

**FUTILIDAD DE LOS PROCEDIMIENTOS
CONTINUO FUNCIONAL Y TOMA DE DECISIONES EN EL PACIENTE
MAYOR CON CARDIOPATÍA ESTRUCTURAL SUSCEPTIBLE DE
INTERVENCIONISMO**

Pablo Solla Suárez

F.E.A. Geriatría. Área de Gestión Clínica de Geriatría. Hospital Monte Naranco.
Instituto de Investigación Sanitaria del Principado de Asturias.



SERVICIO DE SALUD
DEL PRINCIPADO DE ASTURIAS

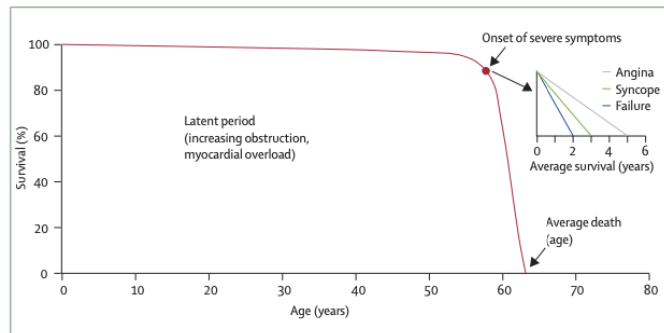
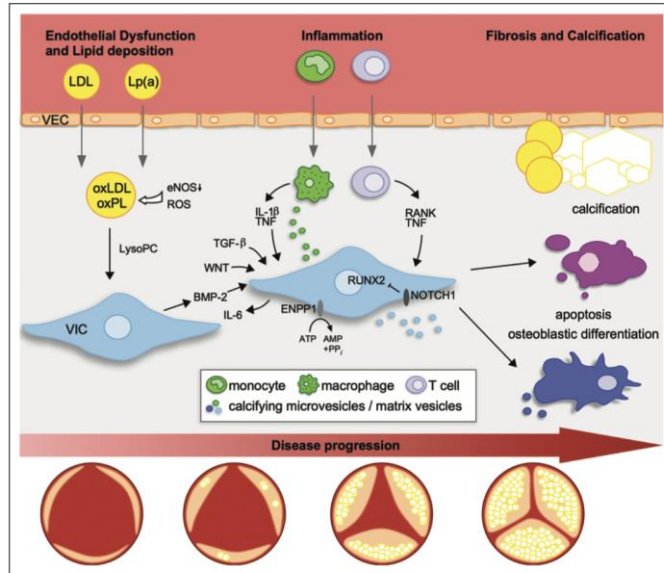


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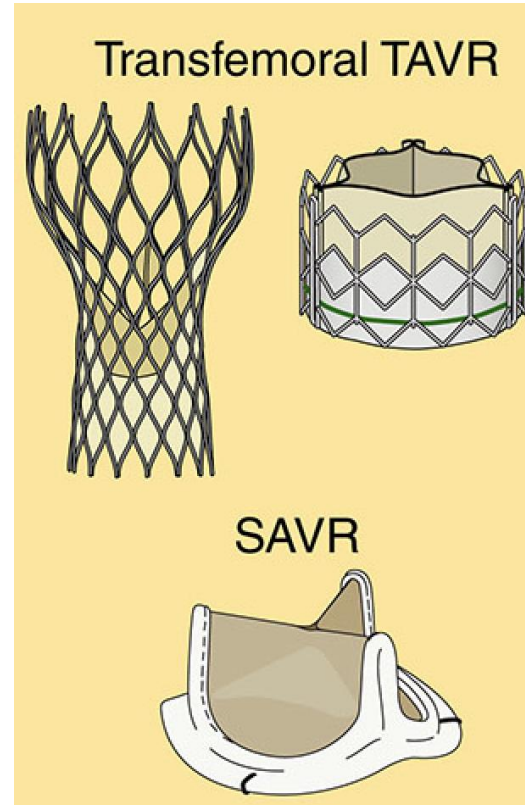
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EA grave: fisiopatología, prevalencia, manejo e implicaciones

Goody PR, et al. **Aortic Valve Stenosis: From Basic Mechanisms to Novel Therapeutic Targets.** *Arterioscler Thromb Vasc Biol.* 2020



Carabello BA, Paulus WJ. **Aortic stenosis.** *Lancet.* 2009



Barbanti M, Tamburino C, D'Errigo P, et al. **Five-Year Outcomes of Transfemoral Transcatheter Aortic Valve Replacement or Surgical Aortic Valve Replacement in a Real World Population.** *Circ Cardiovasc Interv.* 2019

1010 Osnbrugge et al. **Aortic Stenosis Epidemiology and TAVR Candidates**

JACC Vol. 62, No. 11, 2013
September 10, 2013:1002-12

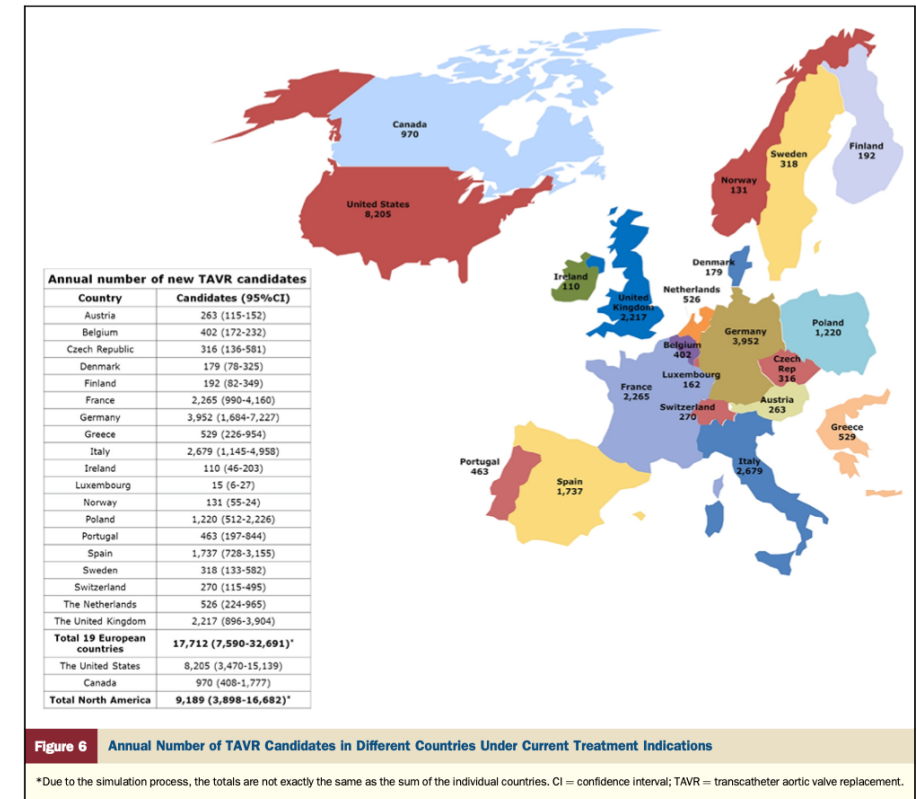
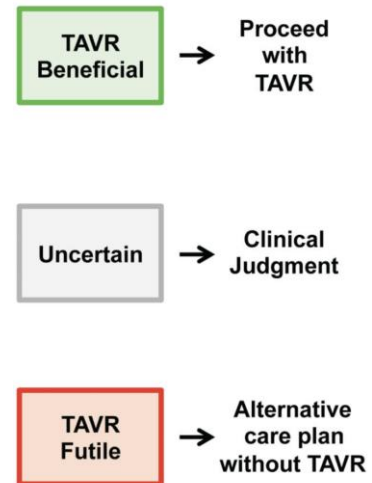
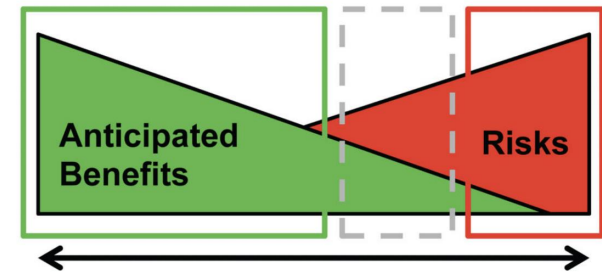
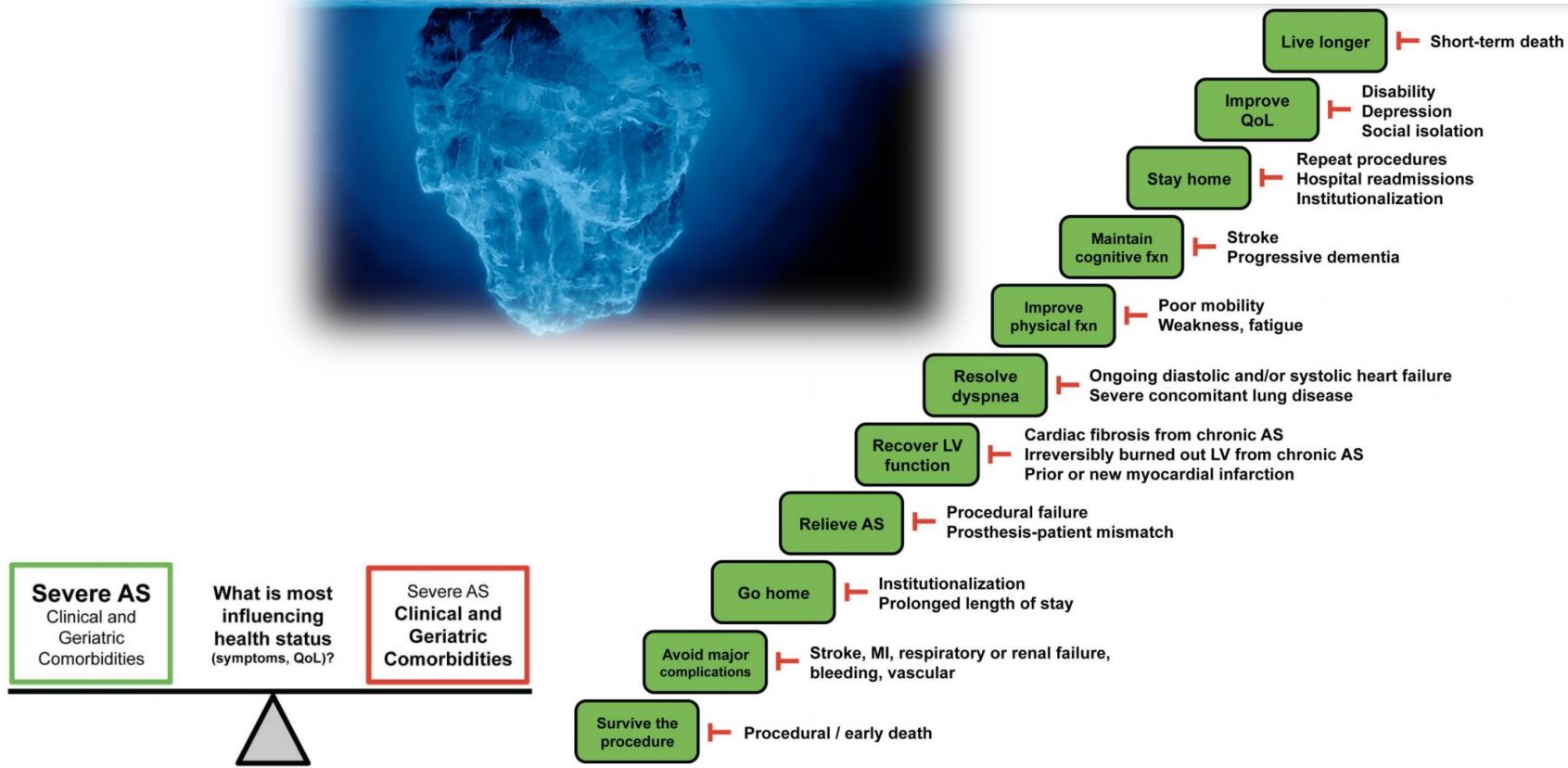


Figure 6 Annual Number of TAVR Candidates in Different Countries Under Current Treatment Indications

*Due to the simulation process, the totals are not exactly the same as the sum of the individual countries. CI = confidence interval; TAVR = transcatheter aortic valve replacement.



Complejidad del paciente mayor: toma de decisiones

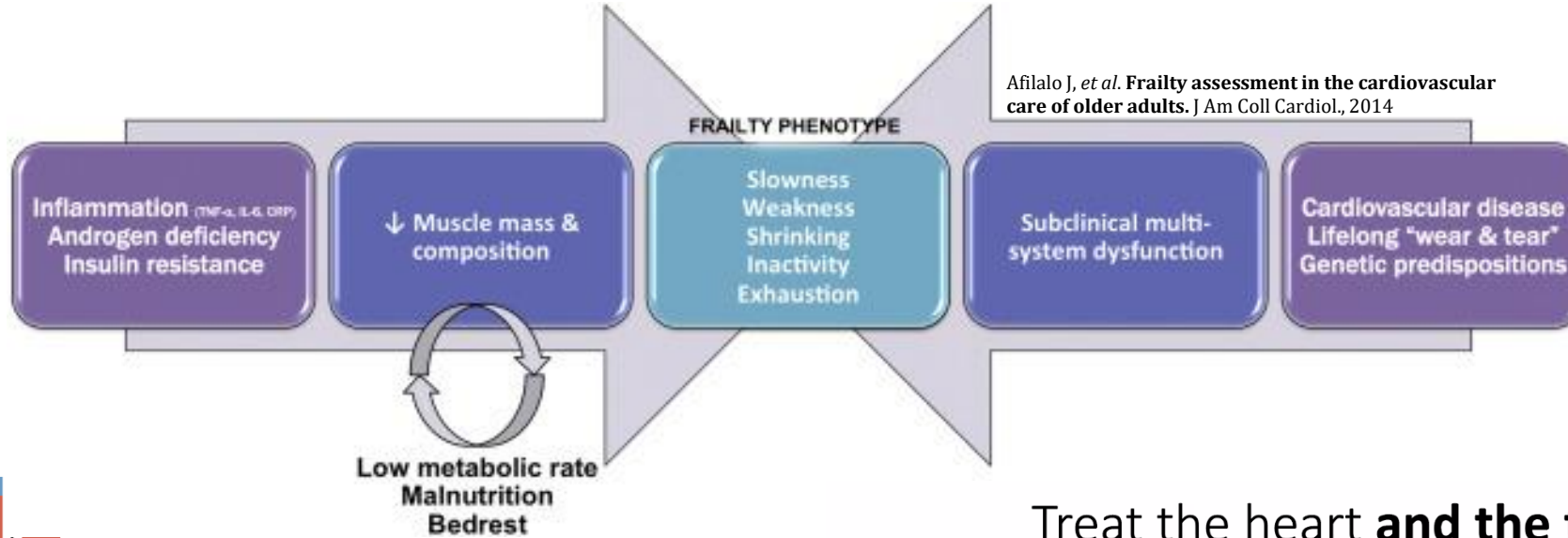


Lindman BR, et al. Futility, benefit, and transcatheter aortic valve replacement. JACC Cardiovasc Interv. 2014

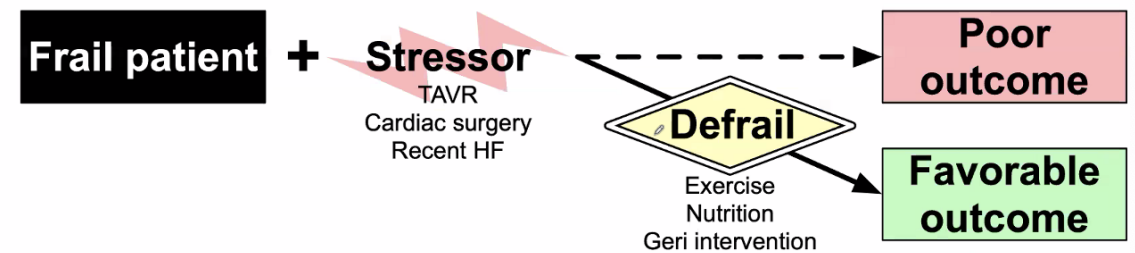
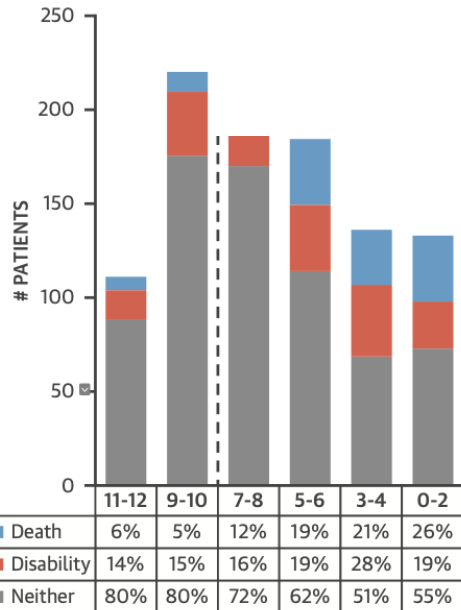


Fragilidad en Reemplazo Valvular Aórtico

Afilalo J, et al. Frailty assessment in the cardiovascular care of older adults. J Am Coll Cardiol., 2014



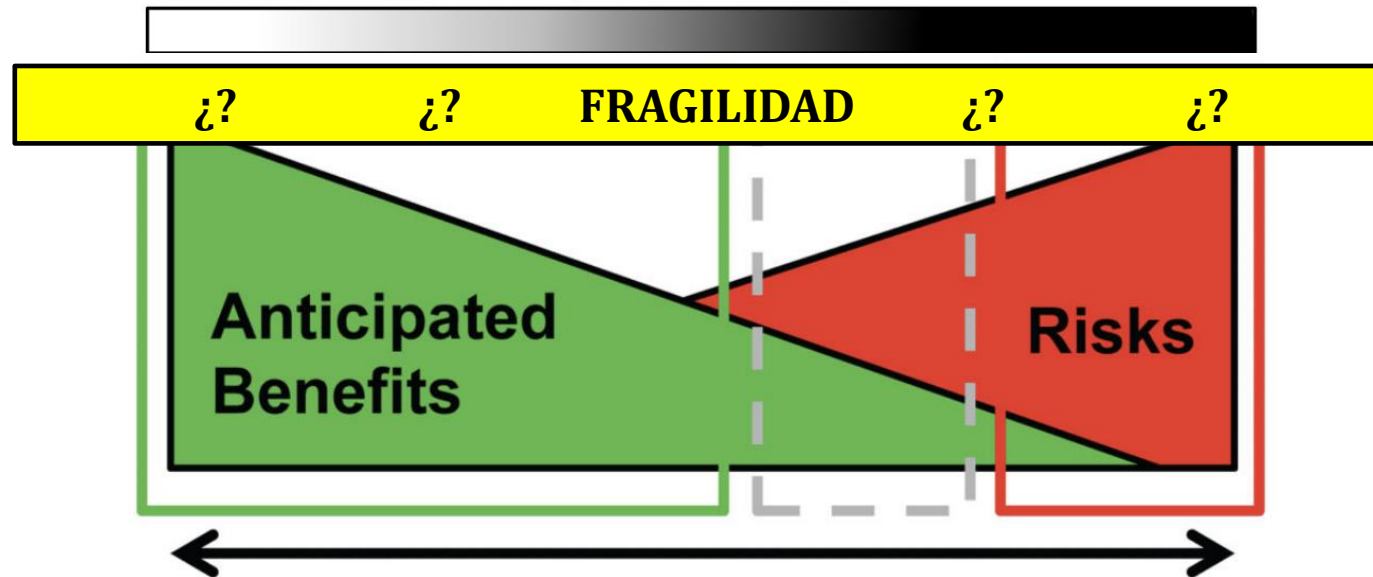
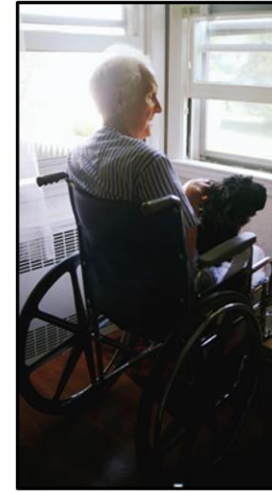
Treat the heart and the frailty



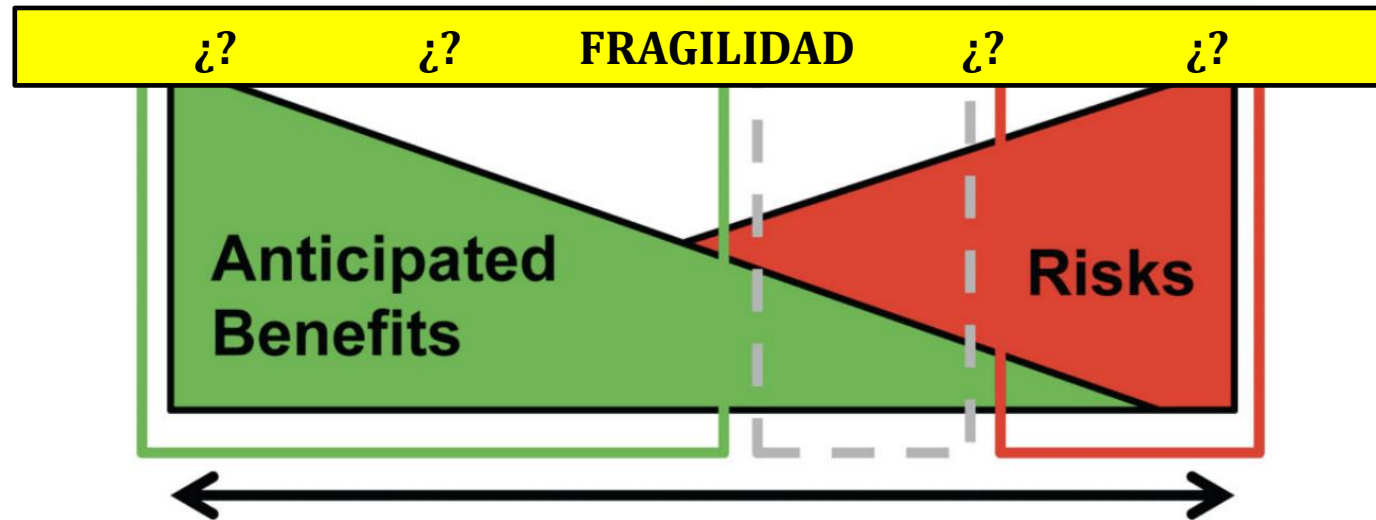
Afilalo, J. et al. **Frailty in Older Adults Undergoing Aortic Valve Replacement.** The FRAILTY-AVR Study. J Am Coll Cardiol. 2017

Bibas L, et al. **Therapeutic interventions for frail elderly patients: part I.** Published randomized trials. Prog Cardiovasc Dis. 2014

Fragilidad en EAo. Continuo Funcional



Fragilidad en EAo. Continuo Funcional



Continuo Funcional: FRADEA Functional Continuum Scale (CFS)

FRAGILIDAD representativa de un intervalo asilado de la pérdida progresiva de respuesta a estresores que se produce de un extremo al otro del continuo funcional

Category	BADL	IADL	Frailty	Measure	N	5-year mortality N (%)	10-year mortality N (%)
1	Independent	Independent	Not frail	Barthel Index ≥ 90 , IADL index = 8 Frailty phenotype = 0	76	1 (1.3)	12 (15.8)
2	Independent	Impairment	Not frail	Barthel Index ≥ 90 , IADL index < 8 Frailty phenotype = 0	124	13 (10.5)	33 (26.6)
3	Independent	Independent	Pre-frail	Barthel Index ≥ 90 , IADL index = 8 Frailty phenotype = 1 or 2	174	12 (6.9)	39 (22.4)
4	Independent	Impairment	Pre-frail	Barthel Index ≥ 90 , IADL index < 8 Frailty phenotype = 1 or 2	181	42 (23.2)	90 (49.7)
5	BADL independent		Frail	Barthel Index ≥ 90 Frailty phenotype ≥ 3	49	19 (38.8)	31 (62.0)
6	Mild BADL impairment			Barthel Index 85-60	168	86 (51.2)	126 (75.0)
7	Moderate BADL impairment			Barthel Index 55-40	48	36 (75.0)	43 (89.6)
8	Severe BADL impairment			Barthel Index < 40	104	82 (78.8)	101 (97.1)

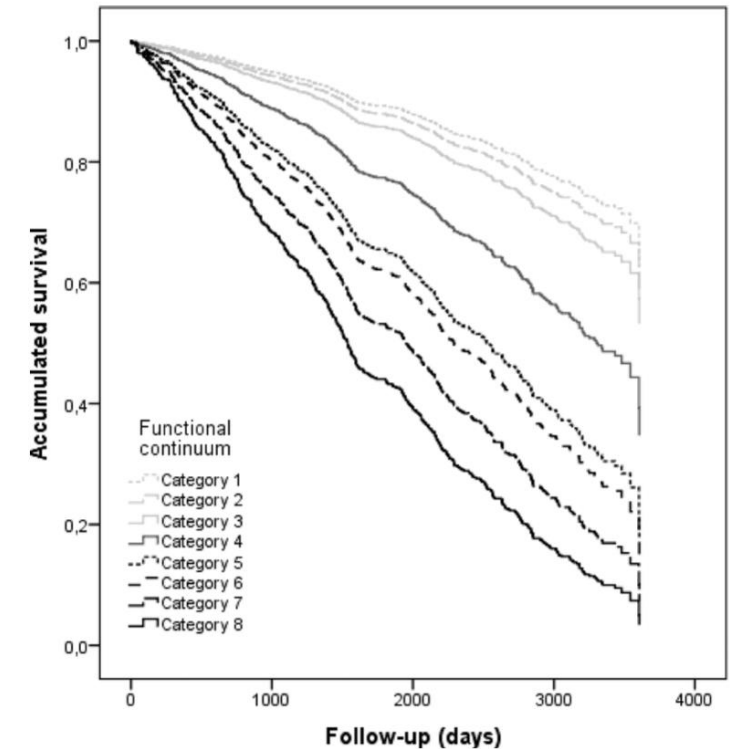


Fig. 1. The new functional classification based on a combined measure of BADL, IADL, and frailty, including 5-year and 10-year mortality rates for each category.

Hoogendijk EO, et al. A New Functional Classification Based on Frailty and Disability Stratifies the Risk for Mortality Among Older Adults: The FRADEA Study. J Am Med Dir Assoc.



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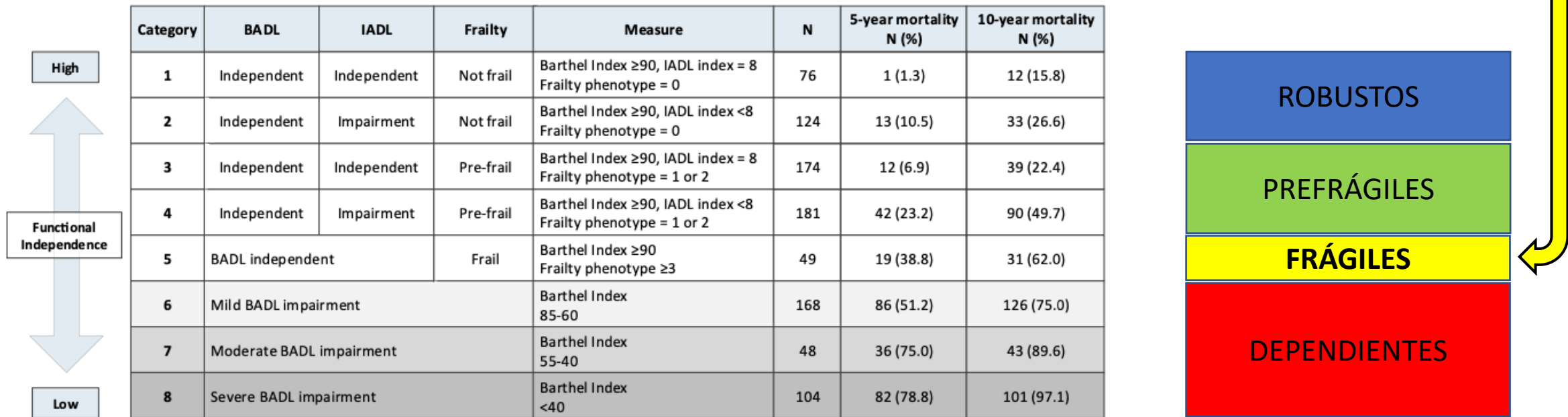
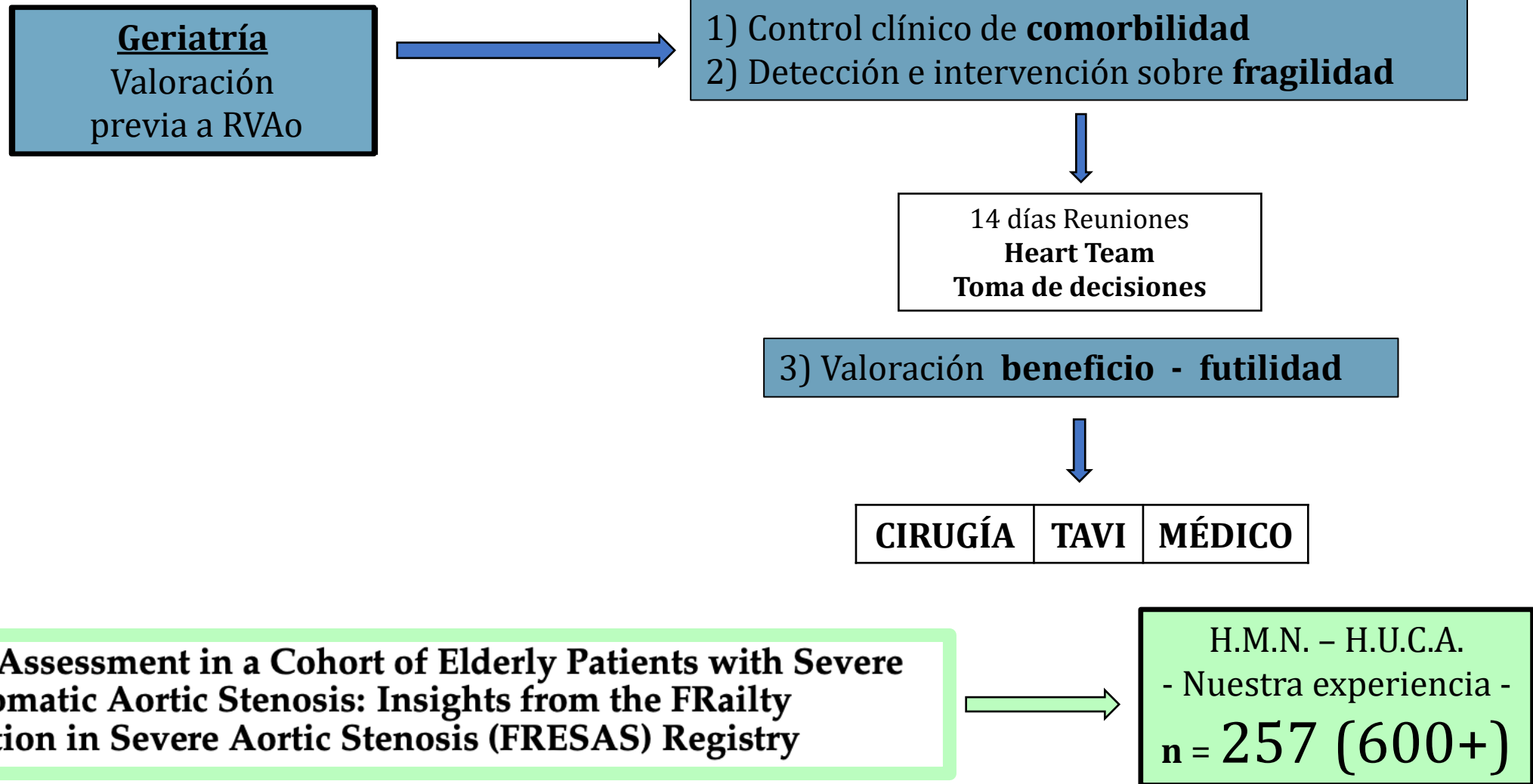


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Hoogendijk EO, et al. A New Functional Classification Based on Frailty and Disability Stratifies the Risk for Mortality Among Older Adults: The FRADEA Study. J Am Med Dir Assoc.

Programa de VGI en el paciente mayor con EAo grave



FRESAS: características basales (I)

		Total
Variable	n (%)	257 (100)
Demográfica		
	Edad (años)	83.95±3.94
	Sexo (mujer)	156 (60.7)
Valvulopatía		
	Área valvular (cm²)	0.71±0.17
	Gradiente medio (mmHg)	44.82±14.15
	Gradiente máximo	72.62±21.70
	LVEF deprimida	47 (18.3)
	NYHA ≥ 2	82 (31.9)
	EuroSCORE-II	3.91±3.18
	Manejo invasivo (SAVR o TAVR)	214 (83.3)



FRESAS: características basales (II)

Patologías
previas

Hipertensión arterial	76.2
Dislipemia	56.8
Fibrilación auricular	34.6
Insuficiencia cardiaca	30.0
Anemia	28.8
Diabetes Mellitus	25.3
Enfermedad pulmonar crónica	21.8
Depresión	21.6
Patología tiroidea	19.8
Enfermedad renal crónica	17.1
Infarto agudo de miocardio	16.7
Ictus o accidente isquémico transitorio	13.2

Diagnósticos médicos previos	9.09±3.39
Intervenciones quirúrgicas previas	1.93±1.74
Fármacos previamente prescritos	7.28±3.33
Índice Charlson abreviado	1.40±1.27
Comorbilidad	103 (40.1)



FRESAS: características basales (III)

Valoración nutricional	IMC (kg/m²)	29.21±4.58
	MNA-SF	11.62±1.76
	Desnutridos o en riesgo desnutrición	104 (40.5)
Valoración mental y anímica	MMSE	26.74±3.43
	En rango deterioro cognitivo	81 (31.5)
	Escala depresión Yesavage	3.24±2.85
	En rango depresión	71 (27.6)
Valoración funcional	SPPB	8.43±2.45
	Frágiles	53 (20.6)
	Índice Lawton	5.41±2.23
	Dependientes AIVD	134 (52.1)
	Índice Barthel	92.86±11.87
	Dependientes ABVD	67 (26.1)



FRESAS: comparativa con series similares

Table 4. Baseline characteristics and prevalence of frailty among different studies.

	Fresas	Afilalo [15]	Ungar [21]	Rodriguez-Pascual [9]	Pegaso [19]	Green [10]	Arnold [11]	Huded [12]	Bureau [20]	Goudzward [13]	Skaar [14]
<i>n</i>	286	1020	71	606	928	244	2830	191	116	213	142
Female (%)	61.2	41	62	57.9	58.8	48.4	45.5	49	49.1	53.5	54
Age	83.9	82	85.4	82.9	84.2	86.2	83.3	82.4	86.2	83	83.4
Arterial hypertension (%)	77.3	-	83.1	80	76.6	88.9	-	81	-	82.1	-
Dyslipidemia (%)	54.5	-	-	54.1	42.1	-	-	63	-	67.8	-
Diabetes (%)	24.8	28	26.8	30.9	26.4	29.1	36.6	35	-	34.1	-
Acute coronary syndrome (%)	17.5	22	23.9	21.3	12.8	-	-	-	-	19.7	24
Heart failure (%)	30.4	-	-	36.7	50.5	99.2	-	67	-	-	-
Atrial fibrillation (%)	33.2	33	-	35.8	30.6	-	43.8	41	-	-	32
Anemia (%)	26.9	-	-	-	-	-	-	-	-	-	-
Chronic kidney disease (%)	18.2	-	7	22	-	13.9	-	28	-	46.5	4
Chronic obstructive pulmonary disease (%)	21.7	17	15.5	21.5	15.9	42.2	-	14	-	23.9	22
Mini-nutritional assessment	11.6	-	-	-	-	-	-	-	-	-	-
- malnourishment (%)	2.8	-	-	-	-	-	-	-	4.3	11.7	-
- Barthel- Limitation of the basic activities of daily living (%)	92.9	-	-	-	-	-	-	-	-	-	-
- Lawton	27.6	25	-	28.8	50.6	29.5	16.7	-	10.4	31.5	-
- Limitation of the instrumental activities of daily living (%)	5.8	-	-	-	-	-	-	-	-	-	-
Short performance physical battery	52.3	47	-	56.9	-	-	-	-	58.6	43.2	-
Frailty (%)	8.4	7	5.7	-	-	-	-	-	-	-	-
- Frailty (%)	19.6	12-74	-	49	-	45.1	59.8	33	-	28.6	24
- Minimental state examination	26.6	-	-	26.6	-	-	-	-	-	-	26.3
- Cognitive impairment (%)	14.1	18	-	-	-	-	-	-	17.2	34.7	44
- Yesavage	3.2	-	-	4.6	-	-	-	-	-	-	-
- Depression (%)	27.1	32	-	-	-	-	-	-	-	-	-

The highest value for each variable is shown among the different series.



FRESAS: análisis de mortalidad univariante (I)

	Total	Mortalidad		p-valor
		No	Sí	
n (%)	257 (100)	209 (81.3)	48 (18.7)	-
Manejo invasivo (SAVR o TAVR)	214 (83.3)	186 (89.0)	28 (58.3)	<0.001
Insuficiencia cardiaca	30.0	55 (26.3)	22 (45.8)	0.008
NYHA ≥ 2	82 (31.9)	57 (27.3)	25 (52.1)	0.001
Fibrilación auricular	34.6	67 (32.1)	22 (45.8)	0.070
Enfermedad renal crónica	17.1	30 (14.4)	14 (29.2)	0.014
Fármacos previamente prescritos	7.28±3.33	7.07±3.27	8.23±3.44	0.029
Índice Charlson abreviado	1.40±1.27	1.32±1.21	1.79±1.47	0.020



FRESAS: análisis de mortalidad univariante (II)

Valoración nutricional	<i>MNA-SF</i>	11.62±1.76	11.74±1.76	11.10±1.69	0.025
	Desnutridos o en riesgo desnutrición	104 (40.5)	78 (37.3)	26 (54.2)	0.032
Valoración mental	<i>MMSE</i>	26.74±3.43	27.03±3.12	25.46±4.32	0.020
	En rango deterioro cognitivo	81 (31.5)	59 (28.2)	22 (45.8)	0.018
Valoración funcional	<i>SPPB</i>	8.43±2.45	8.65±2.30	7.48±2.84	0.010
	Frágiles	53 (20.6)	36 (17.2)	17 (35.4)	0.005
	Índice Lawton	5.41±2.23	5.62±2.13	4.50±2.43	0.002
	Dependientes actividades instrumentales	134 (52.1)	100 (47.4)	34 (70.8)	0.004
	Índice Barthel	92.86±11.8	94.50±9.24	85.73±18.04	0.002
	Dependientes actividades básicas	67 (26.1)	43 (20.6)	24 (50.0)	<0.001



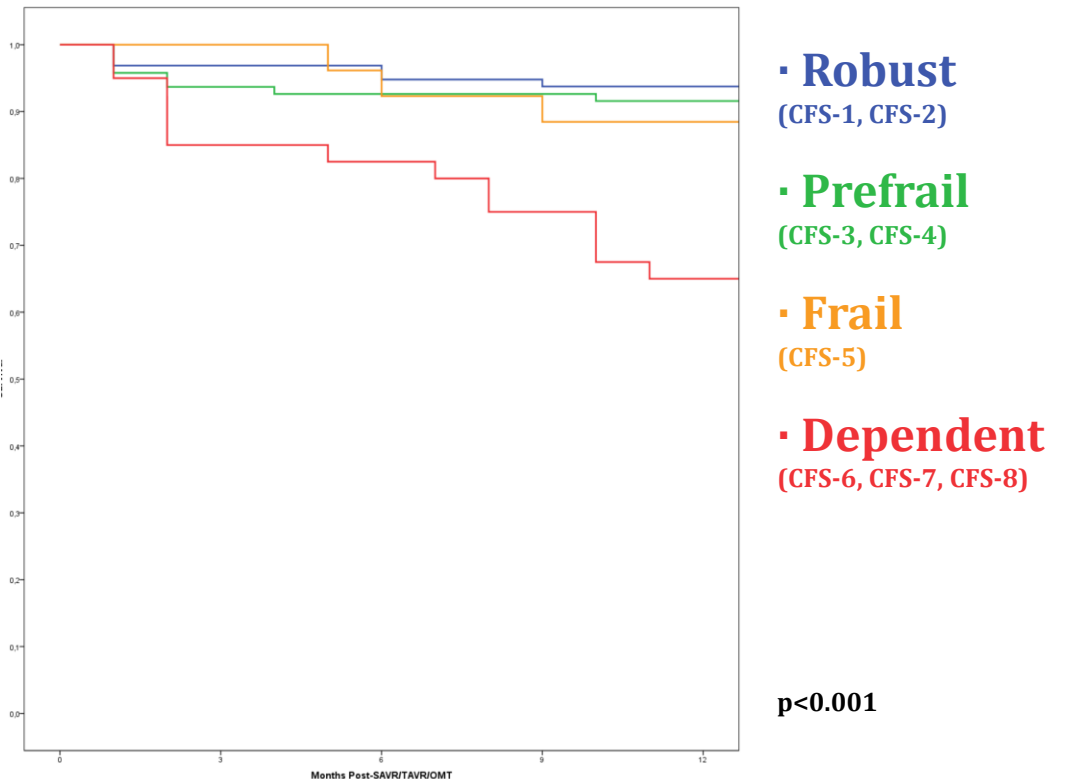
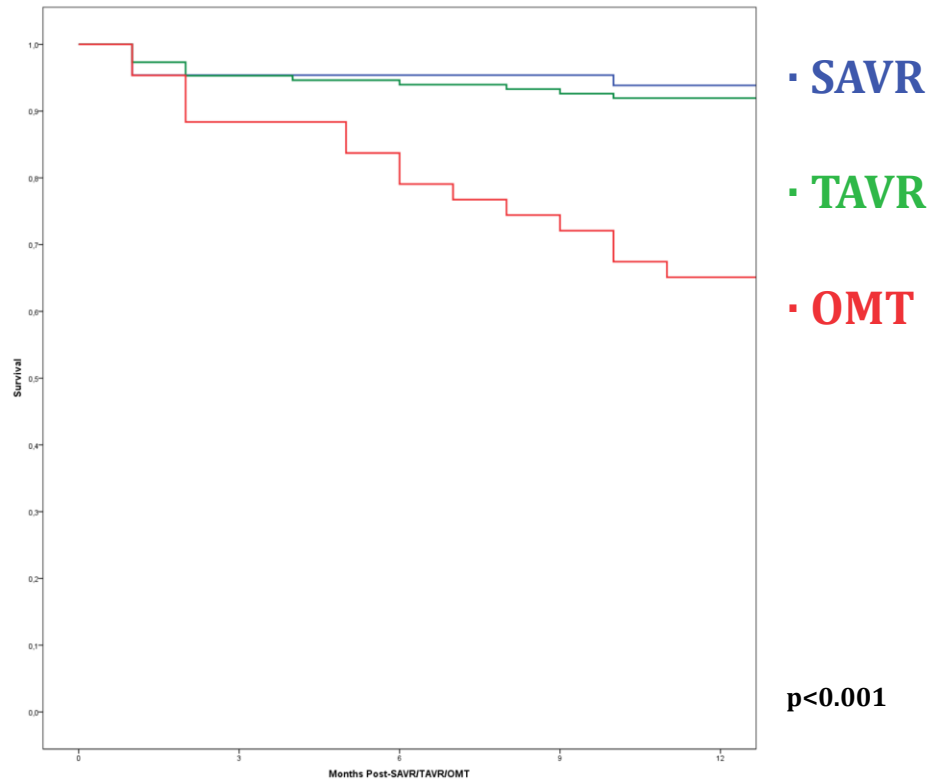
FRESAS				ALL		SAVR		TAVR		OMT		
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> “ The Functional Continuum ” </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> Basic Activities of Daily Living </div> <div style="text-align: center;"> Instrumental Activities of Daily Living </div> <div style="text-align: center;"> Frailty </div> </div>				FCS	n	%	n	%	n	%	n	%
				↓								
				Groups 1-8								
Independency	Independency	Robust	1	68	26.5	32	12.5	35	13.6	1	0.4	
	Dependency		2	28	10.9	5	1.9	19	7.4	4	1.6	
	Independency	Prefrail	3	46	17.9	17	6.6	29	11.3	0	0	
	Dependency		4	49	19.1	9	3.5	32	12.5	8	3.1	
Independency	-	Frail	5	26	10,1	1	0.4	21	8.2	4	1.6	
Dependency	-	-	6	33	12.8	1	0.4	12	4.7	20	7.8	
			7	5	1.9	0	0	1	0.4	4	1.6	
			8	2	0.8	0	0	0	0	2	0.8	



FRESAS				ALL	SAVR	TAVR	OMT
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> “ The Functional Continuum ” </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> Basic Activities of Daily Living </div> <div style="text-align: center;"> Instrumental Activities of Daily Living </div> <div style="text-align: center;"> Frailty </div> <div style="text-align: center;"> FCS ↓ Groups 1-8 </div> </div>				%	%	%	%
				100	25%	60%	15%
Independency	Independency	Robust	1	35%	>95%	>90%	
	Dependency		2				
	Independency	Prefrail	3	40%			
	Dependency		4				
Independency	-	Frail	5	10%			>70%
Dependency	-	-	6	15%			
			7				
			8				



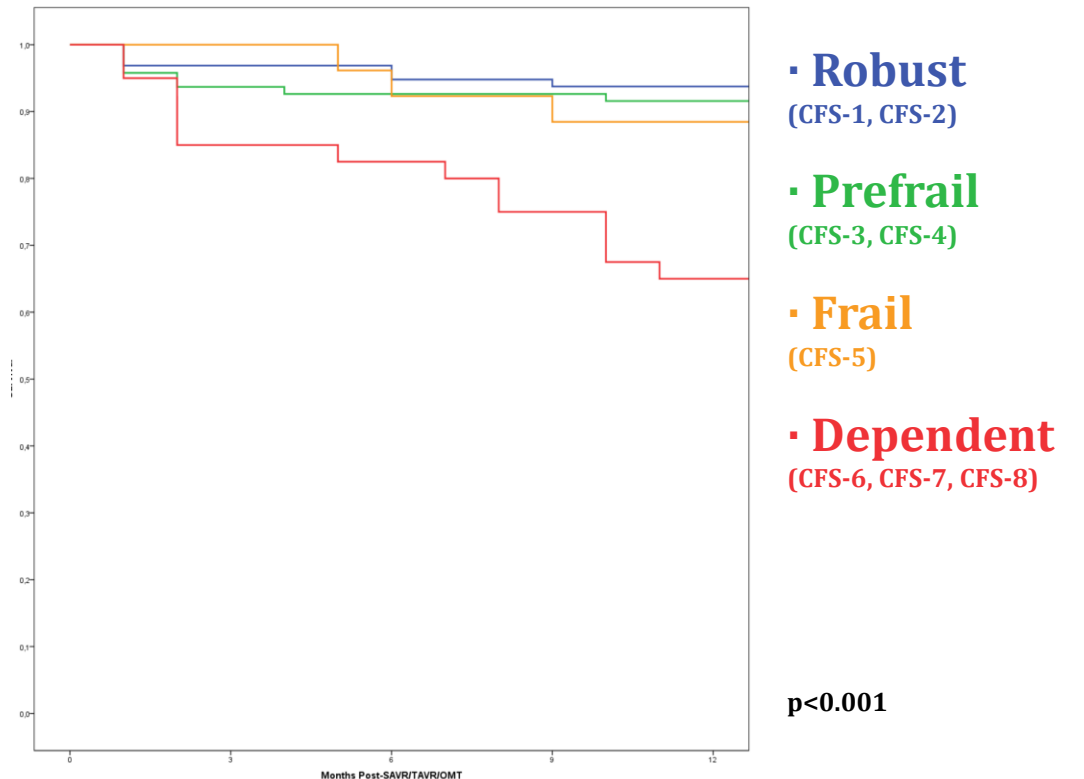
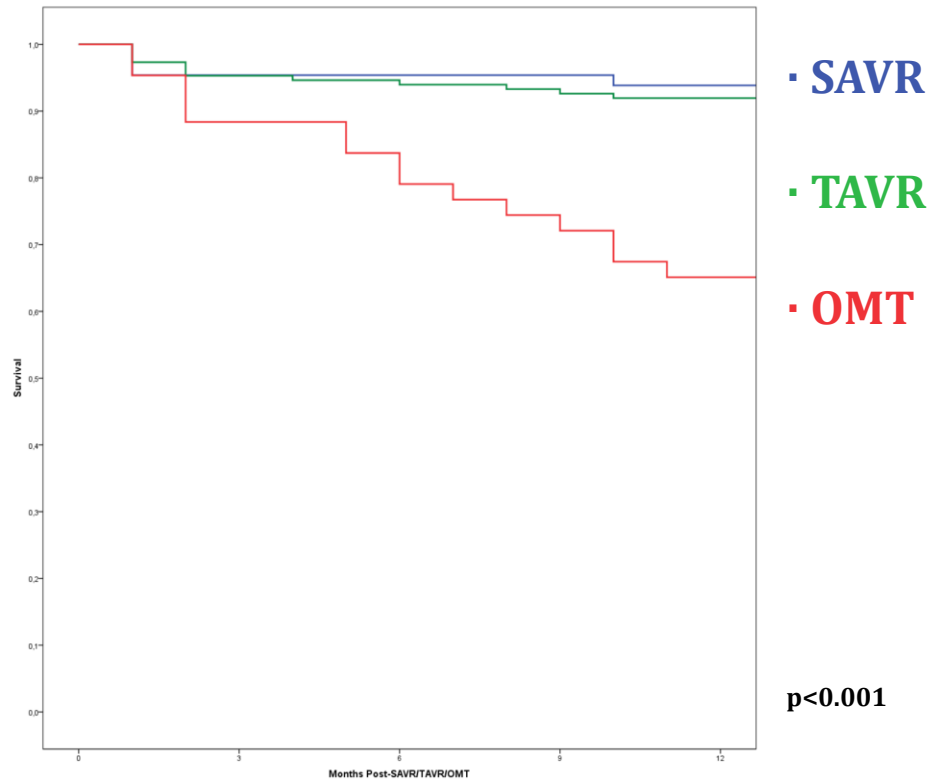
FRESAS: análisis ajustado de mortalidad



Manejo valvulopatía	Mortalidad (%)
SAVR	9.2 %
TAVR	14.8%
OMT	46.5%

CFS	Mortalidad (%)
Robust	11.5 %
Prefrail	14.7 %
Frail	19.2 %
Dependent	45.0 %

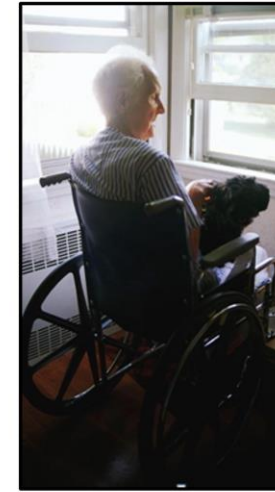
FRESAS: análisis ajustado de mortalidad



Variable	HR	CI inferior	CI superior	p-valor
FCS (per point)	1.204	0.999	1.451	0.051
EuroSCORE-II (per point)	1.081	1.006	1.161	0.033
OMT (versus AVR)	2.840	1.409	5.772	0.004

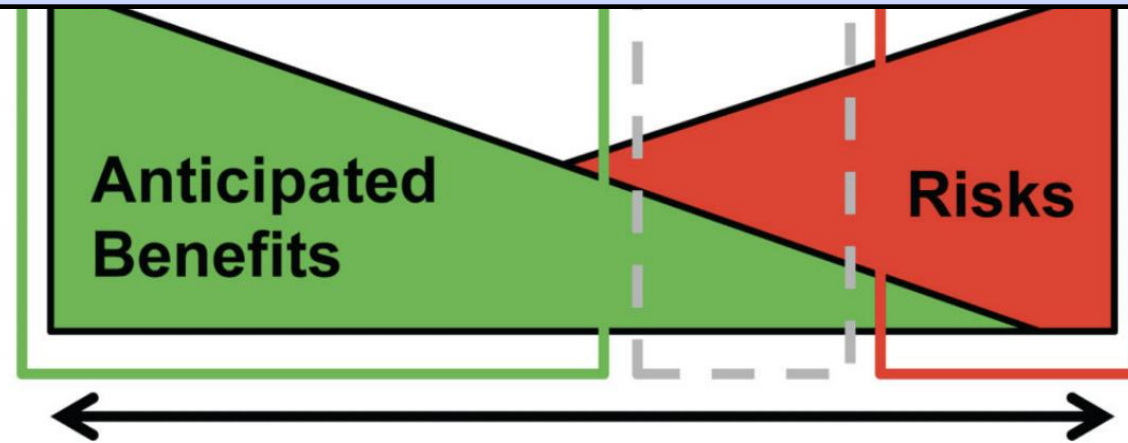


Fragilidad en EAo. Continuo Funcional. VGI.

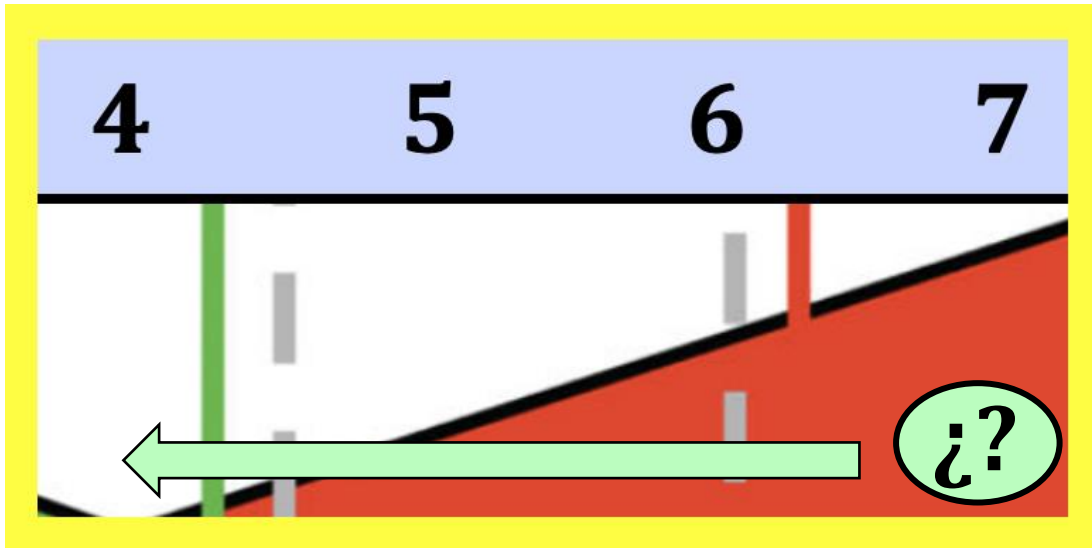


-- Robust -- Prefrail -- Frail -- Dependent

FCS 1 2 3 4 5 6 7 8 FCS



Situaciones de incertidumbre: fragilidad vs. futilidad

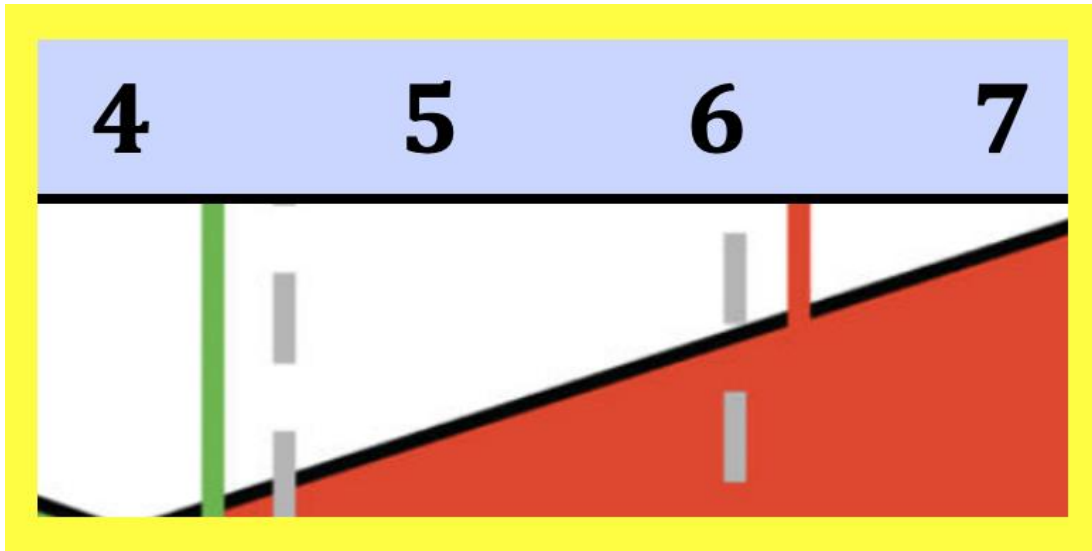


CFS	Mortalidad (%)
5	19.2 %
6	42.4 %

ESCENARIOS COMPLETAMENTE DIFERENTES:

- ESTADOS DE **FRAGILIDAD** POTENCIALMENTE REVERSIBLES.
- SITUACIONES DE **FUTILIDAD**.

Situaciones de incertidumbre: fragilidad vs. futilidad



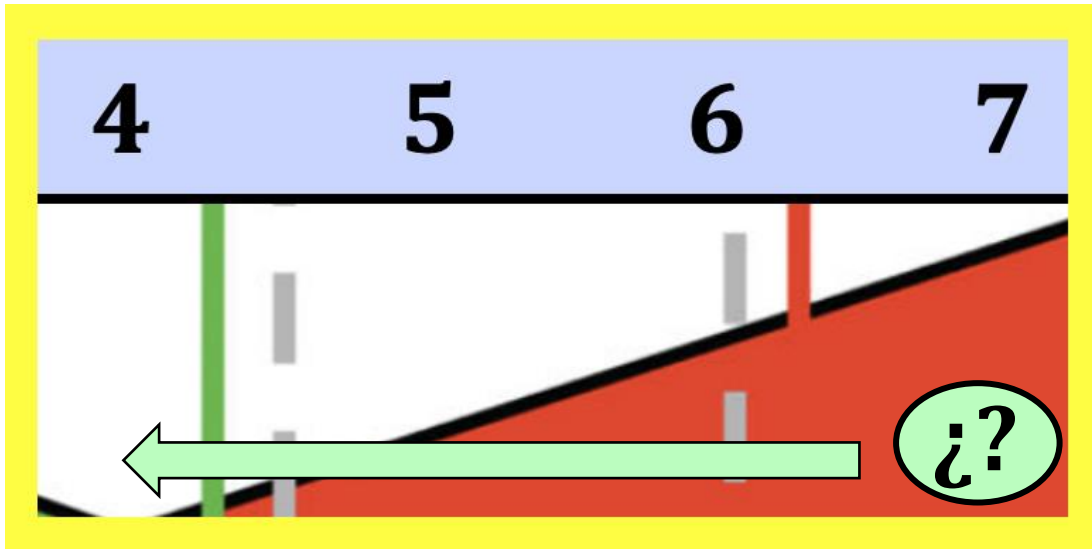
- identificar predictores de ausencia de beneficio funcional y/o sintomático con el AVR
- evitar situaciones en las que no es deseable prolongar la supervivencia
- tratamiento médico y plan de cuidados: mejorar síntomas y calidad de vida

Asgar et al.
CCS TAVI Position Statement

A	Advanced dementia
B	Bedbound, not mobile
C	Cachexia or severe sarcopenia
D	Disability for all/most ADLs
E	End-stage renal, liver, lung, malignant disease

Figure 1. Risk factors that might indicate futility. TAVI may be considered futile and contraindicated if a substantial benefit in terms of quality or duration of life is unlikely. ADLs, activities of daily living. Modified from Afilalo and colleagues⁵⁶ with permission.

Situaciones de incertidumbre: fragilidad vs. futilidad



Nuevos problemas detectados

Dominio clínico	
Déficit de vitamina D	96,7
Probable ERC	42,9
Anemia	27,5
Enfermedad tiroidea	7,2
Déficit de vitamina B ₁₂	6,7
DM	5,7
Problemas urológicos	4,2
Ferropenia sin anemia	3,3
Déficit de folato	3,3
EPOC	3,0
Dominio adecuación de la prescripción	
Polifarmacia	63,3
Prescripción inadecuada	45,8
Dominio nutricional	
Peso inadecuado	77,5
Riesgo de desnutrición	40,8
Desnutrición	7,5

Gutiérrez J, et al. **Comprehensive geriatric assessment in older patients with severe aortic stenosis: usefulness in detecting problems and planning interventions.** Rev Esp Cardiol (Engl Ed). 2020

Valoración geriátrica integral de pacientes mayores con estenosis aórtica grave: utilidad en la detección de problemas y planificación de intervenciones



CONCLUSIONES

Intervencionismo Valvular en el Paciente Mayor

Escenario complejo y frecuente en la práctica clínica.

Continuo Funcional: elemento clave.

FCS-FRADEA

FCS	1	2	3	4	5	6	7	8	FCS
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**Representa adecuadamente el continuo funcional,
Predictora independiente de mortalidad al año,
Útil en la toma de decisiones (*Heart-Team*).**



Gracias



@pasosu_ 

pasosu@gmail.com 