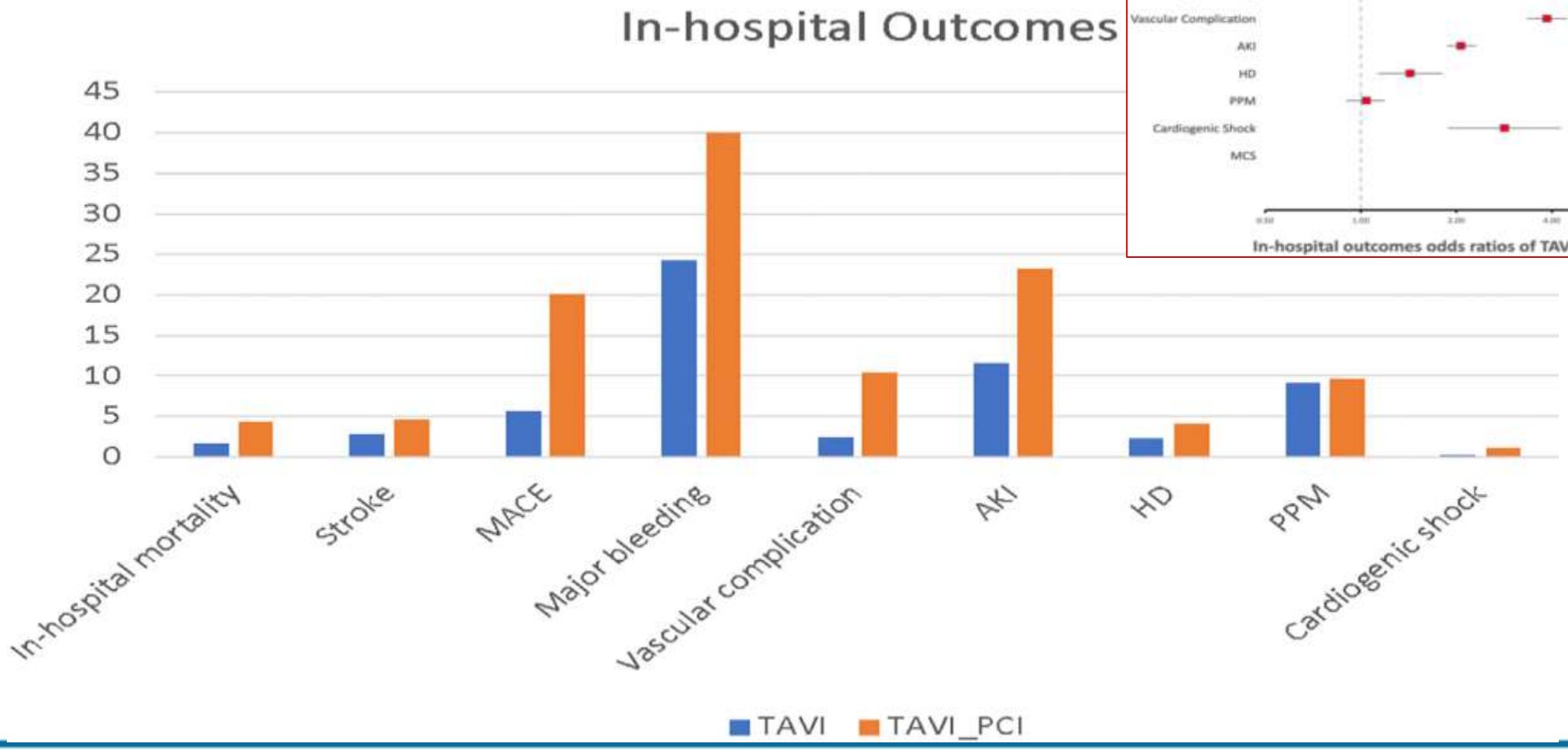
ICP + TAVI Vs TAVI aislada



In-hospital outcomes odds ratios of TAVI-PCI vs. TAVI



Curr Probl Cardiol 2024;49:101913

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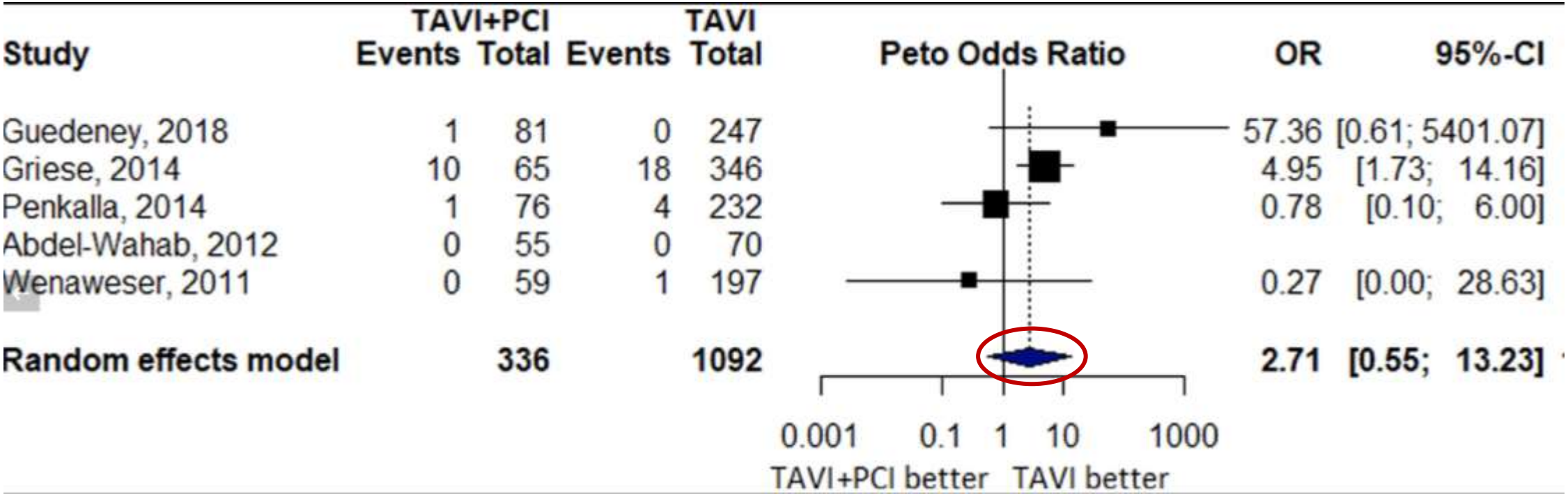
ICP +TAVI Vs TAVI aislada

Pacientes con Cardiopatía Isquémica ESTABLE

IAM a 30 días (+171% ICP+TAVI vs TAVI)



Am J Cardiol. 2019 Dec 1;124(11):1757-1764.
doi: 10.1016/j.amjcard.2019.08.024.

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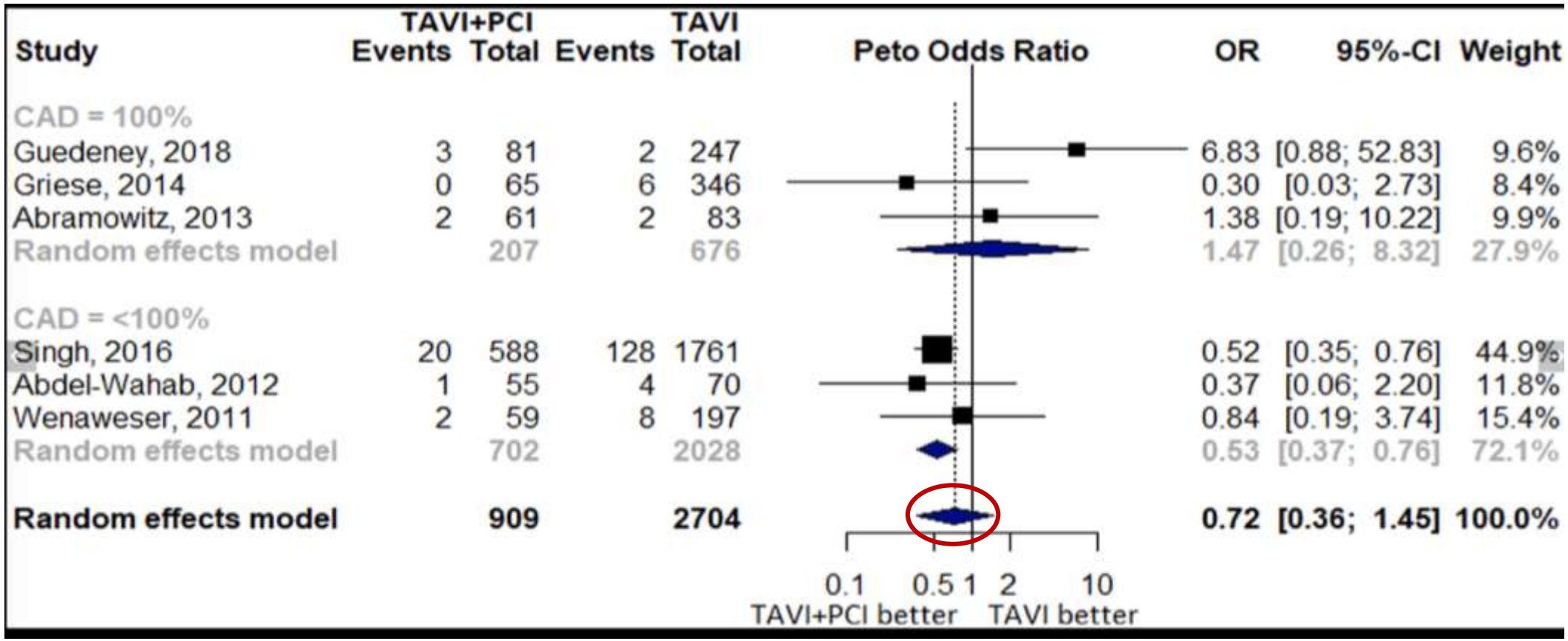
ICP +TAVI Vs TAVI aislada

Pacientes con Cardiopatía Isquémica ESTABLE

ACV a 30 días (-28% ICP+TAVI vs TAVI)



Am J Cardiol. 2019 Dec 1;124(11):1757-1764.
doi: 10.1016/j.amjcard.2019.08.024.

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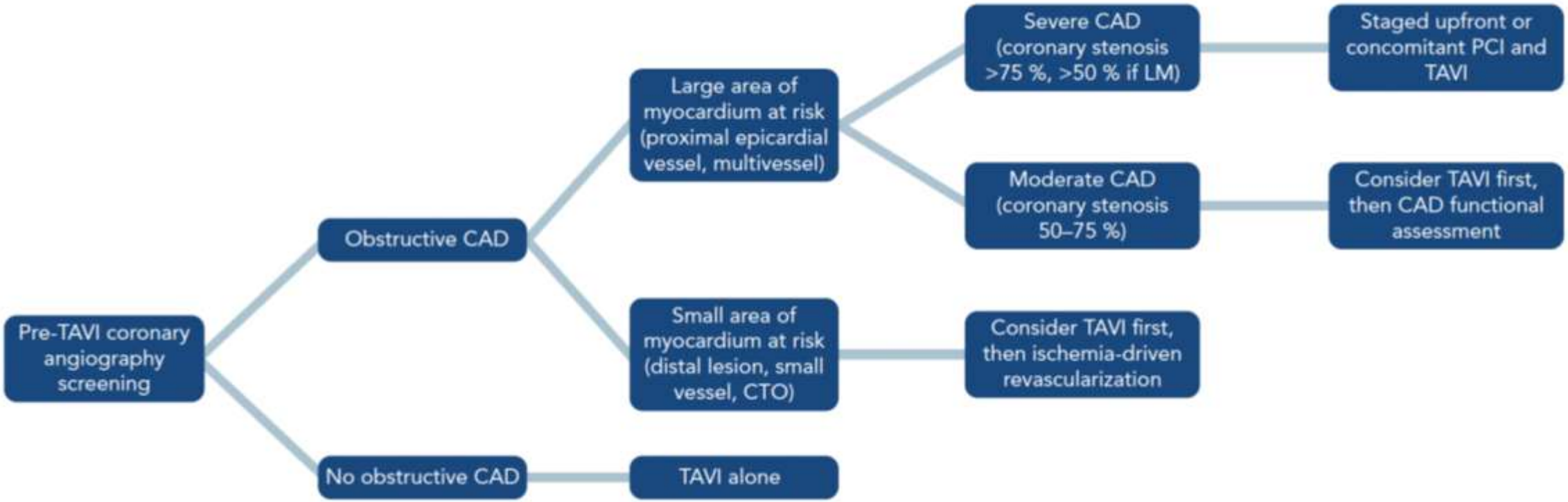
ICP & TAVI según momento de la revascularización



Interventional Cardiology Review 2018;13(2):69–76. DOI: https://doi.org/10.15420/icr.2018:2:2

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ICP & TAVI: Revascularización Completa o Incompleta

Table 3. Results of TAVR+PCI studies on the basis of complete or incomplete revascularization or residual SYNTAX score

Reference	Study period	Study design	Mean age, years	Follow-up, years	Primary outcomes among study groups			HR/OR for mortality (95% CI)	*P*
Van Mieghem et al.[71]	2005-2012	Retrospective single-centre	80.3 ± 7.0	1.4	Survival rate	CR (n = 139) 79%	IR (n = 124) 77.4%	–	0.85
Wenaweser et al.[72]	2007-2010	Prospective single-centre	82.6 ± 5.6*	2	Mortality rate	CR (n = 53) No significant difference	IR (n = 55)	–	0.16
Stefanini et al.[65]	2007-2012	Propective single-centre	82.5 ± 5.8	1	MACCE	Low rSS < 14 (n = 192) 16.5%	High rSS > 14 (n = 95) 26.3%	–	0.04
López Otero et al.[69]	2008-2016	Retrospective single-centre	82.4 ± 5.7	2.7 ± 2	MACCE	CR (rSS = 0; n = 56) R-IR (rSS < 8; n = 85) No significant difference	IR (rSS ≥ 8) n = 46	–	0.86
Paradis et al.[19]	2007-2012	Retrospective multicentre	82.7†	1	Mortality, MI, and stroke rate	Low rSS (rSS < 8; n = 17) 30 Days: 0% 1 Year: 0%	High rSS (rSS > 8; n = 37) 30 Days: 5.4% 1 Year: 10.8%	–	0.16 0.33
Saia et al.[70]	2008-2017	Restrospective single-centre	82.8 ± 6.5	4.8	Mortality rate	CR (n = 138) 84.3%	IR (n = 153) 74.3%	–	0.25
Witber et al.[67]	2005-2017	Meta-analysis	–	0.7-3	Mortality rate	R-IR (n = 800) 22%	IR (n = 419) 33%	OR, 1.69 (1.26-2.28)	< 0.001
Landt et al.[66]	2007-2016	Restrospective single-centre	81.6 ± 6.1	1	Mortality rate	CR (n = 129) 12.9%	IR (n = 78) 26.6%	HR, 0.450 (0.21-0.92)	0.030
Faroux et al.[59]	2007-2019	Retrospective multicentre	81.4 ± 7.3	2	MACCE	CR (n = 889) IR increased the risk of MACCE	IR (n = 308)	HR, 1.30 (1.05-1.59)	0.014
Costa et al.[68]	2015-2021	Retrospective multicentre propensity score-matched	82.6*,‡	2	Mortality rate	CR (n = 657) 21.6%	IR (n = 657) 18.2%	HR, 0.88 (0.66-1.18)	0.38

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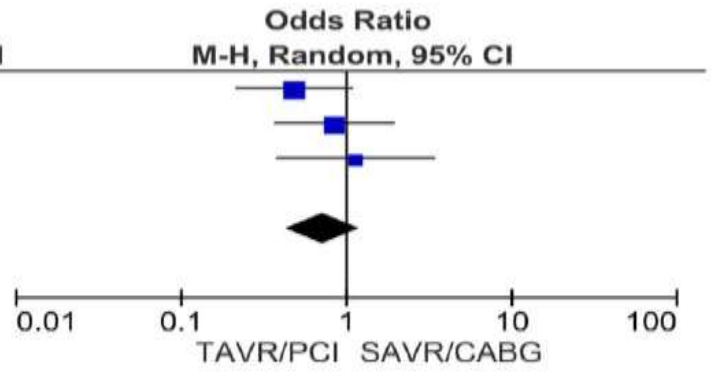
ICP+TAVI Vs **CABG+TAVI**

Mortalidad a 30 días

Study or Subgroup	TAVR/PCI Events	Total	SAVR/CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Barbanti 2018	9	236	18	236	40.0%	0.48 [0.21, 1.09]
Baumbach 2019	7	112	34	464	38.2%	0.84 [0.36, 1.95]
Sondergaard 2019	7	169	6	163	21.8%	1.13 [0.37, 3.44]
Total (95% CI)		**517**		**863**	**100.0%**	**0.72 [0.43, 1.21]**
Total events	23		58			

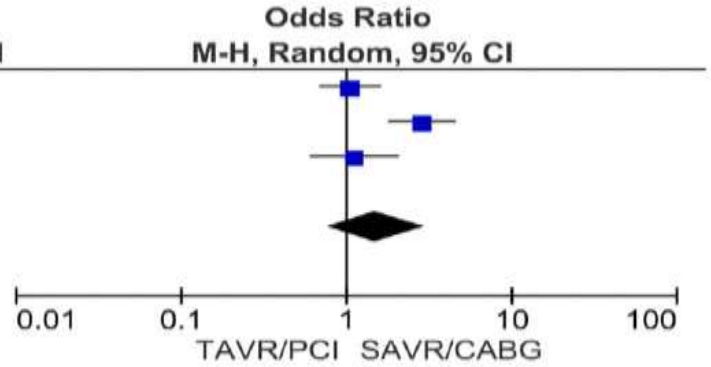
Heterogeneity: Tau² = 0.00; Chi² = 1.70, df = 2 (P = 0.43); I² = 0%
Test for overall effect: Z = 1.25 (P = 0.21)



Mortalidad a 2 años

Study or Subgroup	TAVR/PCI Events	Total	SAVR/CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Barbanti 2018	56	236	54	236	35.3%	1.05 [0.68, 1.61]
Baumbach 2019	36	112	66	464	34.2%	2.86 [1.78, 4.59]
Sondergaard 2019	25	169	22	163	30.5%	1.11 [0.60, 2.06]
Total (95% CI)		**517**		**863**	**100.0%**	**1.50 [0.77, 2.94]**
Total events	117		142			

Heterogeneity: Tau² = 0.28; Chi² = 10.72, df = 2 (P = 0.005); I² = 81%
Test for overall effect: Z = 1.19 (P = 0.23)



J Card Surg. 2020;35:2009–2016. DOI: 10.1111/jocs.14814

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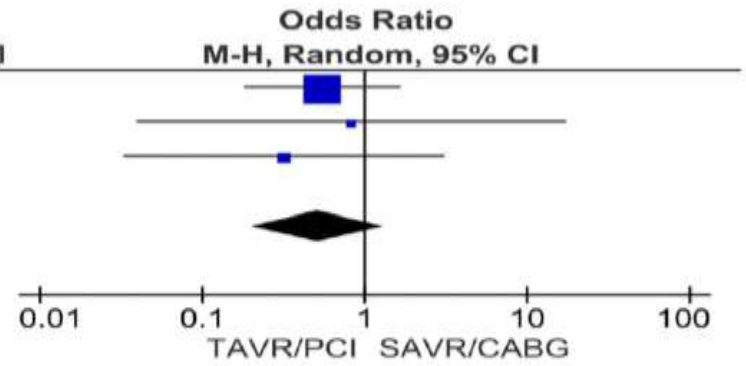
ICP+TAVI Vs **CABG+TAVI**

IAM a 30 días

Study or Subgroup	TAVR/PCI Events	Total	SAVR/CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Barbanti 2018	5	236	9	236	73.0%	0.55 [0.18, 1.65]
Baumbach 2019	0	112	2	464	9.7%	0.82 [0.04, 17.25]
Sondergaard 2019	1	169	3	163	17.3%	0.32 [0.03, 3.08]
Total (95% CI)		**517**		**863**	**100.0%**	**0.52 [0.20, 1.33]**
Total events	6		14			

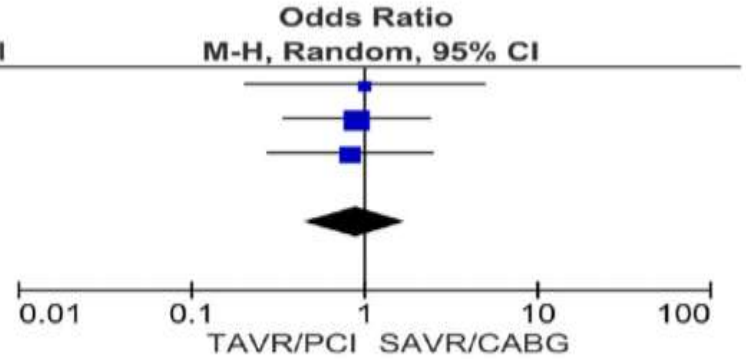
Heterogeneity: Tau² = 0.00; Chi² = 0.28, df = 2 (P = 0.87); I² = 0%
Test for overall effect: Z = 1.37 (P = 0.17)



ACVA a 30 días

Study or Subgroup	TAVR/PCI Events	Total	SAVR/CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Barbanti 2018	3	236	3	236	17.4%	1.00 [0.20, 5.01]
Baumbach 2019	5	112	23	464	46.1%	0.90 [0.33, 2.41]
Sondergaard 2019	6	169	7	163	36.5%	0.82 [0.27, 2.49]
Total (95% CI)		**517**		**863**	**100.0%**	**0.88 [0.45, 1.73]**
Total events	14		33			

Heterogeneity: Tau² = 0.00; Chi² = 0.04, df = 2 (P = 0.98); I² = 0%
Test for overall effect: Z = 0.36 (P = 0.72)



J Card Surg. 2020;35:2009–2016. DOI: 10.1111/jocs.14814

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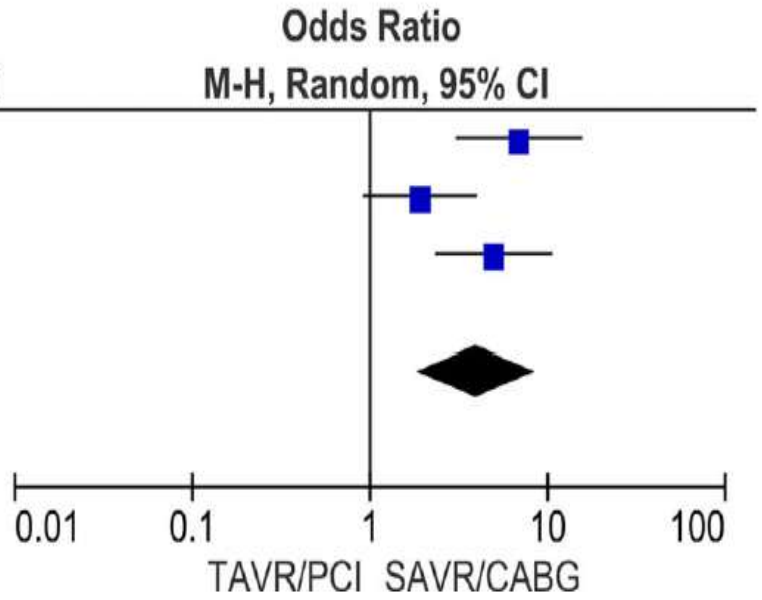
ICP+TAVI Vs CABG+TAVI

Marcapasos a 30 días

Study or Subgroup	TAVR/PCI Events	Total	SAVR/CABG Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Barbanti 2018	41	236	7	236	32.0%	6.88 [3.02, 15.68]
Baumbach 2019	11	112	25	464	34.3%	1.91 [0.91, 4.01]
Sondergaard 2019	38	169	9	163	33.7%	4.96 [2.31, 10.65]
Total (95% CI)		**517**		**863**	**100.0%**	**3.97 [1.84, 8.58]**
Total events	90		41			

Heterogeneity: Tau² = 0.31; Chi² = 5.92, df = 2 (P = 0.05); I² = 66%

Test for overall effect: Z = 3.51 (P = 0.0004)



J Card Surg. 2020;35:2009–2016. DOI: 10.1111/jocs.14814

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Resultados de ICP & TAVI según **Momento de la revascularización**

Study	Year	Pts (n)	% PCI (in CAD pts)	Timing of PCI	Stent type (%)	Follow-up	Outcomes	Conclusions	Additional findings
Before and concomitant									
Wenaweser[45]	2011	256	23.0 (35.3)	34 ± 26 days before TAVI (39 %) Concomitant with TAVI (61 %)	DES: staged 52.5, concomitant 88.4	Up to 2 years	No difference in 30-day mortality (5.6 % vs 10.2 %, p=0.24) and VARC endpoints between isolated TAVI and PCI + TAVI	Staged and concomitant PCI safe and feasible	Completeness of revascularization did not impact on long-term survival (p=0.16)
Conradi[46]	2011	28	100 (100)	14.3 ± 9.6 days before TAVI (75 %) Concomitant prior to TAVI (25 %)	BMS: 69.5 DES: 34.1	30 days	In-hospital and 30-day mortality rate of 7.1 % (2/28 deaths all in the PCI concomitant to TAVI group)	Staged and concomitant PCI safe and feasible	No periprocedural MI or stroke Higher risk of renal failure with concomitant strategy
Griese[51]	2014	411	15.8	Before (74 %) or concomitant (26 %) with TAVI	BMS: 71	Median of 16 months	PCI + TAVI associated to increased rate of 30-day MI (6 % vs 1 %; p=0.01) and mortality (15 % vs 5 %; p=0.01), and worse 2-year survival (p=0.03)	Similar 2-year survival between staged and concomitant PCI (p=0.65)	PCI associated to an elevated risk of MI and death regardless of synchronous or staged strategy

Interventional Cardiology Review 2018;13(2):69–76. DOI: https://doi.org/10.15420/icr.2018:2:2