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Insuficiencia tricúspide severa sintomática ¿Cirugía o Tratamiento percutáneo?

Ariana González Gómez

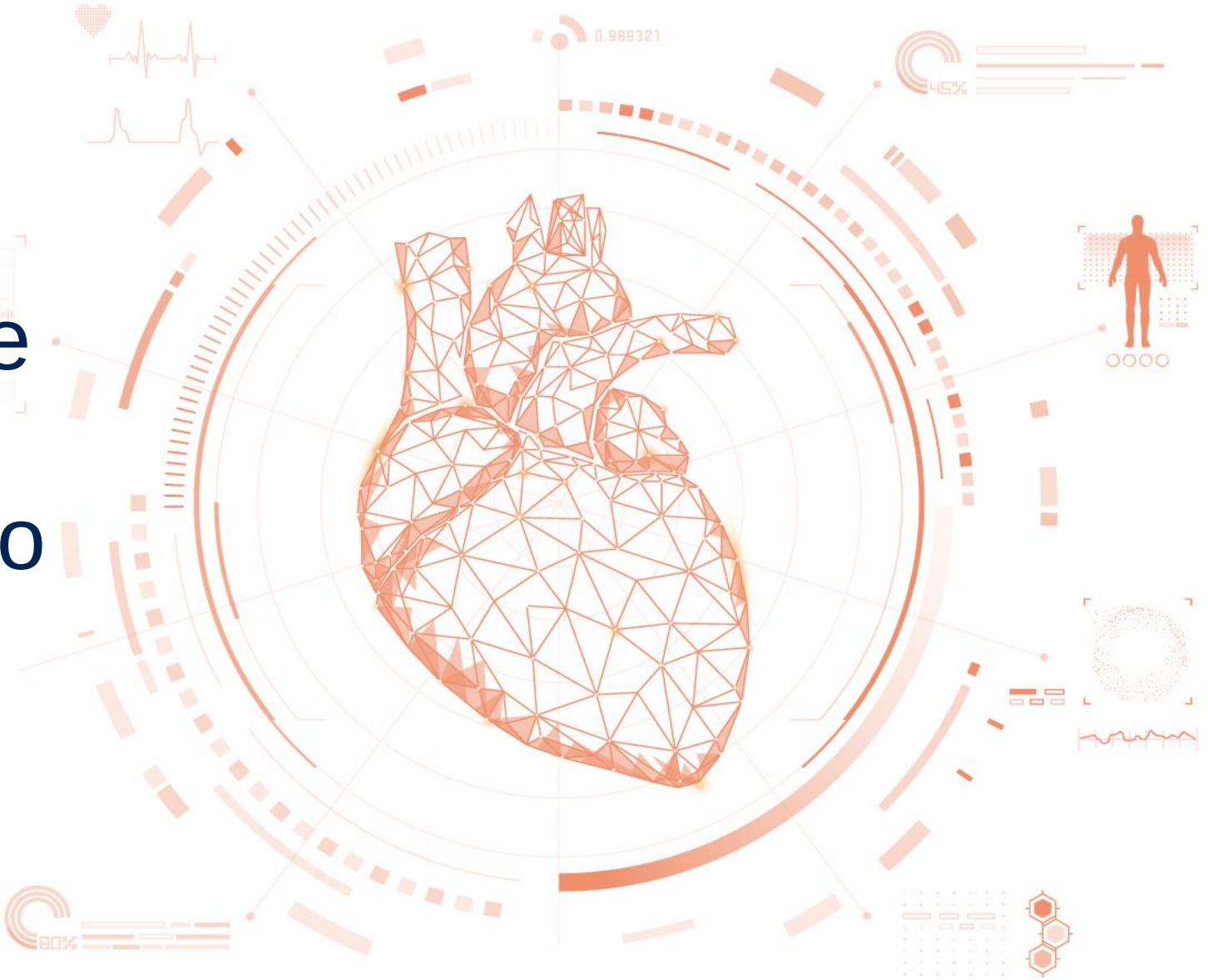
Hospital Universitario Ramón y Cajal.

Insuficiencia tricúspide severa sintomática ¿Cirugía o Tratamiento percutáneo?

Ariana González Gómez

Clínica Valvular

Hospital Universitario Ramón y Cajal.



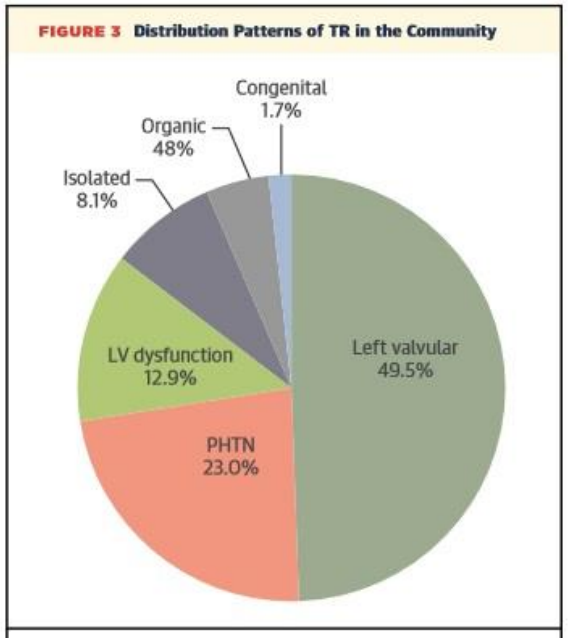
Insuficiencia tricúspide: *Prevalencia*

Patología prevalente

0.55% de la población general

4-6% > 75 años: IT moderada-severa

6% estudio ecocardiográfico



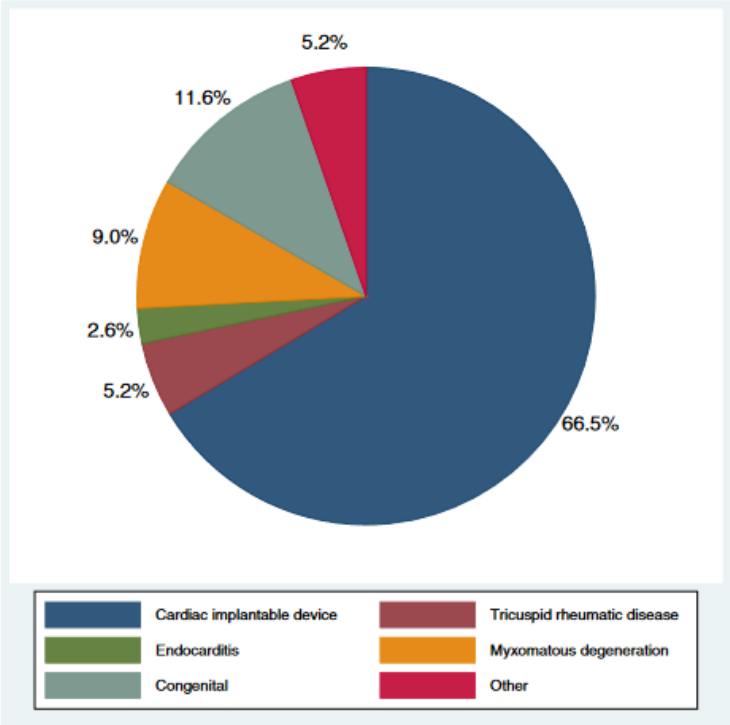


Figure 2 Burden of primary TR.

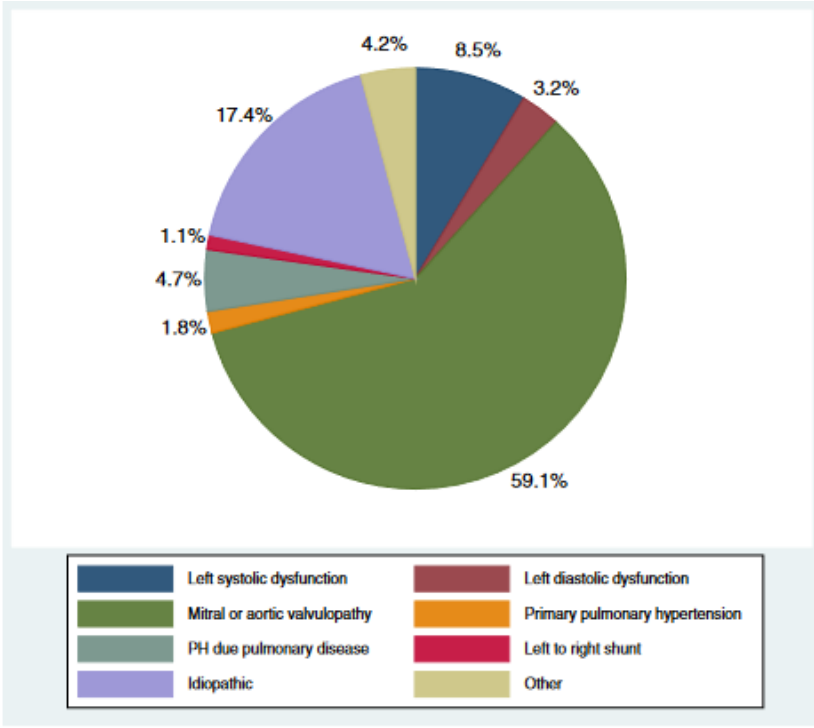
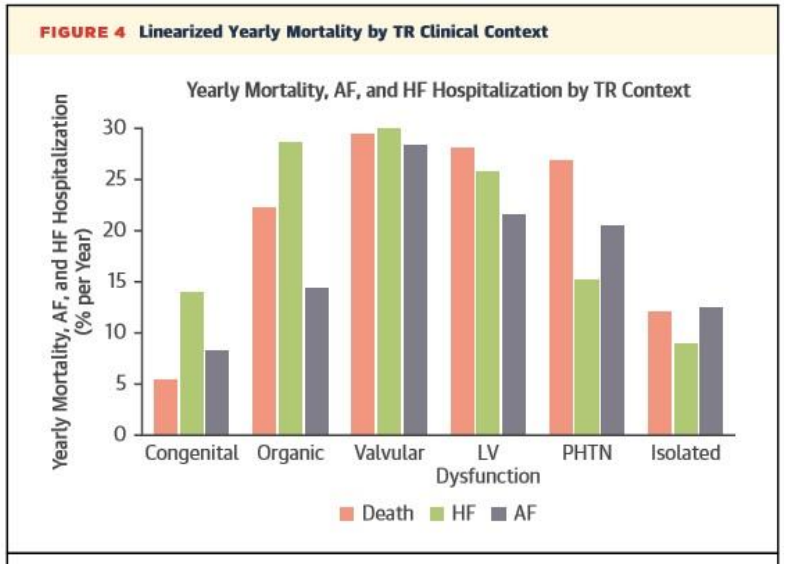


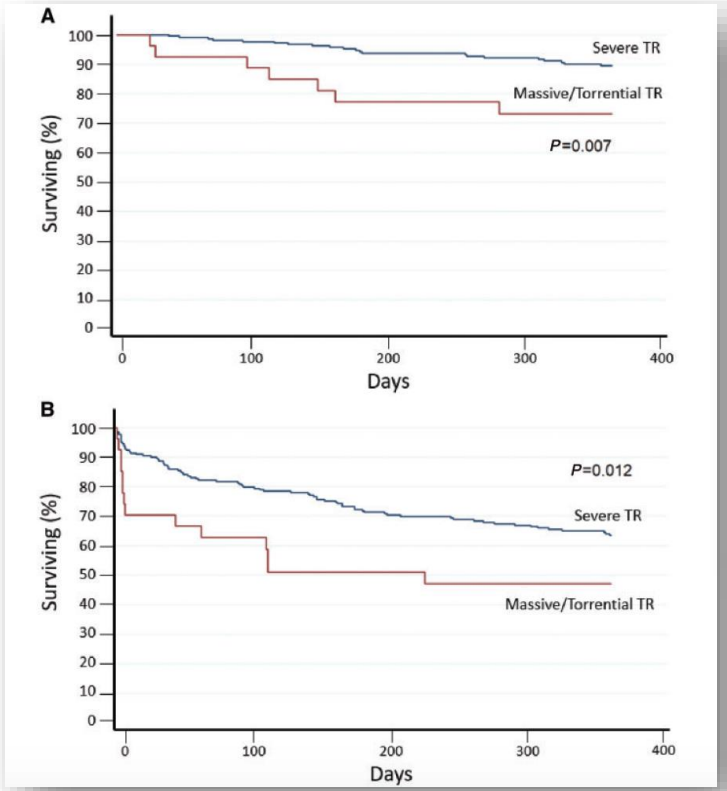
Figure 3 Burden of secondary TR.

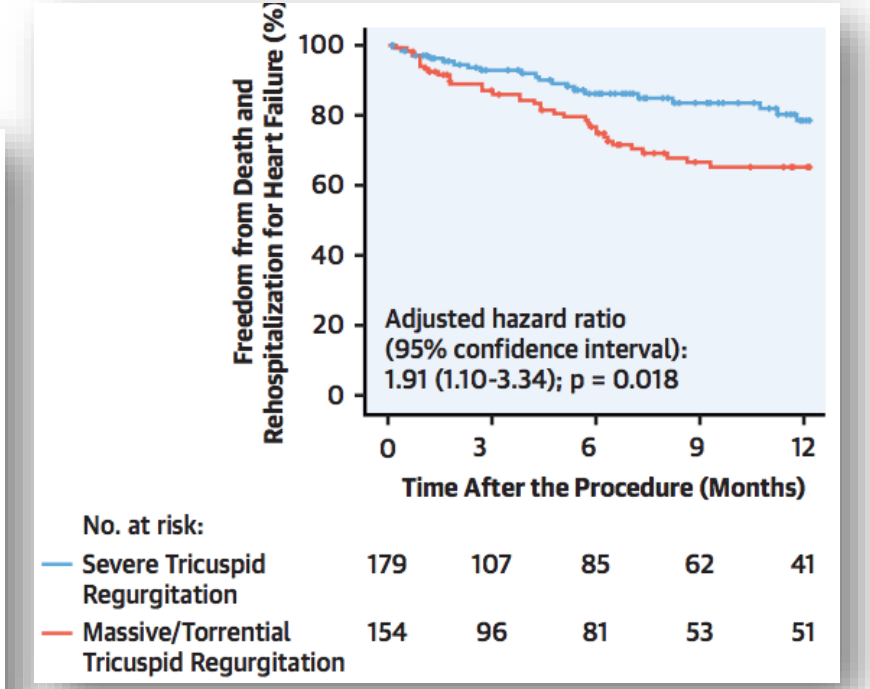
Enriquez-Sarrano, M. et al. JACC Cardiovasc. Imaging 2019
Vietiez et al. European Heart Journal - Cardiovascular Imaging (2021)

Insuficiencia tricúspide: *Pronóstico*

Cuanta más IT peor







Enriquez-Sarrano et al. JACC Cardiovasc. Imaging 2019
Santoro et al. EHJCVI 2019
Miura et a. JACC Cardiovasc Interv. 2020

¿Cuándo indicar intervención?

¿Qué dicen las guías?

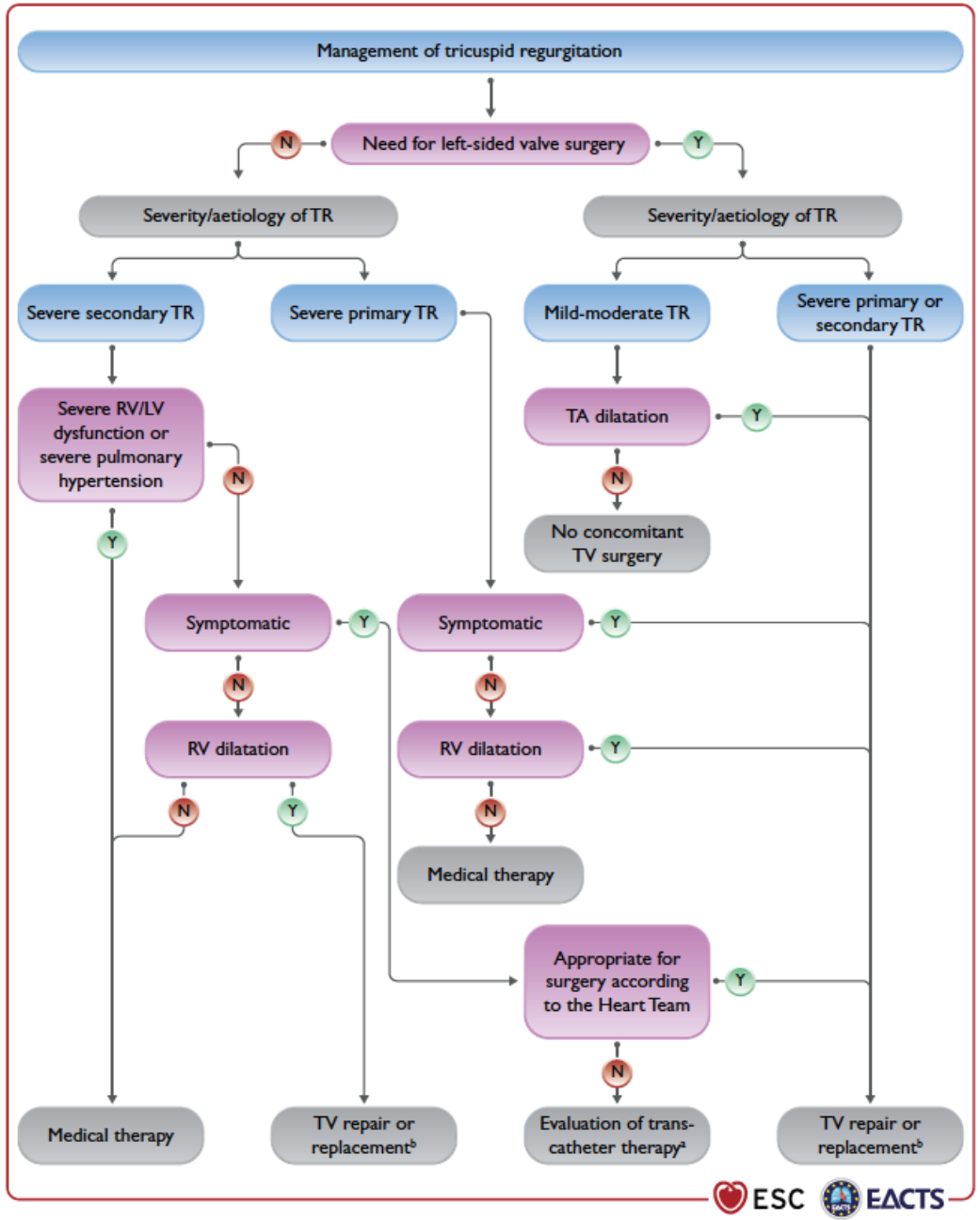
ESC European Society of Cardiology
European Heart Journal (2021) **00**, 1–72
doi:10.1093/eurheartj/ehab395

ESC/EACTS GUIDELINES

2021 ESC/EACTS Guidelines for the management of valvular heart disease

Developed by the Task Force for the management of valvular heart disease of the European Society of Cardiology (ESC) and the European Association for Cardio-Thoracic Surgery (EACTS)

Authors/Task Force Members: Alec Vahanian * (ESC Chairperson) (France), Friedhelm Beyersdorf*[1] (EACTS Chairperson) (Germany), Fabien Praz (ESC Task Force Coordinator) (Switzerland), Milan Milojevic[1] (EACTS Task Force Coordinator) (Serbia), Stephan Baldus (Germany), Johann Bauersachs (Germany), Davide Capodanno (Italy), Lenard Conradi[1] (Germany), Michele De Bonis[1] (Italy), Ruggero De Paulis[1] (Italy), Victoria Delgado (Netherlands), Nick Freemantle[1] (United Kingdom), Martine Gilard (France), Kristina H. Haugaa (Norway), Anders Jeppsson[1] (Sweden), Peter Jüni (Canada), Luc Pierard (Belgium), Bernard D. Prendergast (United Kingdom), J. Rafael Sádaba[1] (Spain), Christophe Tribouilloy (France), Wojtek Wojakowski (Poland), ESC/EACTS Scientific Document Group



Surgery is recommended in symptomatic patients with severe primary tricuspid regurgitation. In selected asymptomatic or mildly symptomatic patients who are appropriate for surgery, an intervention should also be considered when RV dilatation or declining RV function is observed. However, exact thresholds have not yet been defined.

- Tras los síntomas, el tamaño y función del VD son un factor pronóstico determinante en pacientes con IT severa.

Recommendations on primary tricuspid regurgitation		
Surgery is recommended in patients with severe primary tricuspid regurgitation undergoing left-sided valve surgery.	I	C
Surgery is recommended in symptomatic patients with isolated severe primary tricuspid regurgitation without severe RV dysfunction.	I	C
Surgery should be considered in patients with moderate primary tricuspid regurgitation undergoing left-sided valve surgery.	IIa	C
Surgery should be considered in asymptomatic or mildly symptomatic patients with isolated severe primary tricuspid regurgitation and RV dilatation who are appropriate for surgery.	IIa	C
Recommendations on secondary tricuspid regurgitation		
Surgery is recommended in patients with severe secondary tricuspid regurgitation undergoing left-sided valve surgery.[423–427]	I	B
Surgery should be considered in patients with mild or moderate secondary tricuspid regurgitation with a dilated annulus (≥40 mm or >21 mm/m^2 by 2D echocardiography) undergoing left-sided valve surgery.[423,425–427]	IIa	B
Surgery should be considered in patients with severe secondary tricuspid regurgitation (with or without previous left-sided surgery) who are symptomatic or have RV dilatation, in the absence of severe RV or LV dysfunction and severe pulmonary vascular disease/hypertension.[418,433 e]	IIa	B
Transcatheter treatment of symptomatic secondary severe tricuspid regurgitation may be considered in inoperable patients at a Heart Valve Centre with expertise in the treatment of tricuspid valve disease.[f]	IIb	C

2021 Valvular heart disease ESC guidelines

¿Cómo es mi paciente? Valoración clínica

Clasificación de las 4A para pacientes con insuficiencia tricúspide

Asthenia
Ankle swelling
Abdominal pain or distension
Anorexia

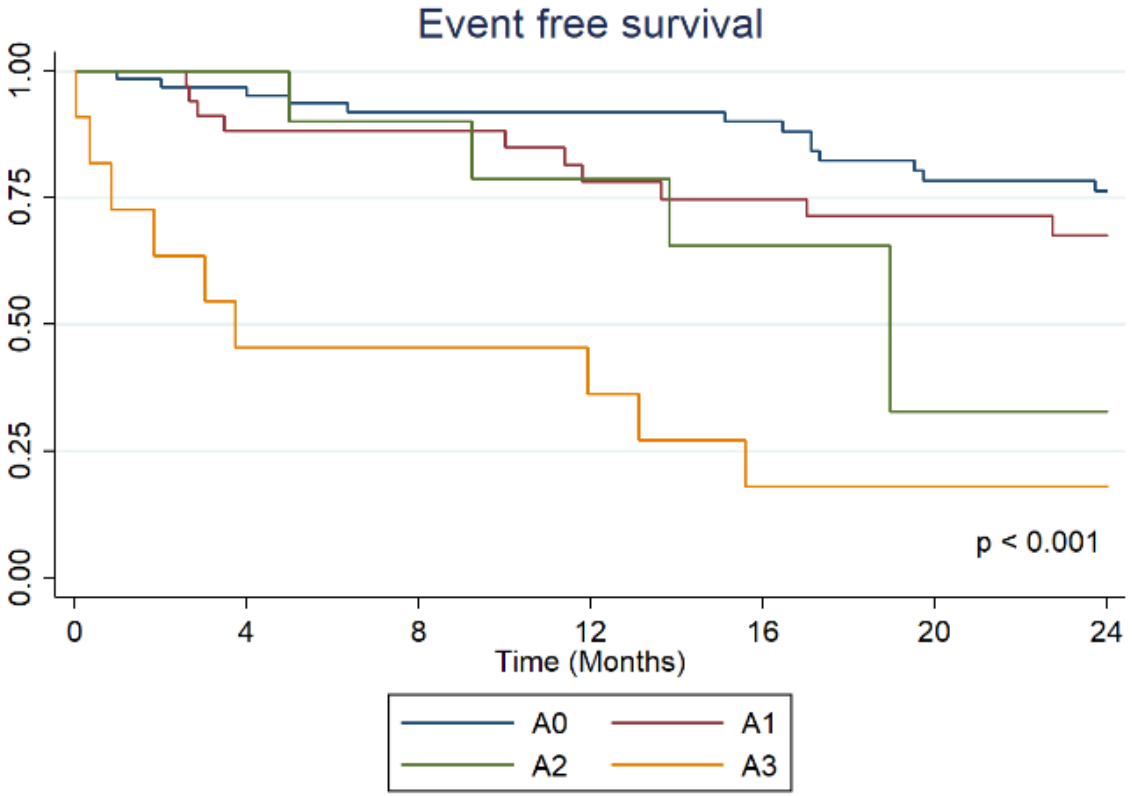
Clasificación de las 4A:

A0: ninguna A presente

A1: una A presente

A2: dos Aes presentes

A3: tres o cuatro Aes presentes

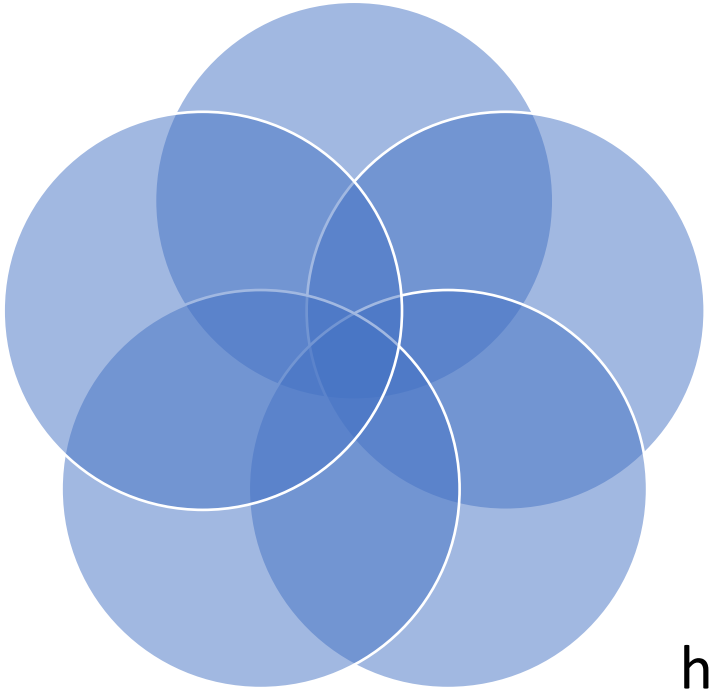


González-Gómez, Ariana et al. Rev Español Cardiol2023 Nov;76(11):845-851.

¿Cómo es mi paciente?

Edad

Comorbilidad



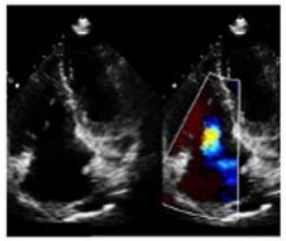
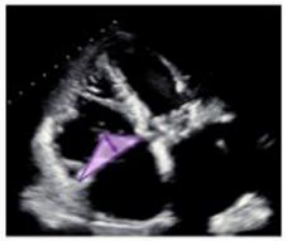
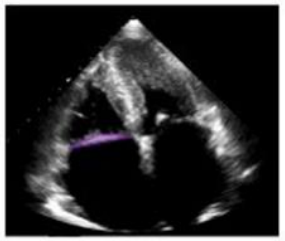
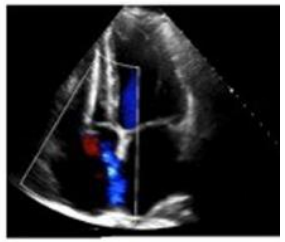
Fragilidad

Calidad y esperanza de vida

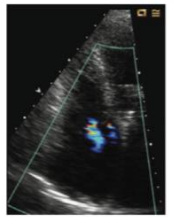
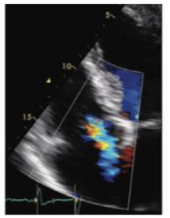
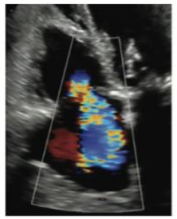
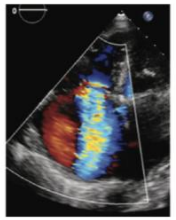
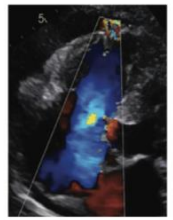
Función hepática, renal, hemoglobina

¿Cuál es la etiología, mecanismo y gravedad de la IT?

Classification and Pathogenesis of Tricuspid Regurgitation

Primary (Organic)	Functional Ventricular	Functional Atrial	Device Related (CIED)
			
Pathophysiology: Structural **leaflet abnormalities** leading to either restricted or excessive mobility or leaflet perforation.	**Pathophysiology**: RV dysfunction leading to papillary dysfunction, **leaflet tethering** and **insufficient leaflet coaptation.**	**Pathophysiology**: RA enlargment and dysfunction leading to TV **annular dilatation** and **insufficient leaflet coverage.**	**Pathophysiology**: Implantable **device related TV disruption** i.e. fibrosis, leaflet tethering/impingement, chordal rupture.
Aetiology: Carcinoid, congenital, drugs, endocarditis, iatrogenic, myxomatous, radiotherapy, rheumatic, trauma, tumours.	**Aetiology**: RV cardiomyopathy, RV infarction, left-sided ventricular or valvular disease, pulmonary hypertension.	**Aetiology**: Atrial fibrillation/flutter, heart failure with preserved ejection fraction.	**Aetiology**: Transvenous pacemaker, defibrillators, cardiac resynchronization devices, pacing related remodeling.

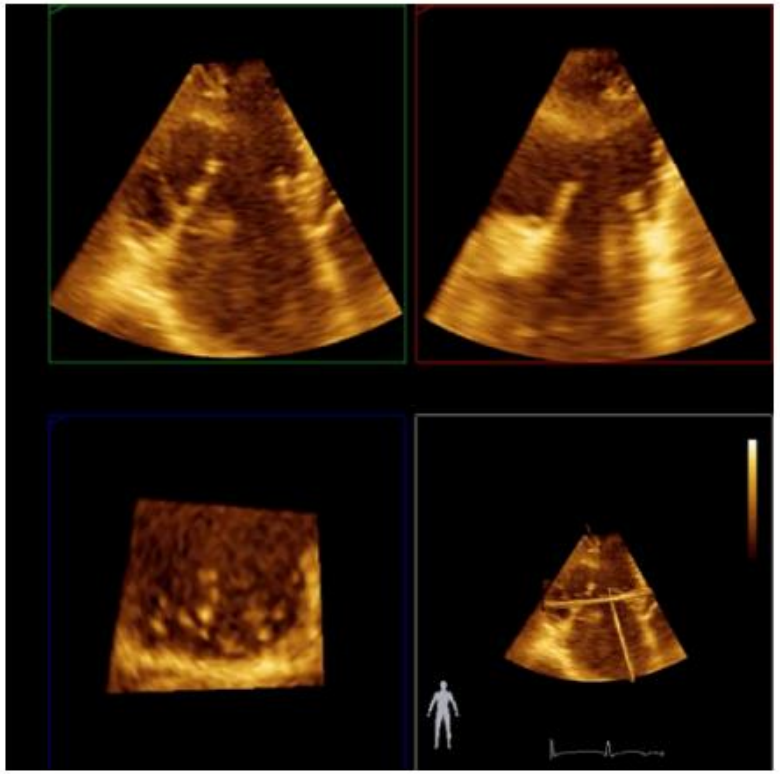
J Am Soc Echocardiogr 2023;36:366-80

Parameters	MILD	MODERATE	SEVERE	MASSIVE	TORRENTIAL
Vena Contracta width (biplane average)	<3 mm	3-6.9 mm	7 mm - 13 mm	14-20 mm	≥21 mm
EROA by PISA	<20 mm^2	20-39 mm^2	40-59 mm^2	60-79 mm^2	≥80 mm^2
3D Vena Contracta Area or Quantitative Doppler EROA	-	-	75-94 mm^2	95-114 mm^2	≥115 mm^2
Example:					

Hahn, Zamorano. Eur Heart J Cardiovasc Imaging. 2017

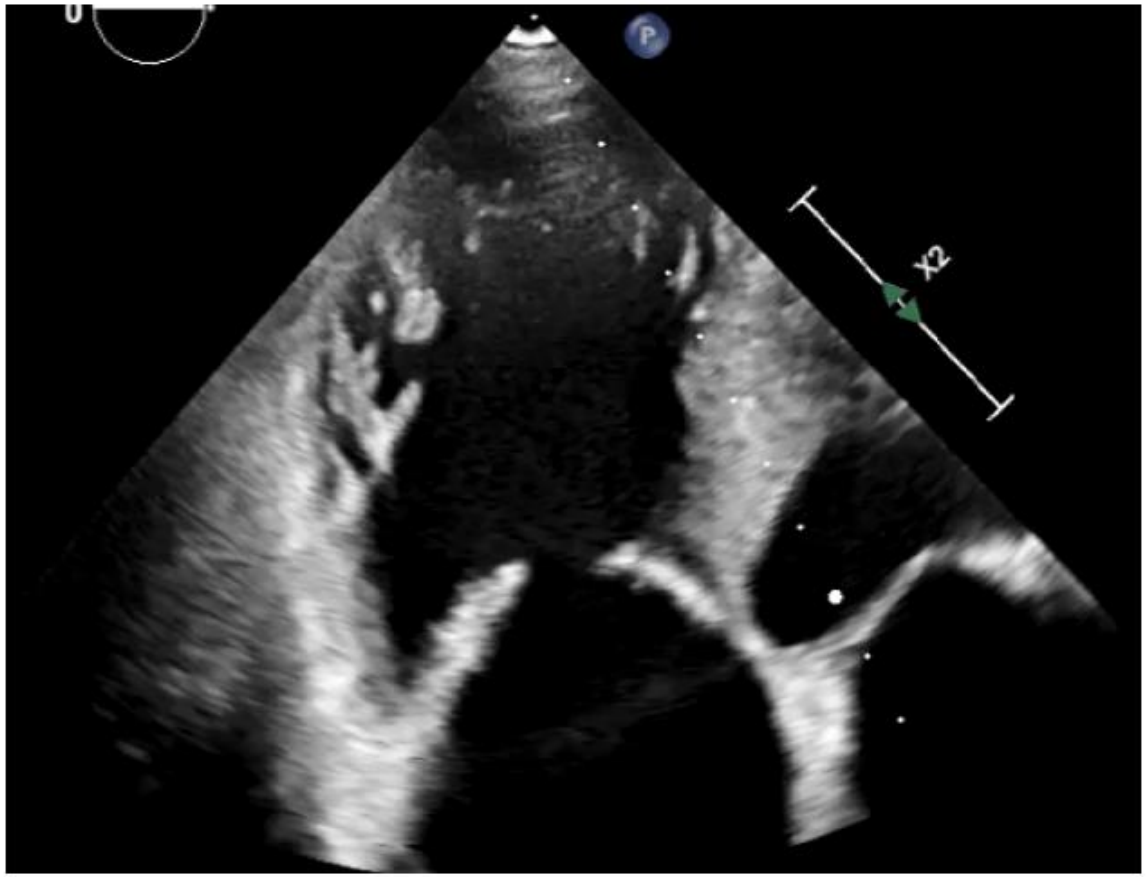
ETIOLOGÍA Y MECANISMO DE LA IT

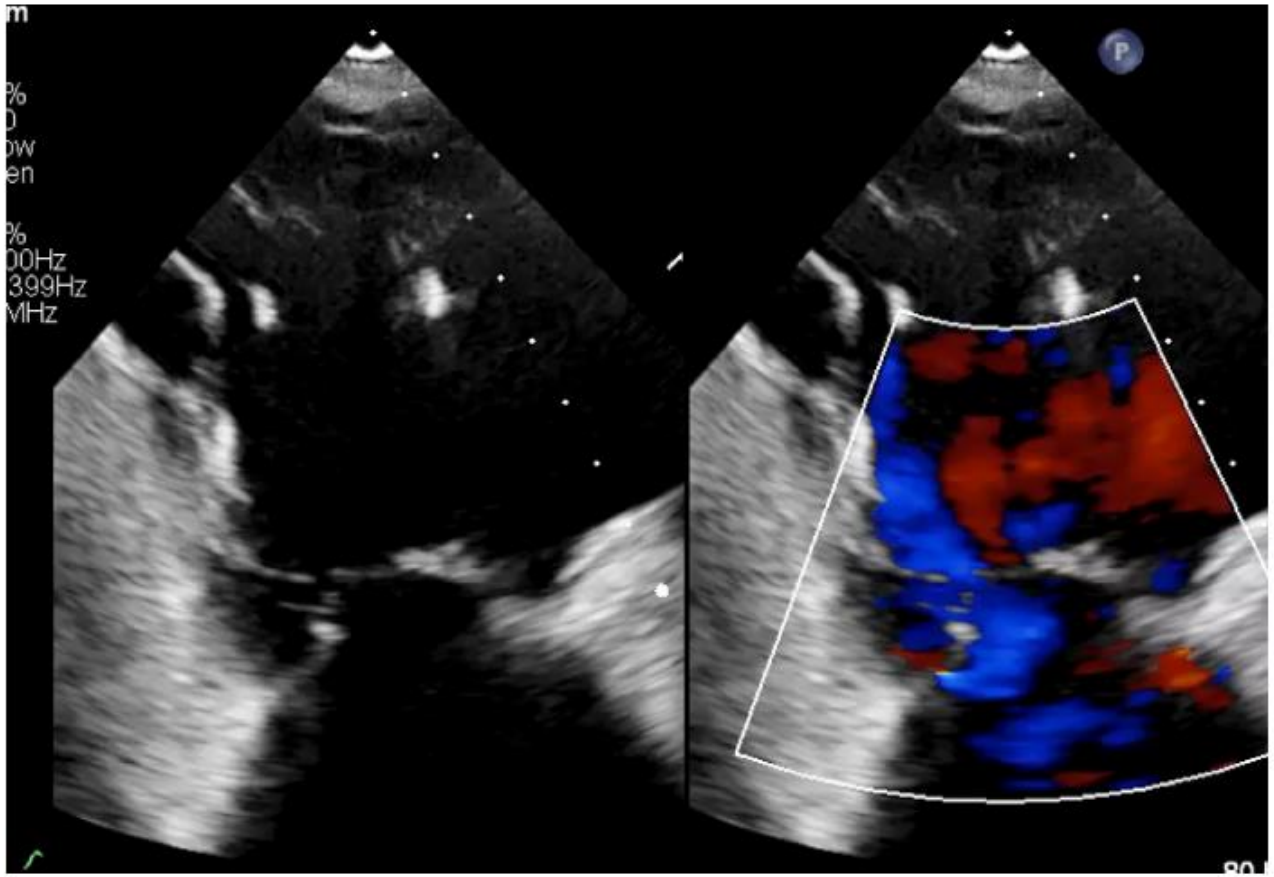
ORGÁNICA



ETIOLOGÍA Y MECANISMO DE LA IT

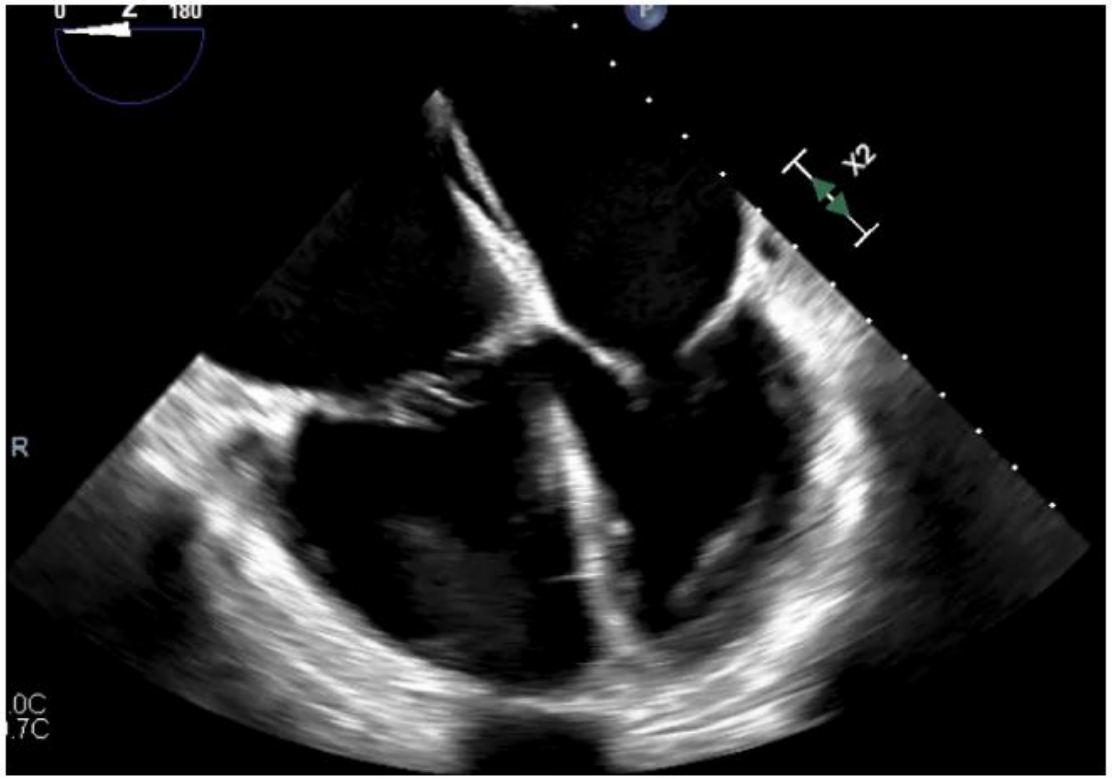
FUNCIONAL VENTRICULAR

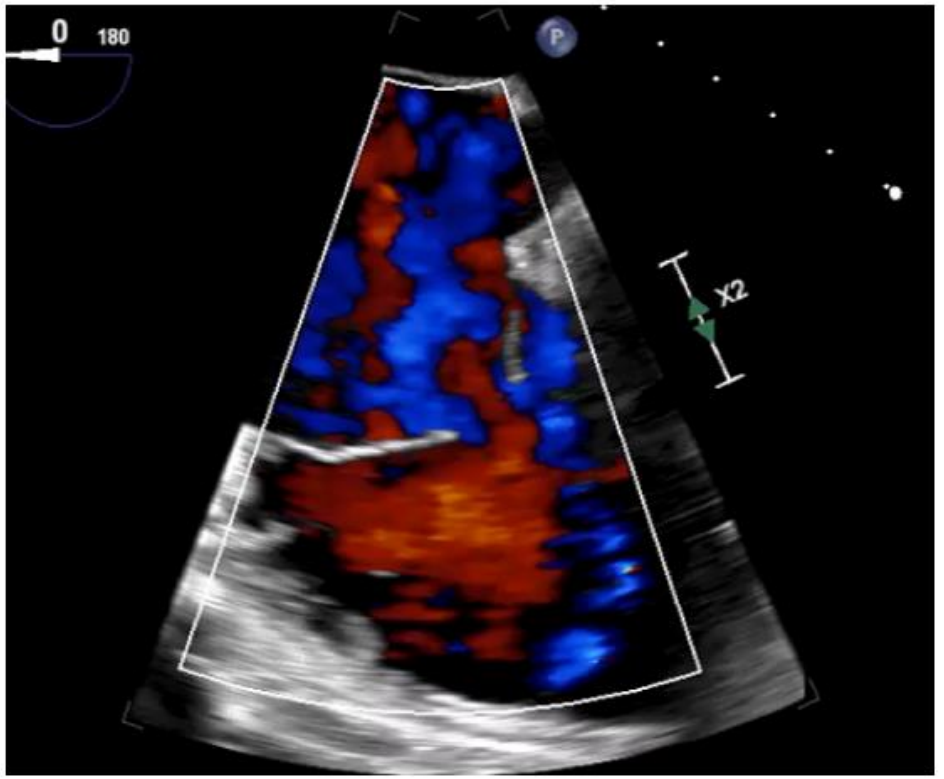




ETIOLOGÍA Y MECANISMO DE LA IT

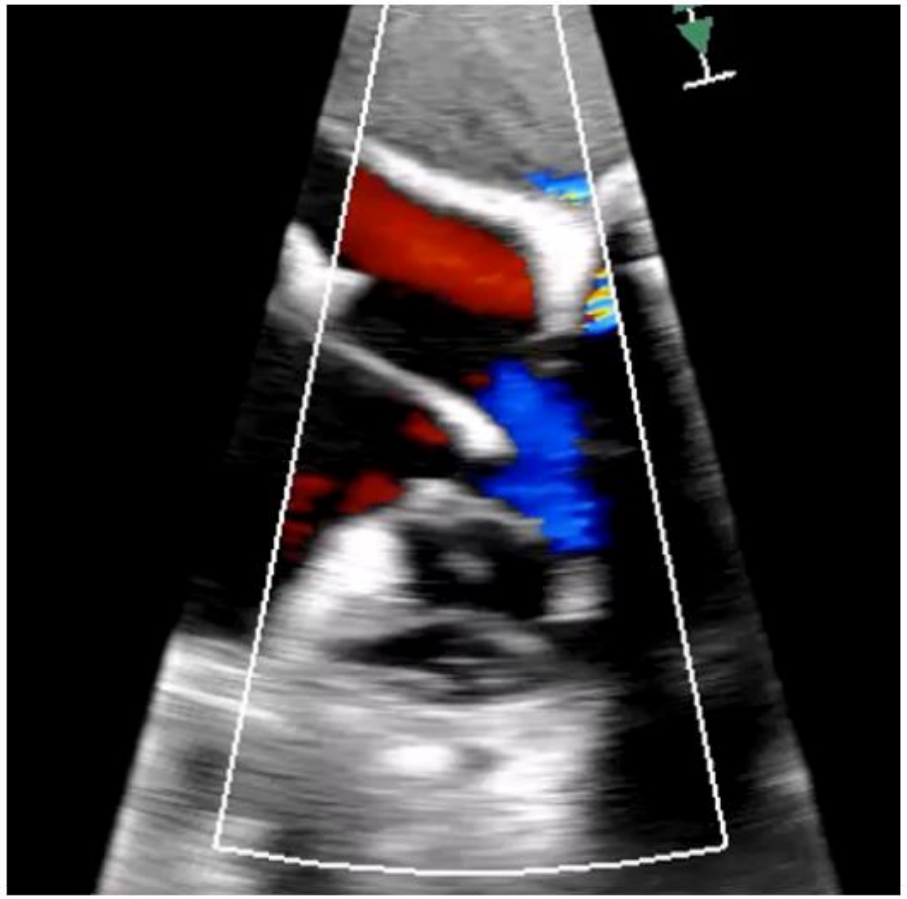
FUNCIONAL AURICULAR



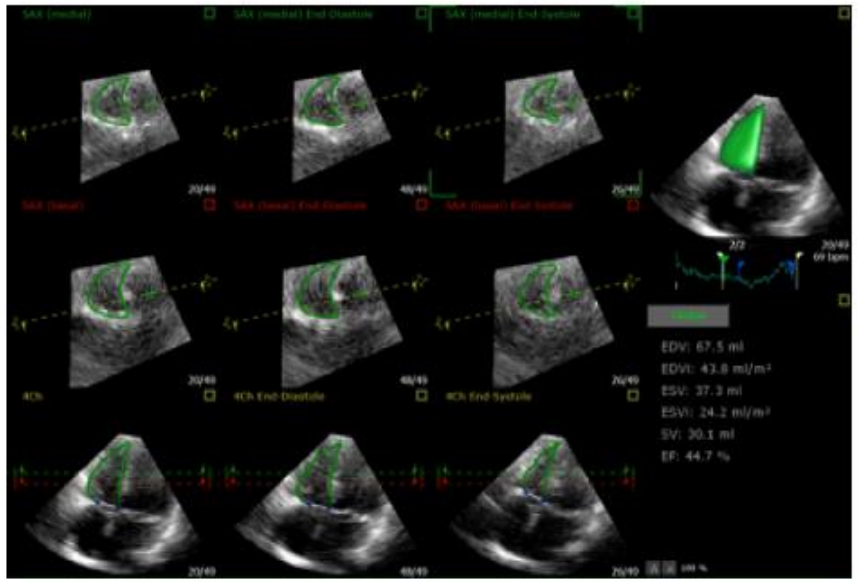


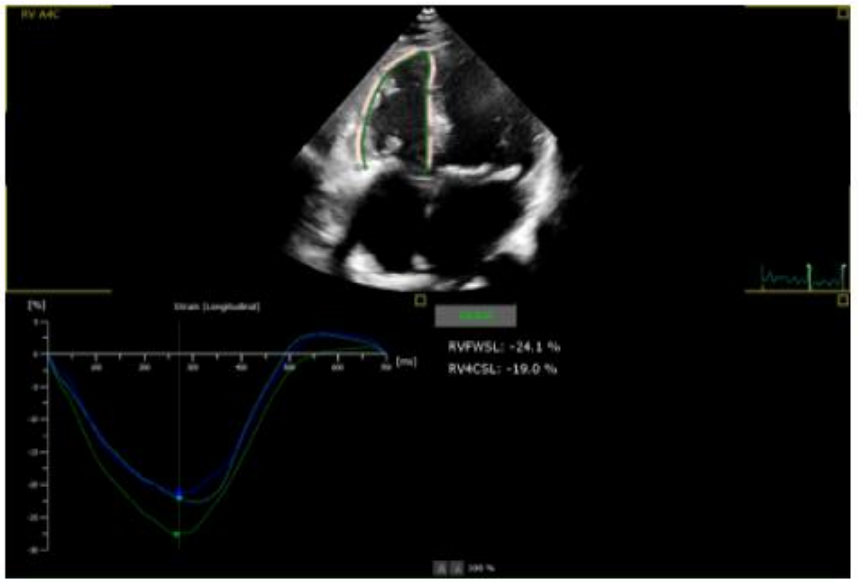
ETIOLOGÍA Y MECANISMO DE LA IT

MEDIADA POR CABLE MP



¿Cómo es el VD? ¿Y la PSP?

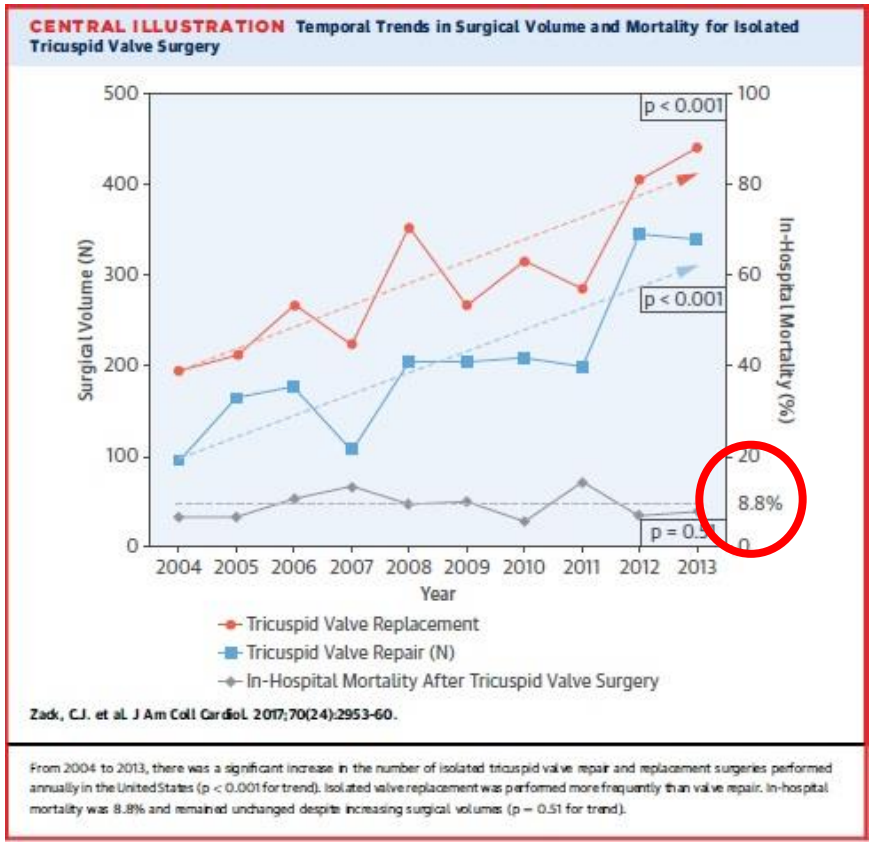




Cirugía cardiaca

TABLE 1 Baseline Characteristics of Patients Undergoing Isolated Tricuspid Valve Surgery From 2004 to 2013 (Unweighted)

Age, yrs	62.0 (48.0-72.0)
Female	599 (57.5)
Race	
Caucasian	606 (58.2)
African American	101 (9.7)
Hispanic	59 (5.7)
Teaching hospital	892 (85.7)
Medical comorbidity	
Hypertension	512 (49.2)
Diabetes	208 (20.0)
Coronary artery disease	350 (33.6)
Pacemaker/intracardiac defibrillator	116 (11.1)
Atrial fibrillation/flutter	517 (49.7)
Pulmonary hypertension	238 (22.9)
Chronic kidney disease	197 (18.9)
End-stage renal disease	59 (5.7)
Liver disease	80 (7.7)
Cirrhosis	41 (3.9)
Charlson comorbidity index ≥2	597 (57.3)
Prior sternotomy	130 (12.5)
Prior valve surgery	98 (9.4)
Prior CABG	34 (3.3)
Surgical characteristics	
TV replacement–mechanical	242 (23.2)
TV replacement–bioprosthetic	374 (35.9)
TV repair	425 (40.8)
Concomitant CABG	208 (20.0)



Severe tricuspid regurgitation is associated with impaired survival[389,414–416] and worsening heart failure.[397,417] In clinical practice, tricuspid valve interventions are underused and often initiated too late.[418–420] Appropriate timing of intervention is crucial to avoid irreversible RV damage and organ failure with subsequent increased surgical risk[421,422] (see table of recommendations on indications for

2021 ESC VHD guidelines

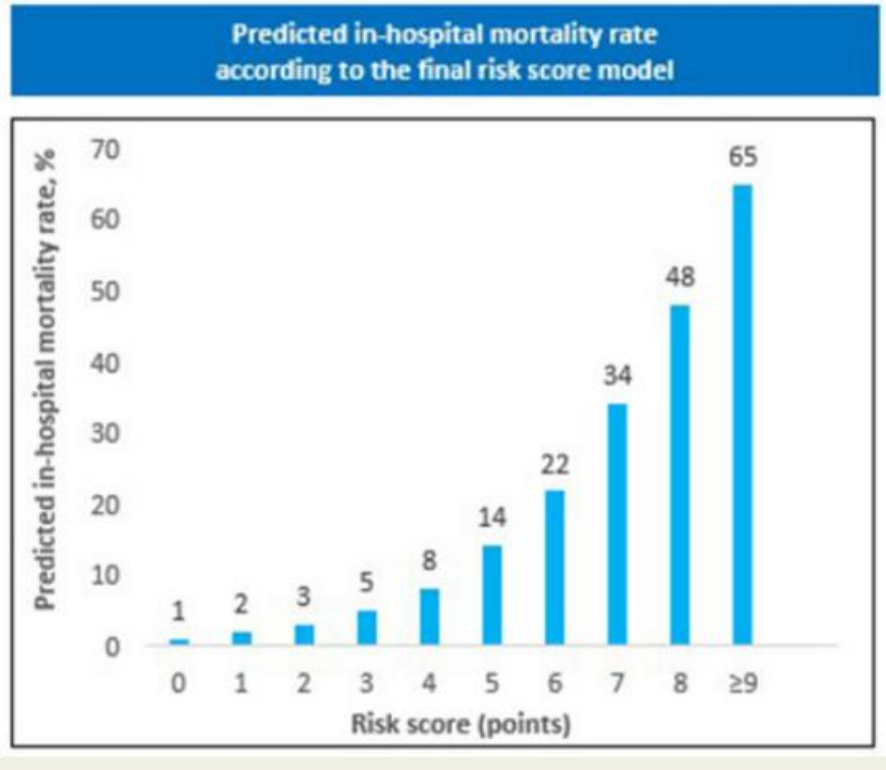
Valoración del riesgo quirúrgico en el paciente con IT

TRI-SCORE

riesgo quirúrgico en caso de cirugía aislada sobre la VT.

Risk factors and scoring system for in-hospital mortality after isolated tricuspid valve surgery

Risk factors (final model from multivariate analysis)	Scoring
Age ≥ 70 years	1
NYHA functional class III-IV	1
Right-sided heart failure signs	2
Daily dose of furosemide ≥ 125mg	2
Glomerular filtration rate < 30 ml/min	2
Elevated total bilirubin	2
Left ventricular ejection fraction < 60%	1
Moderate/severe right ventricular dysfunction	1
Total	12

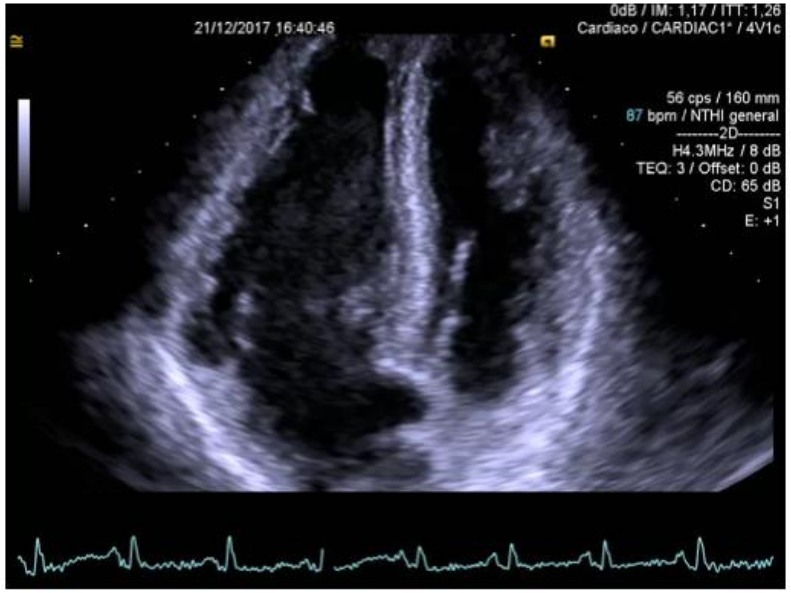


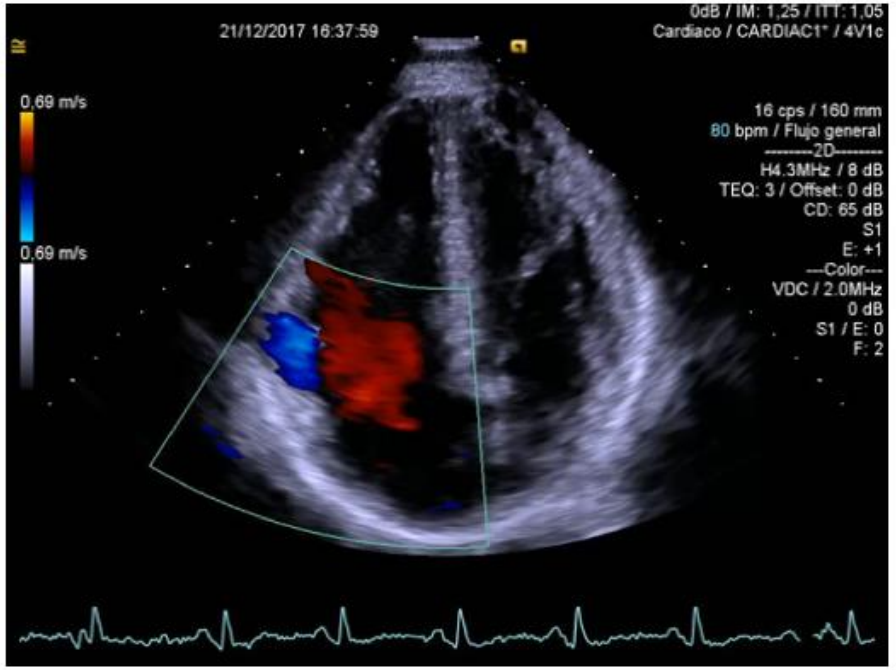
Score ≤ 3 bajo riesgo
Score 4-5 riesgo intermedio
Score ≥ 6 alto riesgo

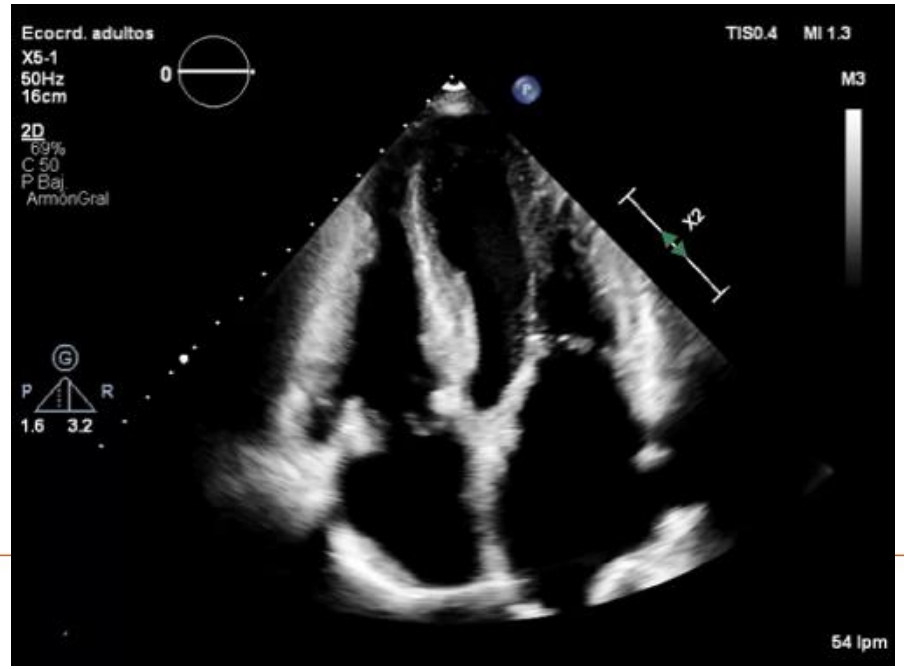
Dreyfus et al. Eur Heart J. 2022 Feb 12;43(7):654-662

Ejemplos prácticos

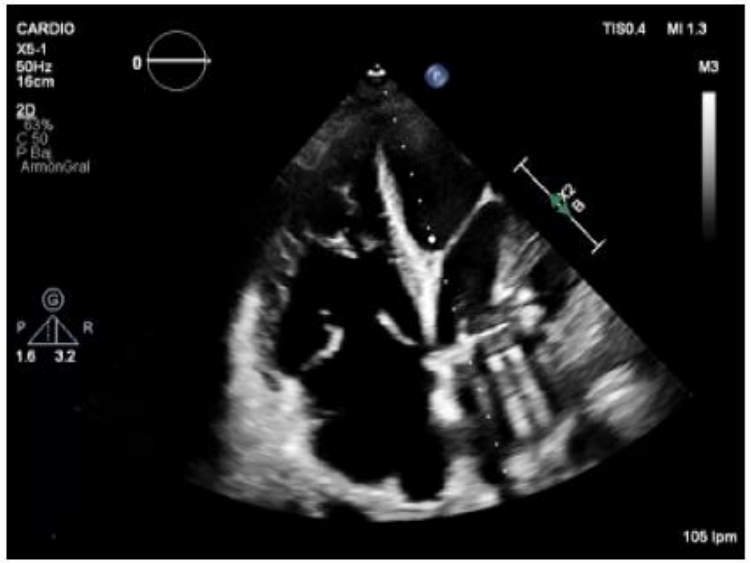
Varón 58 años, ExADVP.

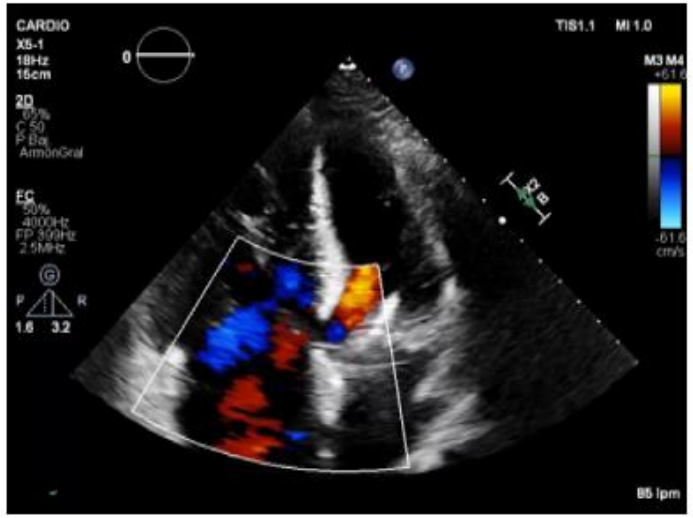




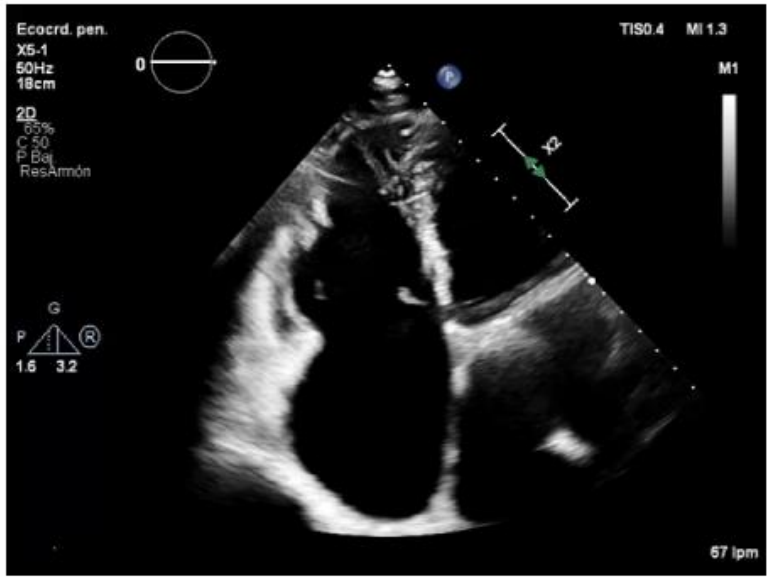


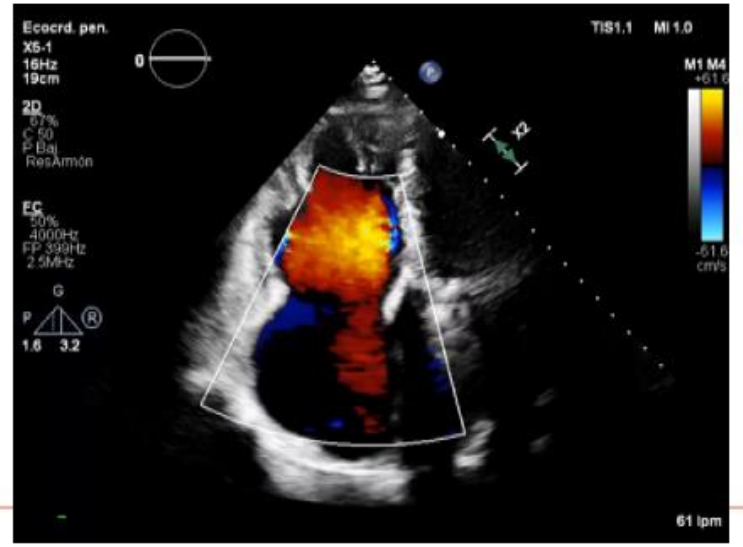
Mujer 65 años. Prótesis mitral previa.



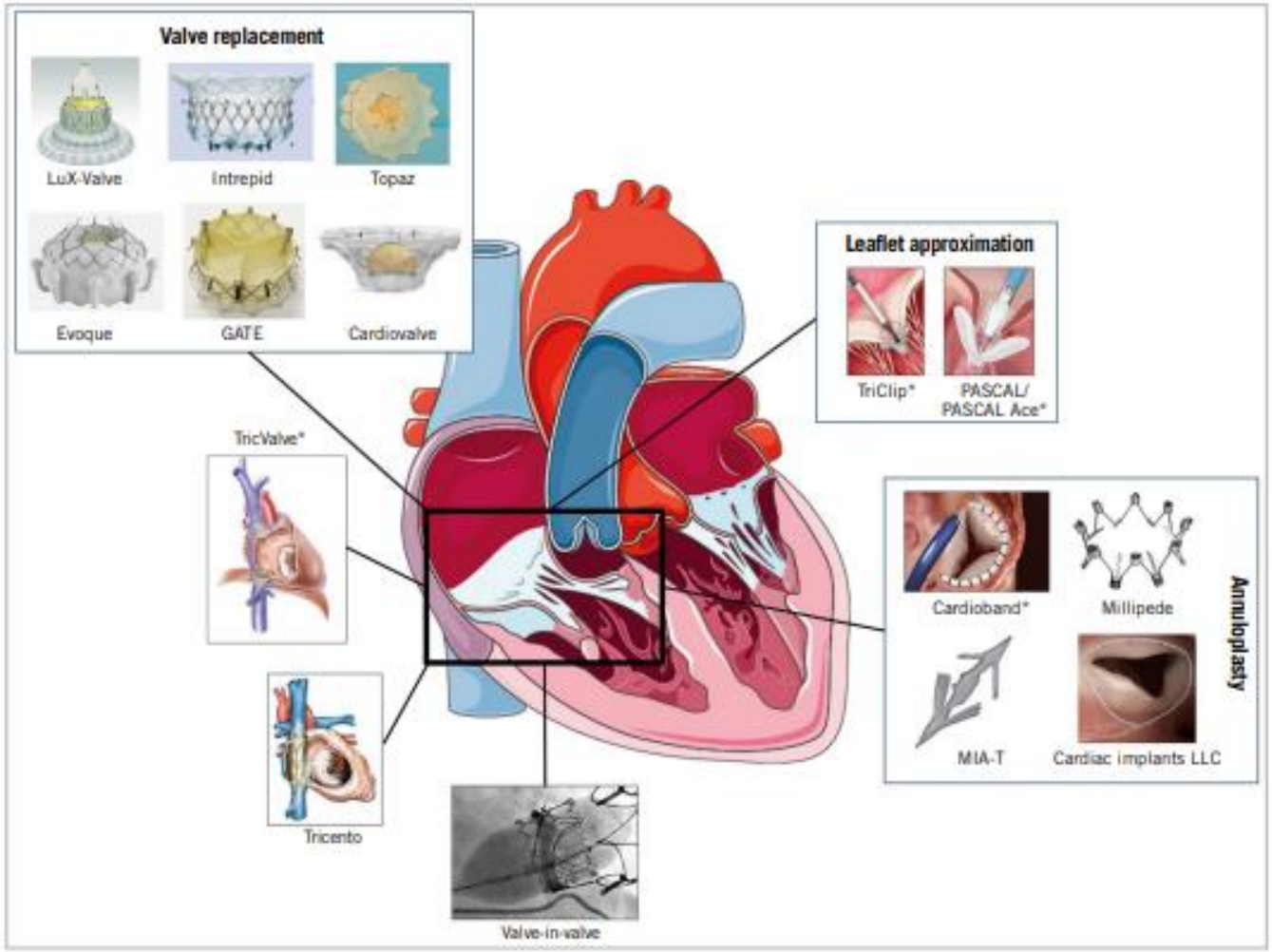


Varón 68 años. Prótesis mitral previa.





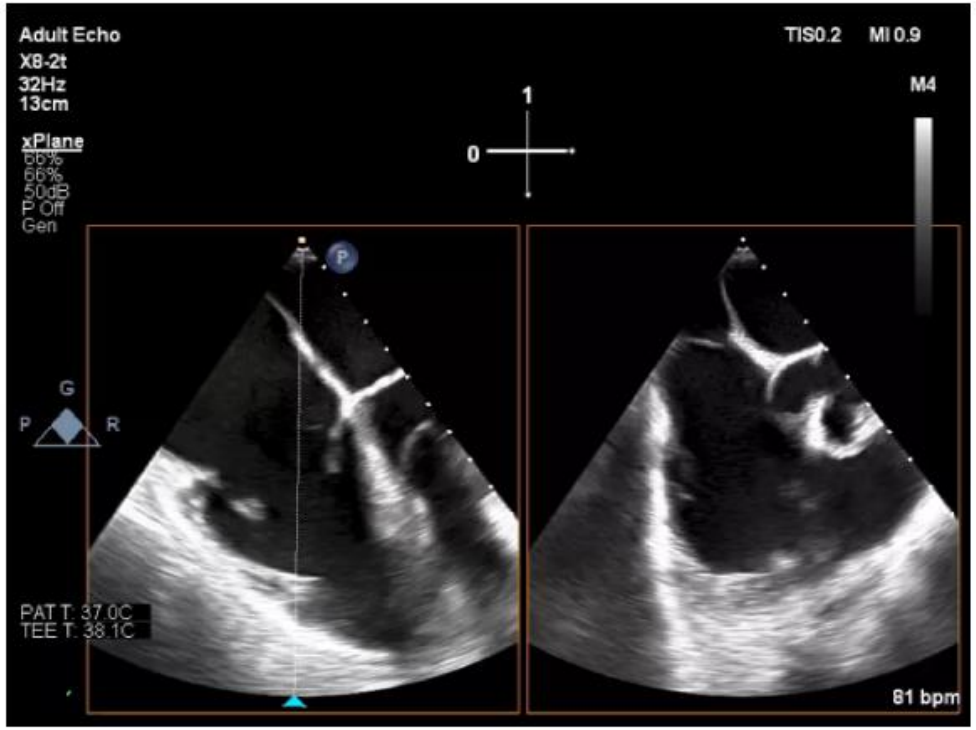
Tratamiento percutáneo

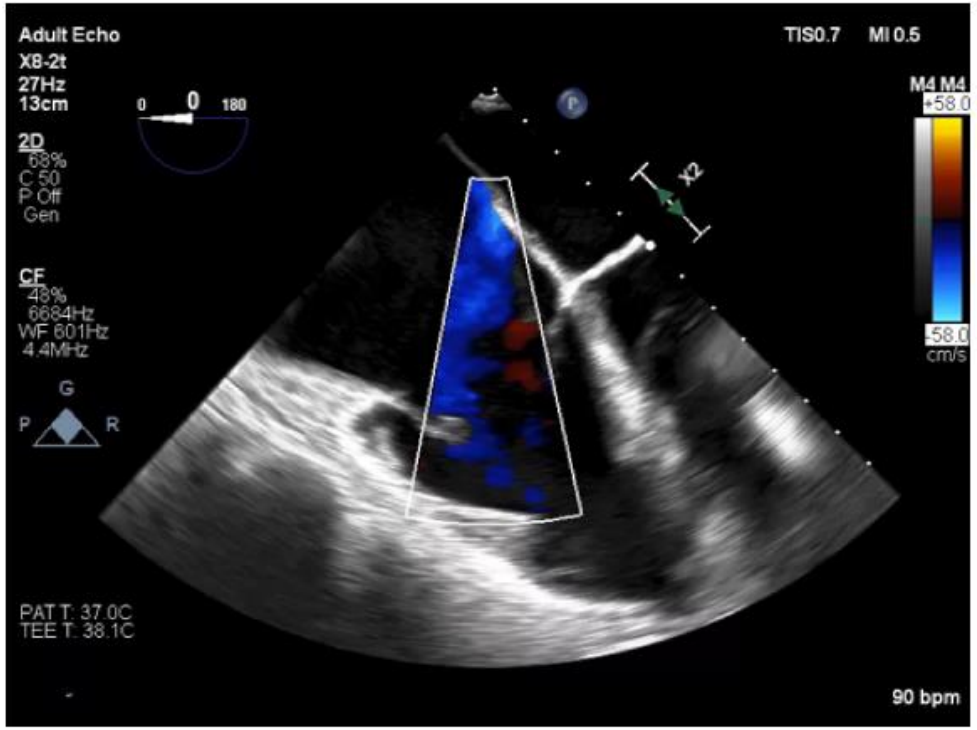


Praz et al. EuroIntervention 2021;17:791-808

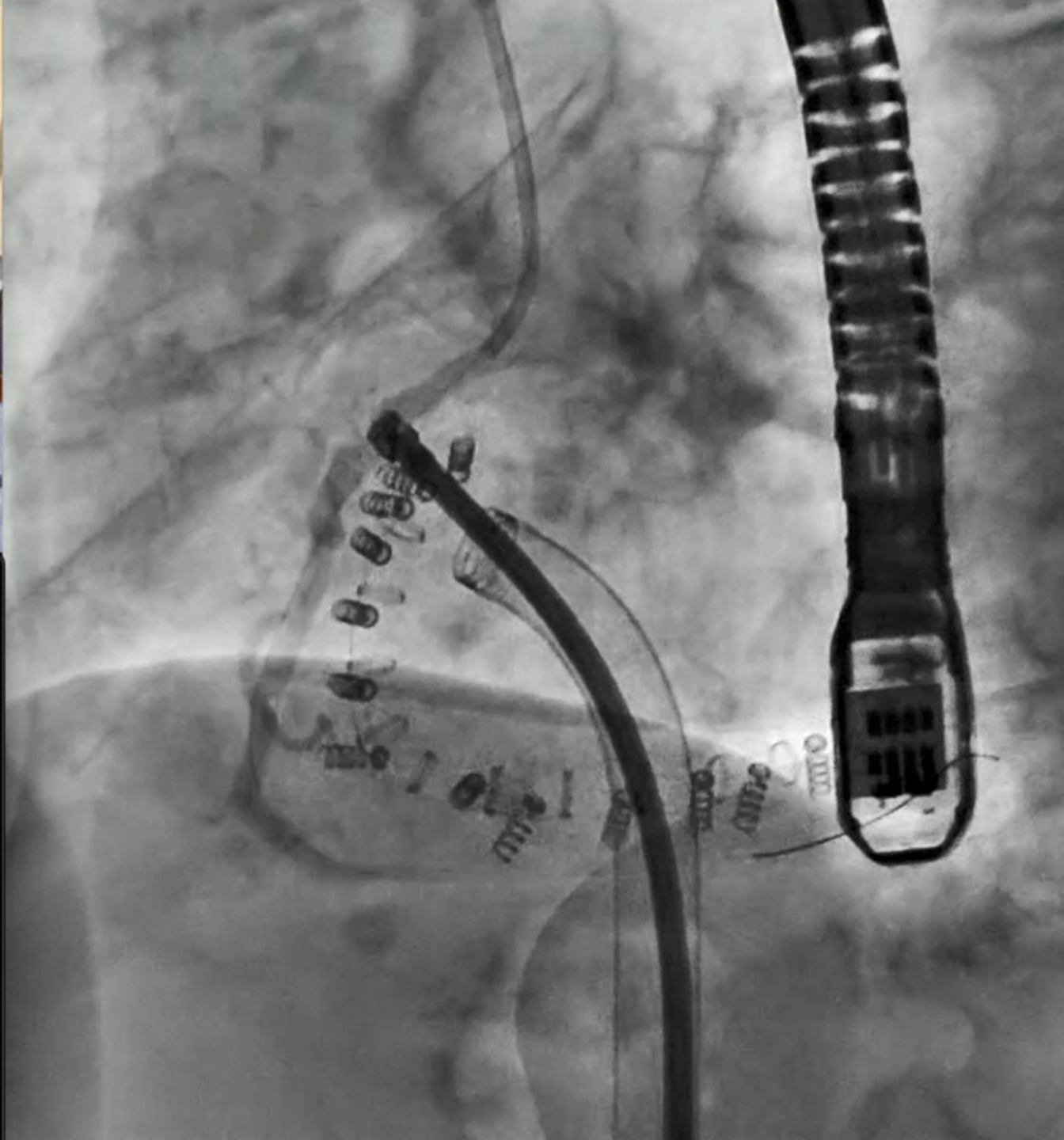
Ejemplos prácticos

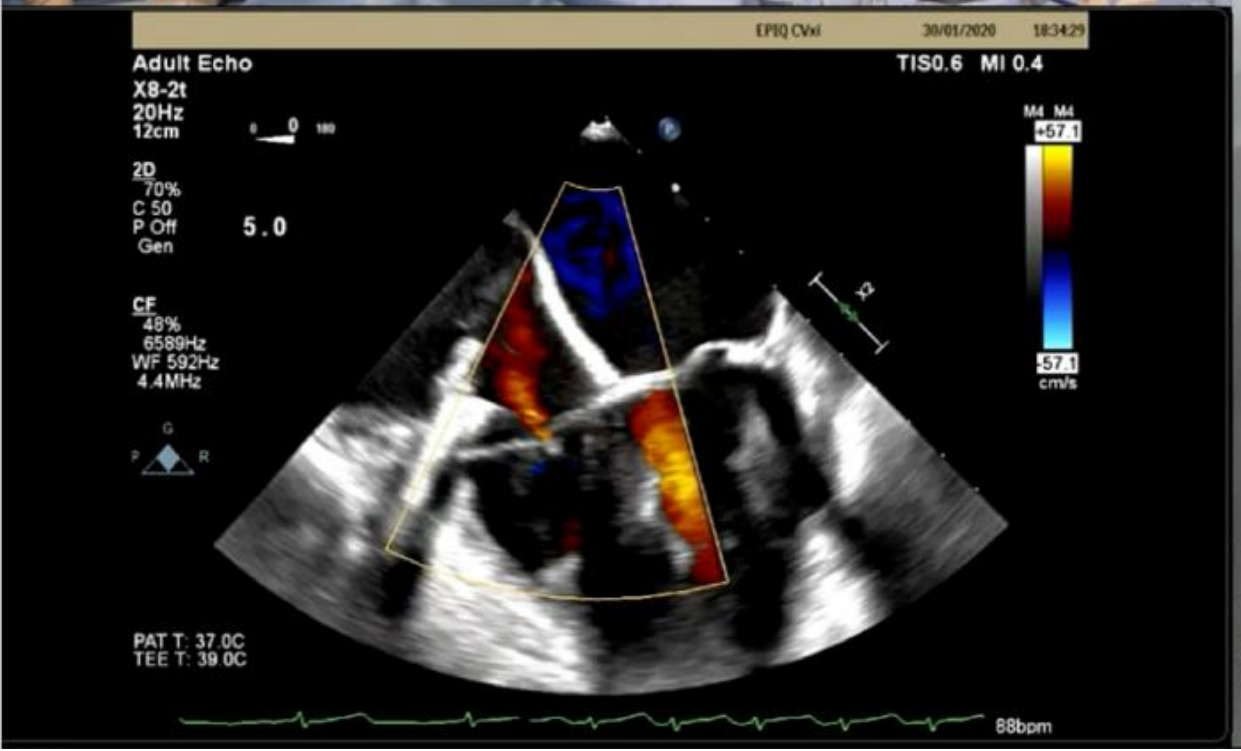
Mujer 85 años. FA larga evolución. HTA. DM. Obesidad. IRC.






EPIQ CVxi
30/01/2020
18:12:50
Adult Echo
TIS0.6 MI 0.4
X8-2t
13Hz
12cm
xPlane
70%
70%
50dB
P Off
Gen
CF
48%
6649Hz
WF 598Hz
4.4MHz
M4 M4
+57.7
-57.7
cm/s
PAT T: 37.0C
TEE T: 39.2C
93bpm




EPIQ CVxi
30/01/2020
18:34:29
Adult Echo
TIS0.6 MI 0.4
X8-2t
20Hz
12cm
2D
70%
C 50
P Off
Gen
5.0
CF
48%
6589Hz
WF 592Hz
4.4MHz
M4 M4
+57.1
-57.1
cm/s
PAT T: 37.0C
TEE T: 39.0C
88bpm

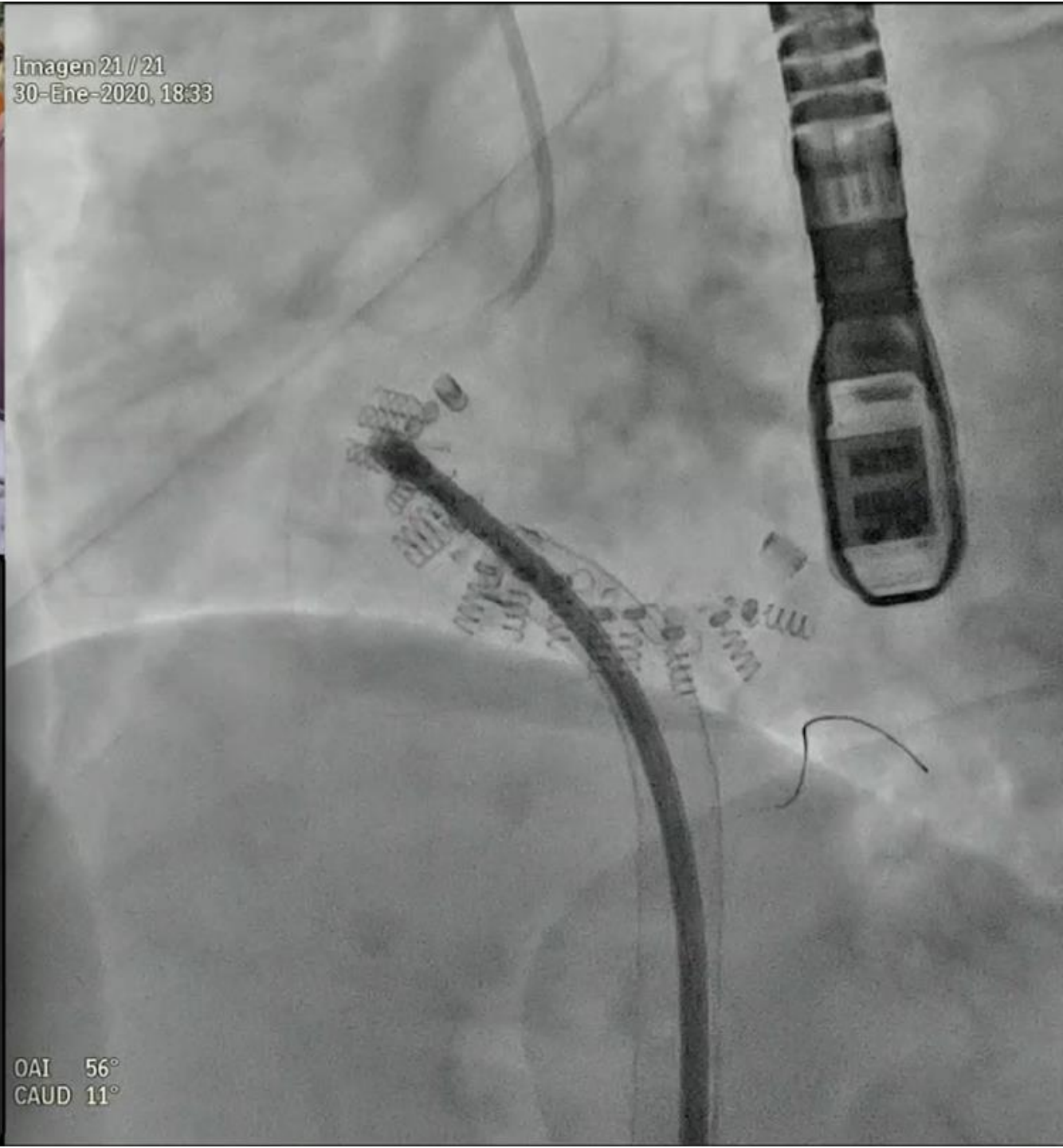
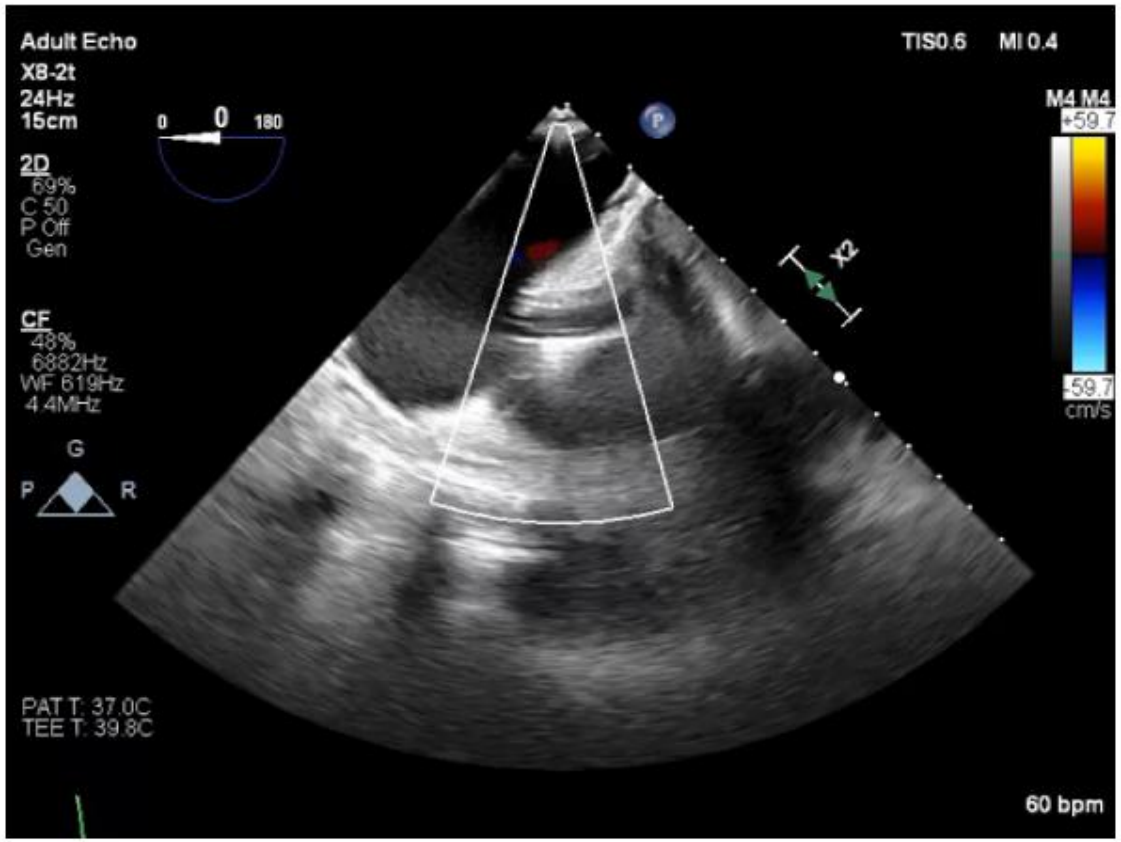
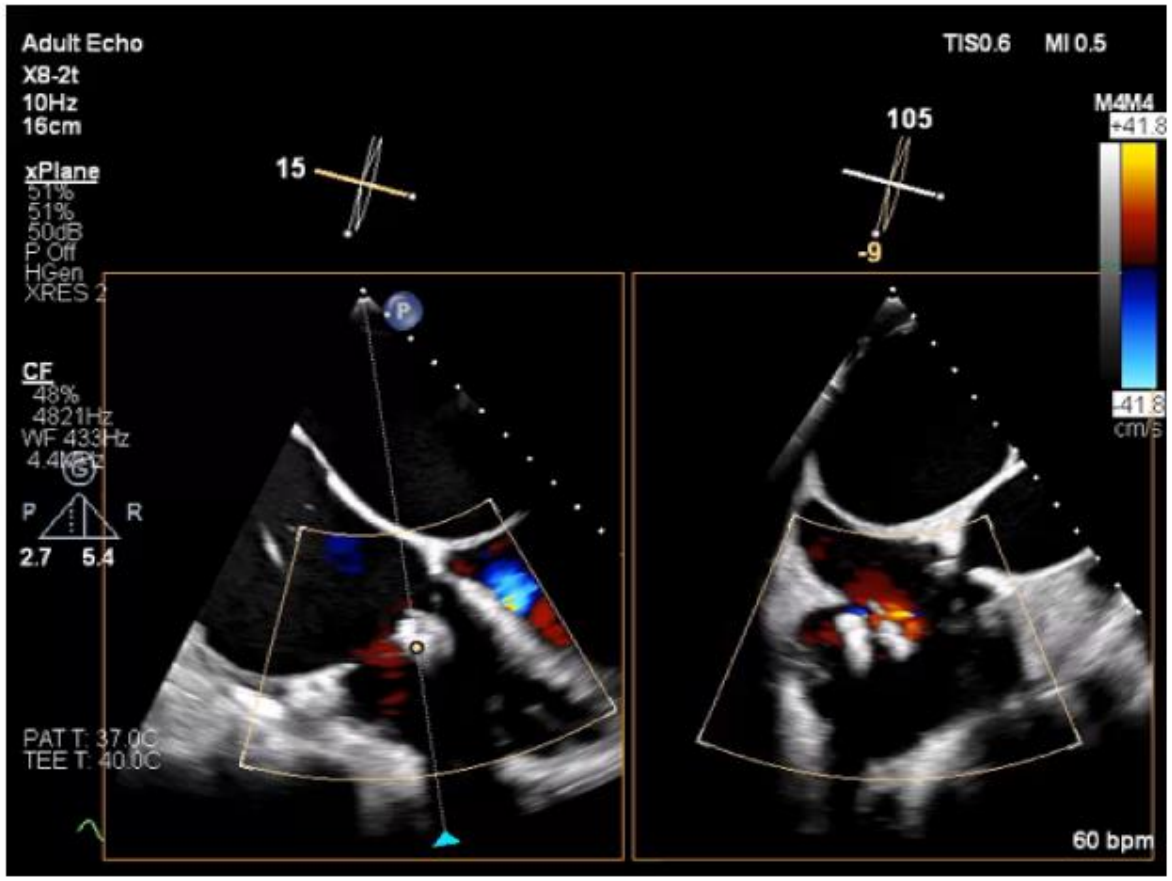


Imagen 21 / 21
30-Ene-2020, 18:33
OAI 56°
CAUD 11°

Ejemplos prácticos

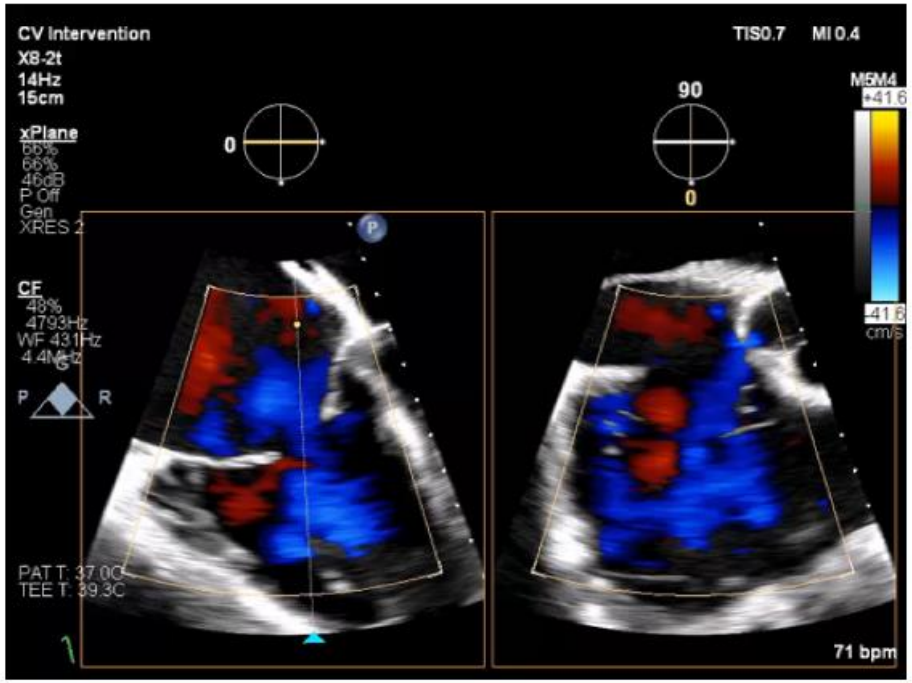
Mujer 83 años. FA. Aplastamientos vertebrales. MCP.

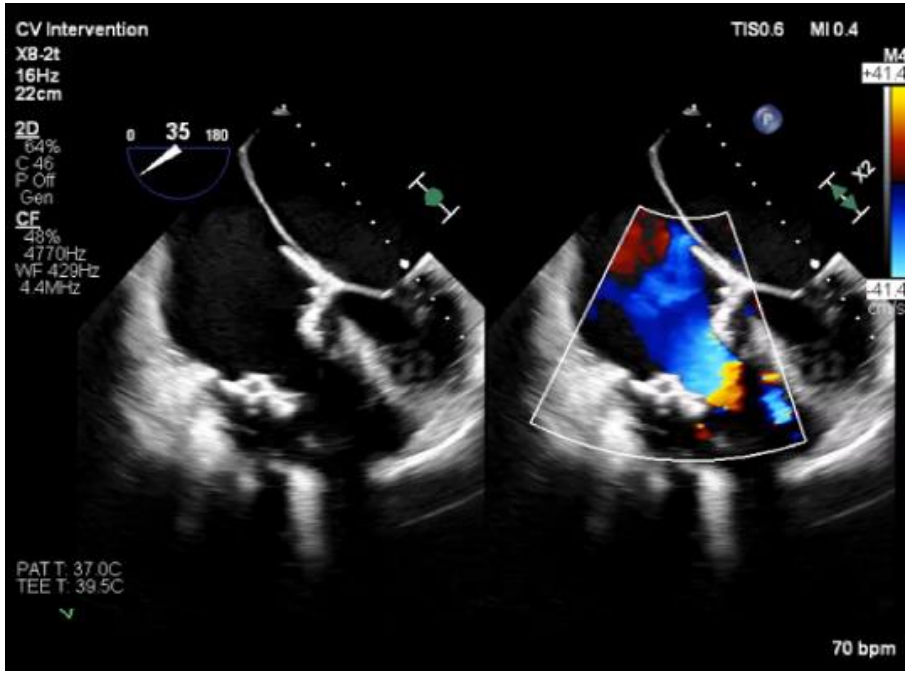


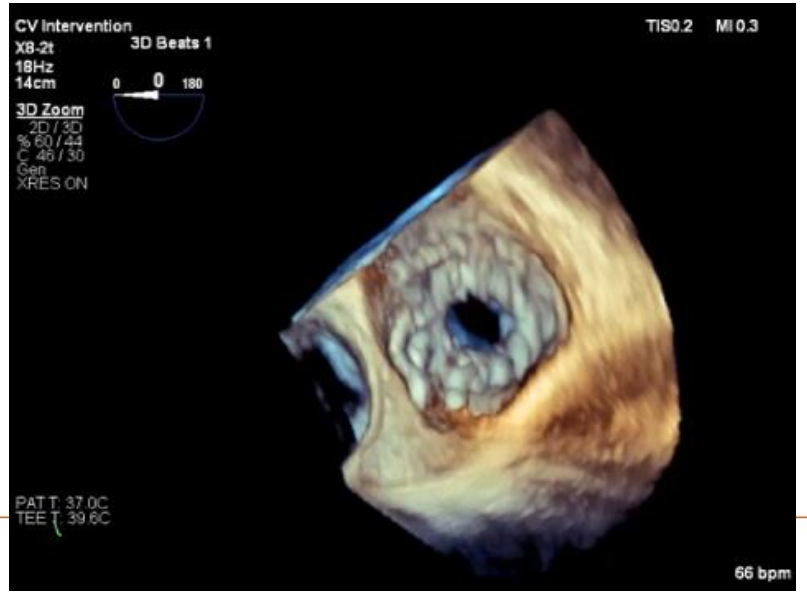


Ejemplos prácticos

Varón 84 años. AMI a DA. DM. FA. EPOC.



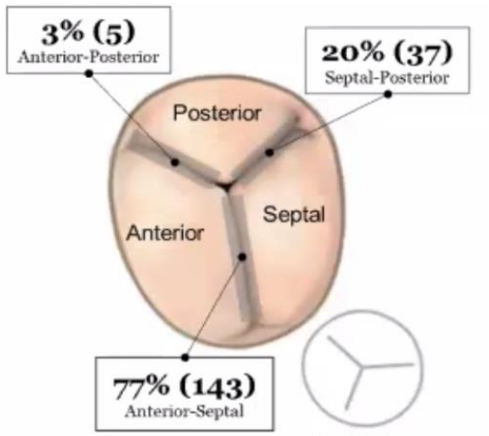


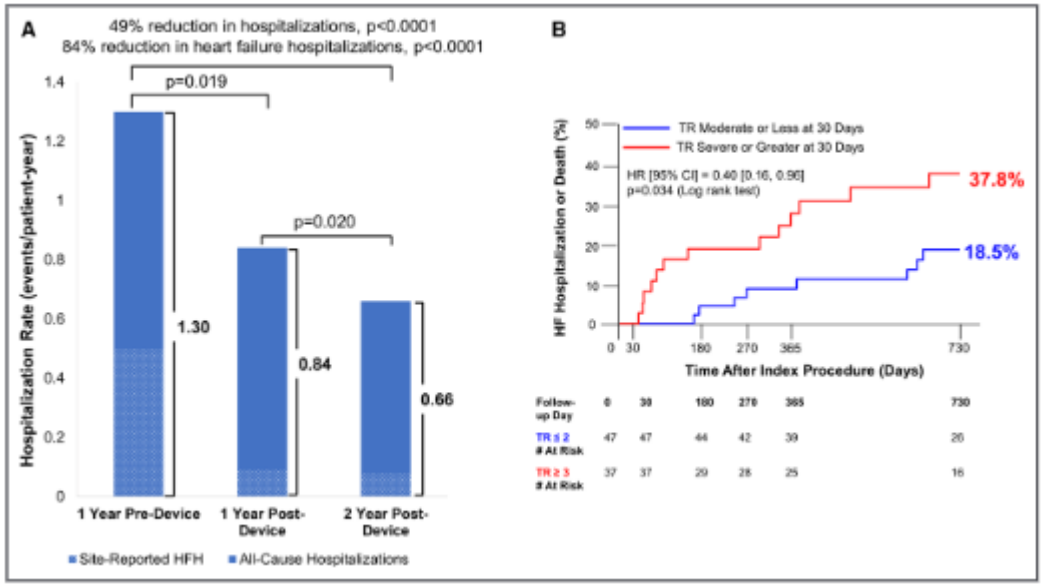


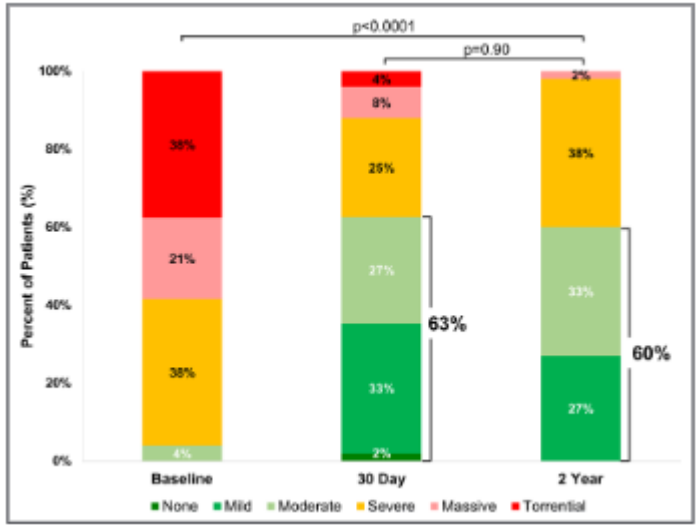
Resultados

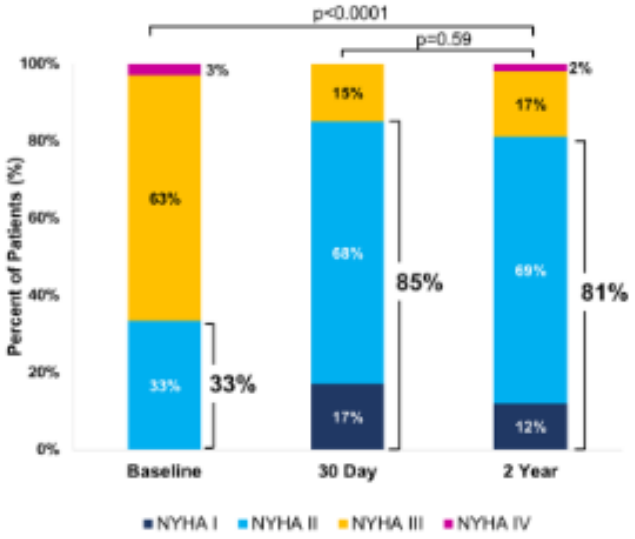
Técnicas de aproximación de velos
TRILUMINATE STUDY

N=85. TriClip. Resultados a dos años.









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Técnicas de anuloplastia
TRI-REPAIR

N=30. Cardioband.
Resultados a 2 años (n=20).

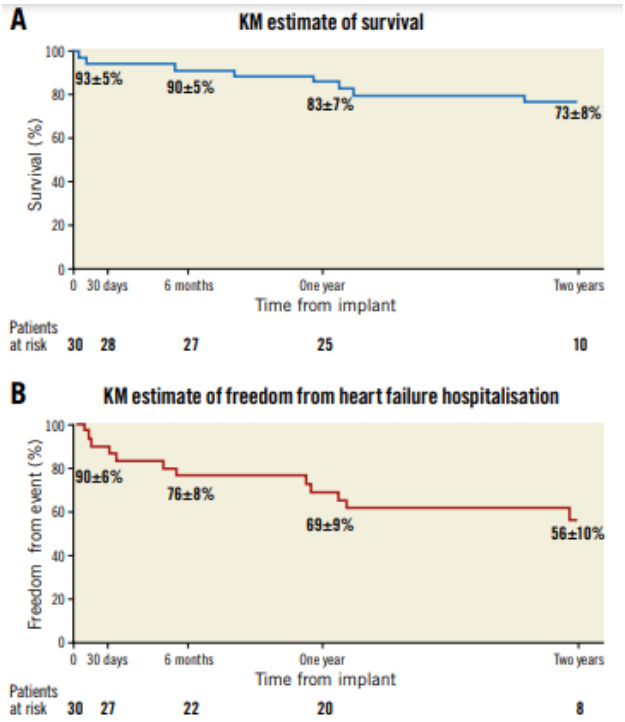
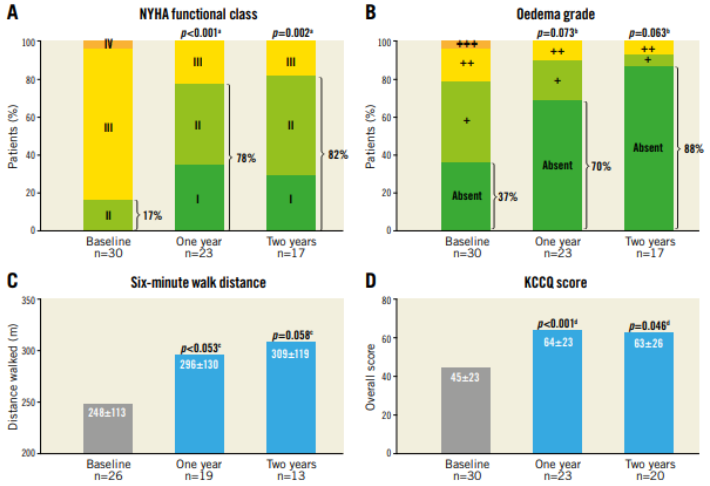
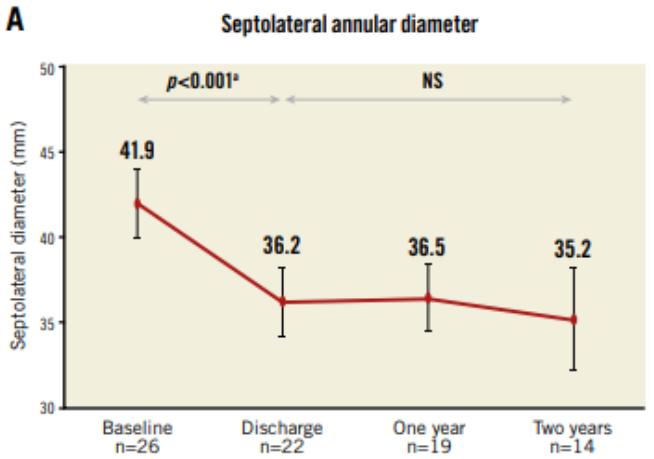
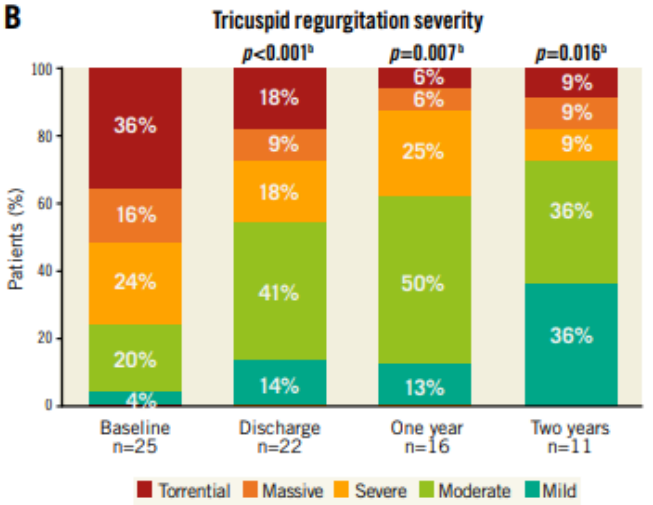


Figure 5. *Two-year survival and hospitalisation Kaplan-Meier curves. A) The KM estimate of survival at two years was 73%. B) The KM estimate of freedom from heart failure hospitalisation at two years was 56%.*







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ESC European Society of Cardiology
European Heart Journal - Cardiovascular Imaging (2022) **23**, 979–988
https://doi.org/10.1093/ehjci/jeac079

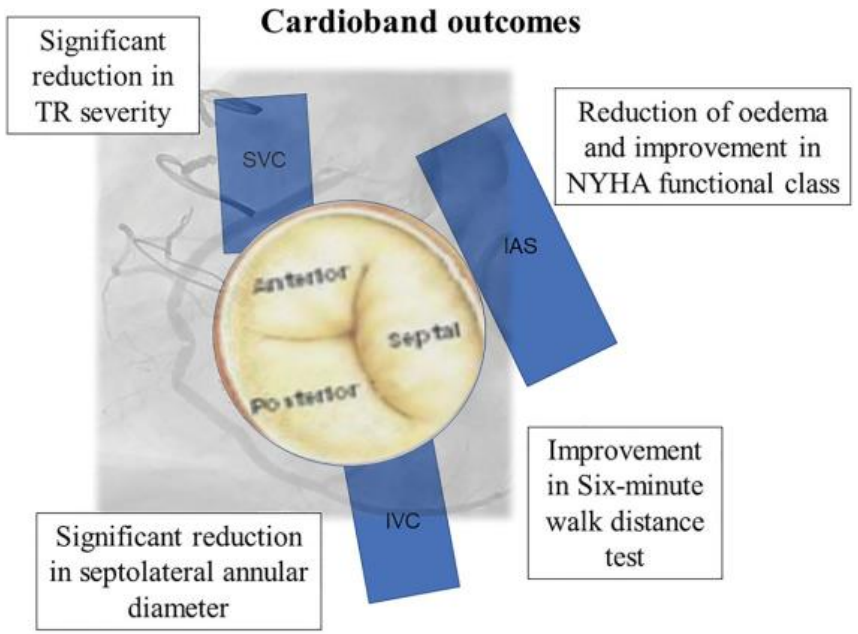
ORIGINAL PAPER

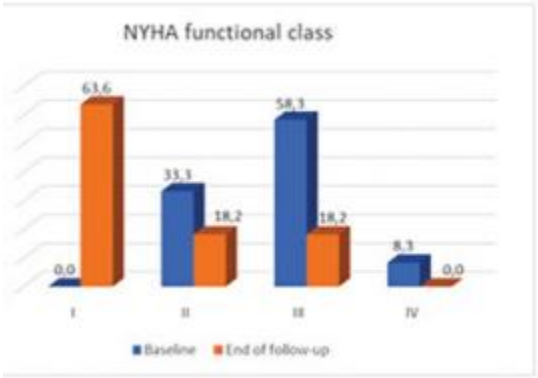
Long-term outcomes of percutaneous tricuspid annuloplasty with Cardioband device

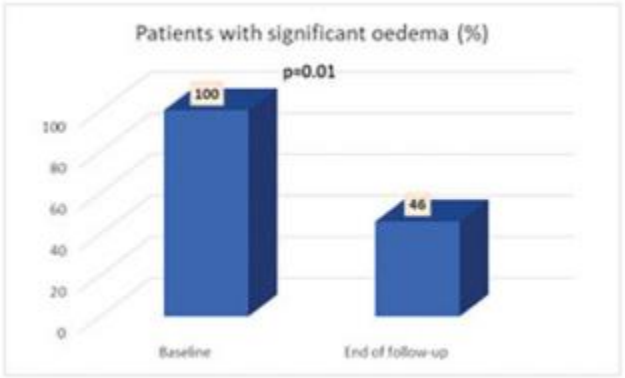
Ana Pardo Sanz *, José Luis Zamorano Gómez, Luisa Salido Tahoces, Juan Manuel Monteagudo Ruiz, Ana García Martín, Ariana González Gómez, Rocío Hinojar Baydes, María Abellás Sequeiros, Marcelo Sanmartín Fernández, José Luis Mestre Barceló, Eduardo González Ferrer, Sara Fernández Santos, Covadonga Fernández-Golfín Lobán, and Ángel Sánchez Recalde

Cardiology Department, University Hospital Ramón y Cajal, Carretera de Colmenar Viejo, Km 9.1, Madrid, Spain

N= 24
2019-2021. Seguimiento medio 279 +246 días.



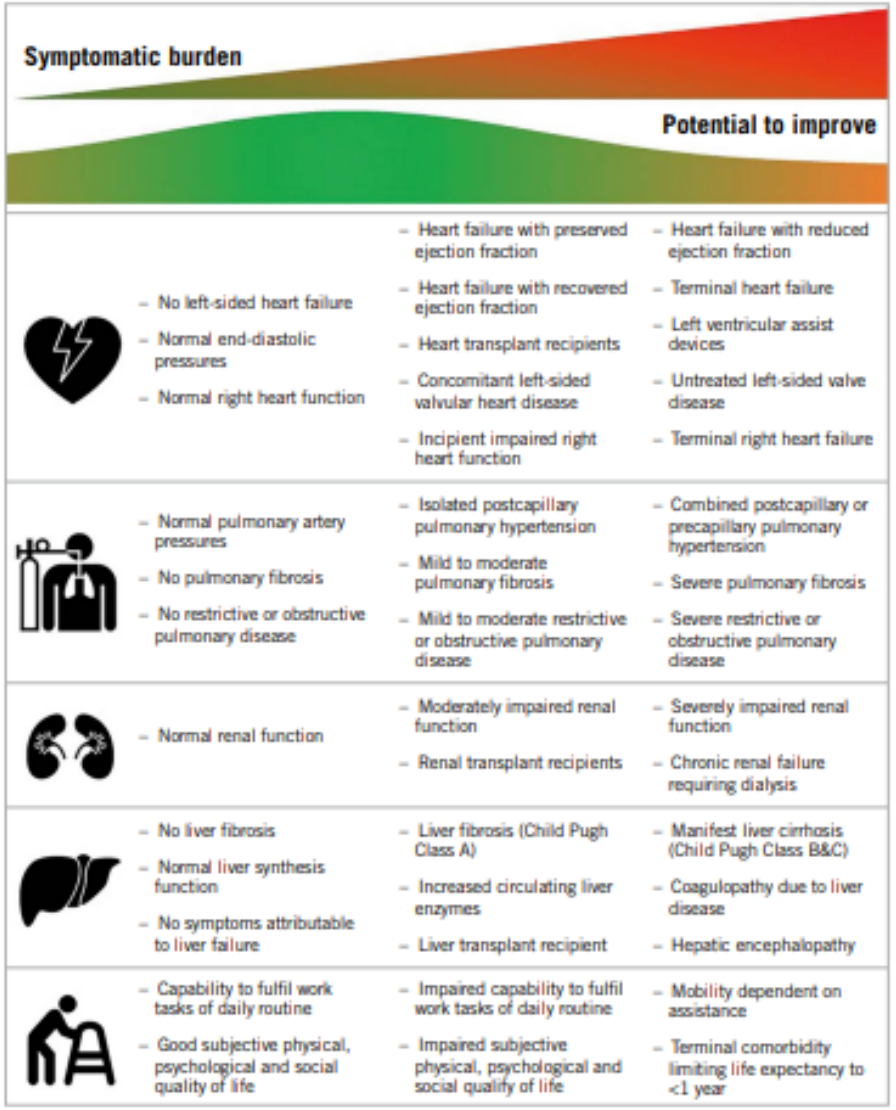




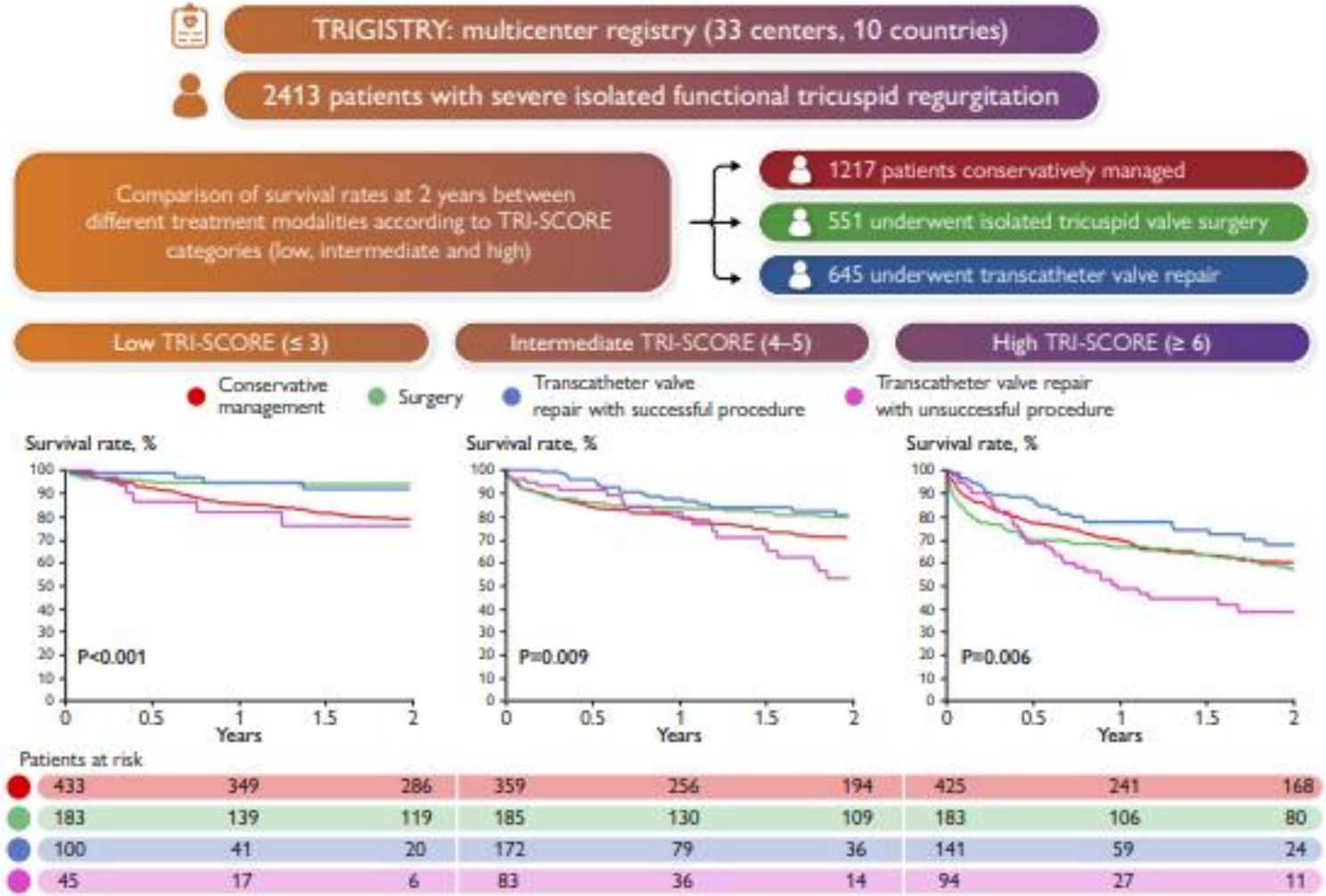
Selección de pacientes

Tener en cuenta..

- Al paciente: fragilidad, esperanza de vida, calidad de vida..
- Mecanismo de la IT, origen del jet. Ventana acústica
- Morfología de los velos: engrosamiento, calcificación, retracción, gap..
- Tamaño del anillo
- Proximidad a la coronaria derecha
- Ventrículo derecho
- Presión pulmonar y resistencias pulmonares
- Función hepática y renal.



Praz et al. EuroIntervention 2021;17:791-808



Eur Heart J. 2024;45(8):586-597

Conclusiones: Insuficiencia tricúspide sintomática aislada

¿Cirugía?

- Primera opción en guías
- Valoración integral de mi paciente (Tri-score, fragilidad..)
- Pacientes más jóvenes, afectación orgánica
- Técnicas menos invasivas

¿Tratamiento percutáneo?

- Nuevas opciones terapéuticas
- Importancia de la imagen
- Adecuada selección pacientes

En cualquier caso, el control del paciente con IT y el momento adecuado de indicación son clave para el éxito de cualquier intervención.

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