Retos de la Insuficiencia Tricuspídea en la Actualidad

Dr Márcio Montenegro
Instituto Estadual de Cardiología Aloysio de Castro
Valve Center
Rio de Janeiro - Brasil

SOLACI
SOCIEDAD LATINOAMERICANA DE CARDIOLOGIA INTERVENCIONISTA

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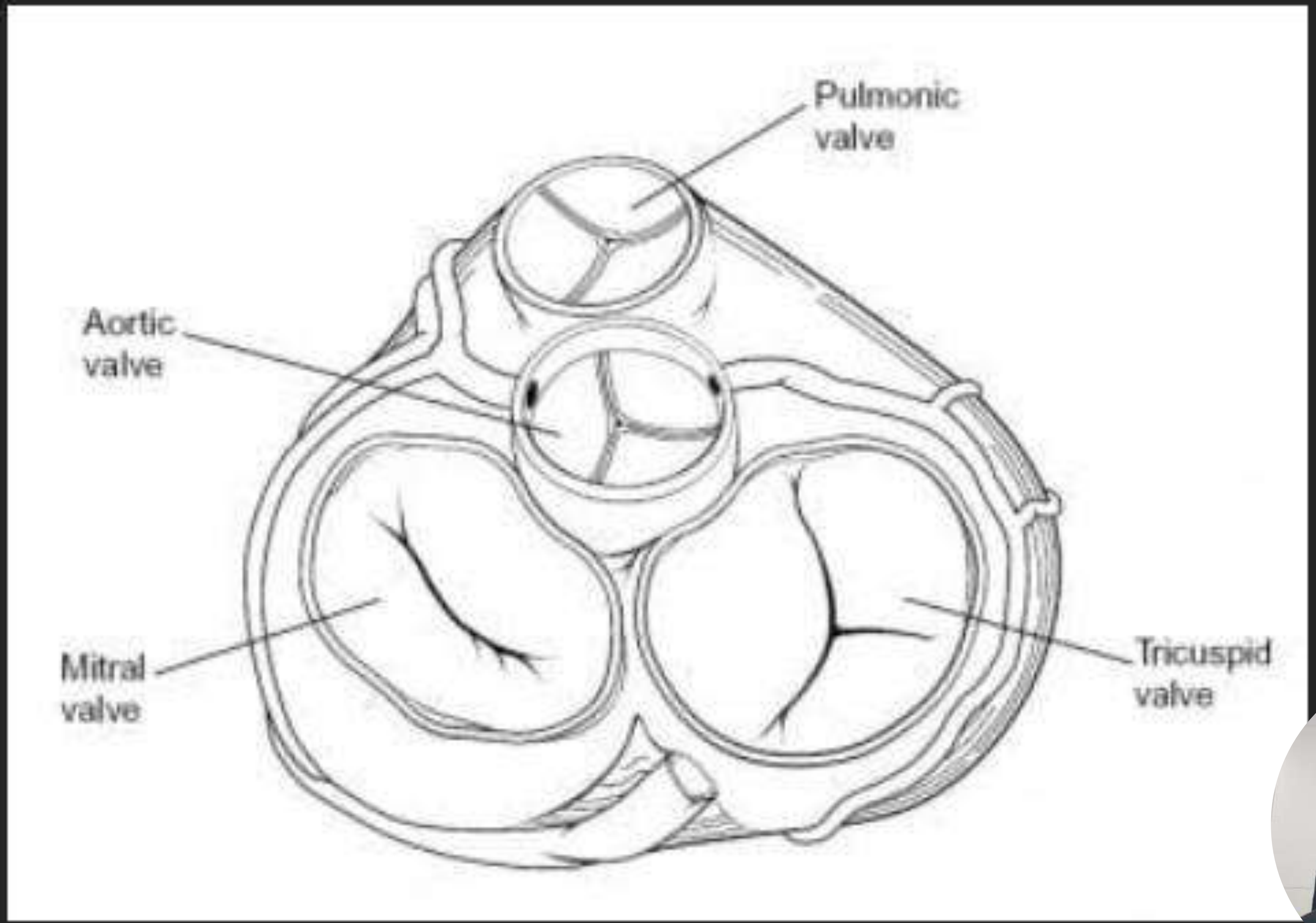
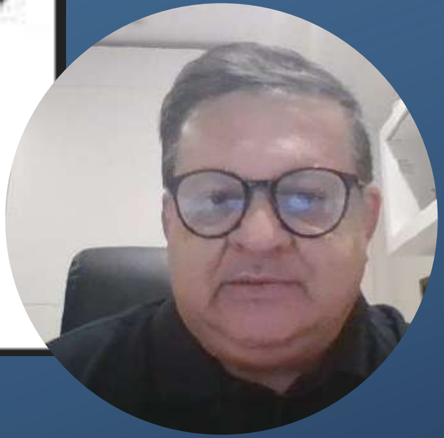
16 y 17 de noviembre

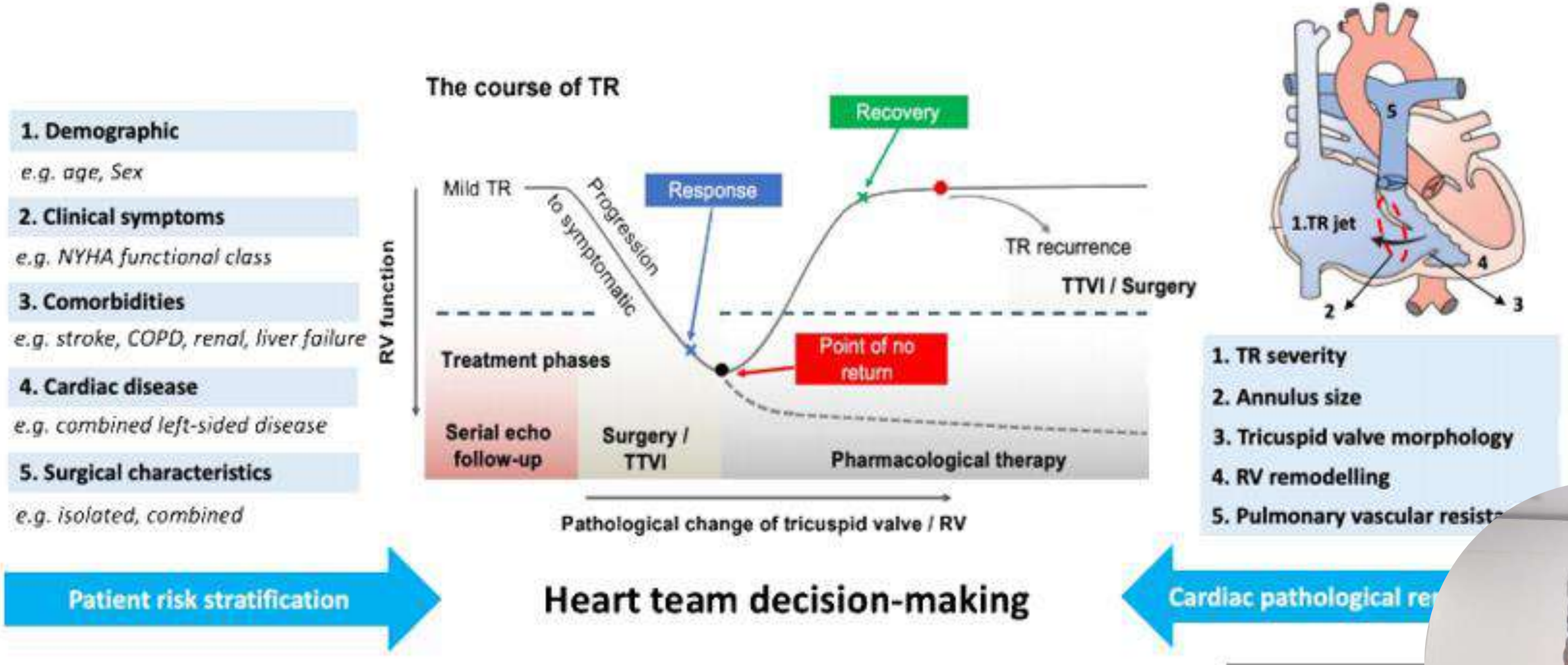
CONFLITO DE INTERESSE

- PROCTOR P&F


Pulmonic valve
Aortic valve
Mitral valve
Tricuspid valve

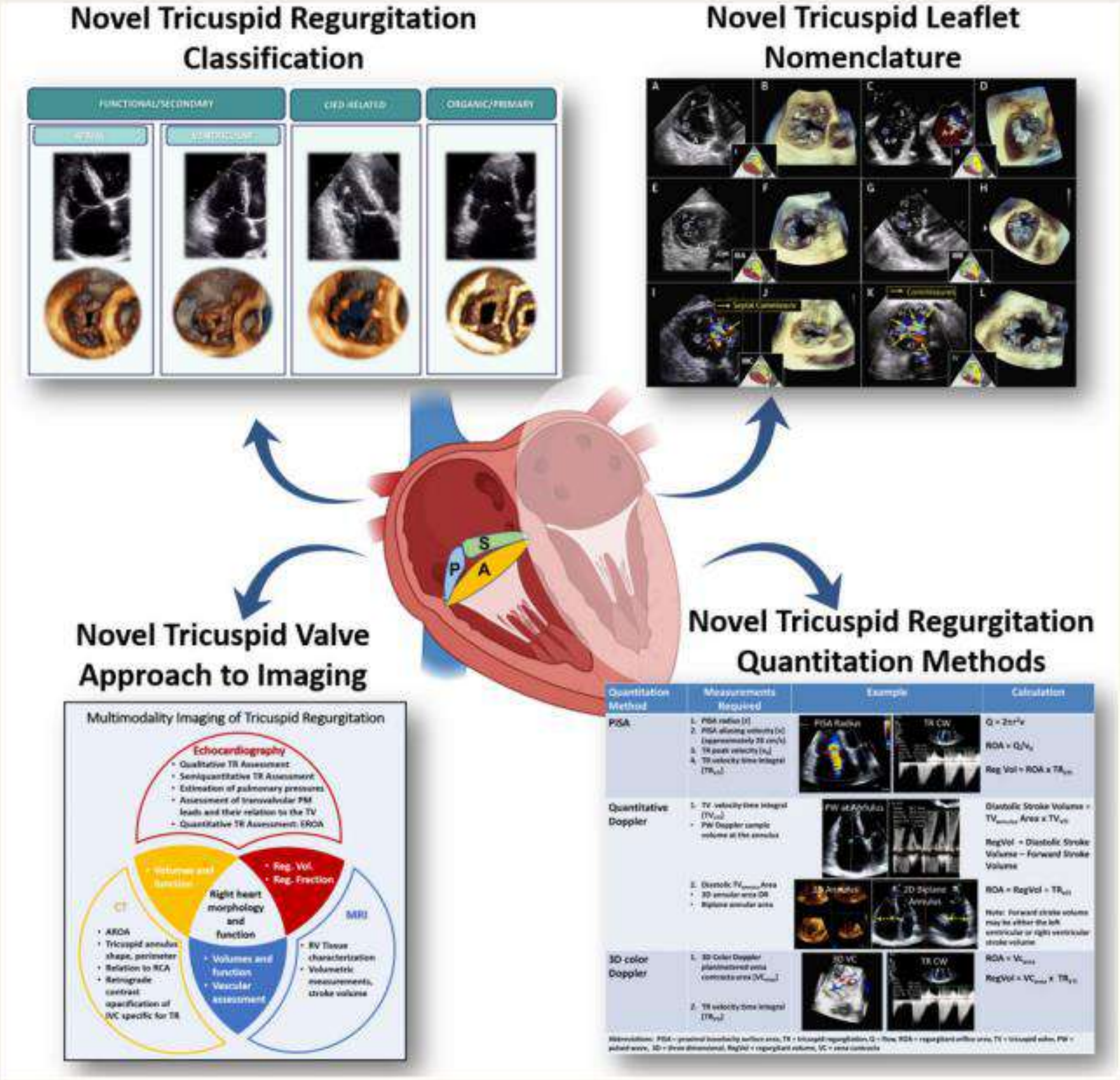


GRUPO COMPLEJO DE PACIENTES. TOMA DE DECISIONES DEL HEART-TEAM PARA EL TRATAMIENTO DE LA IT



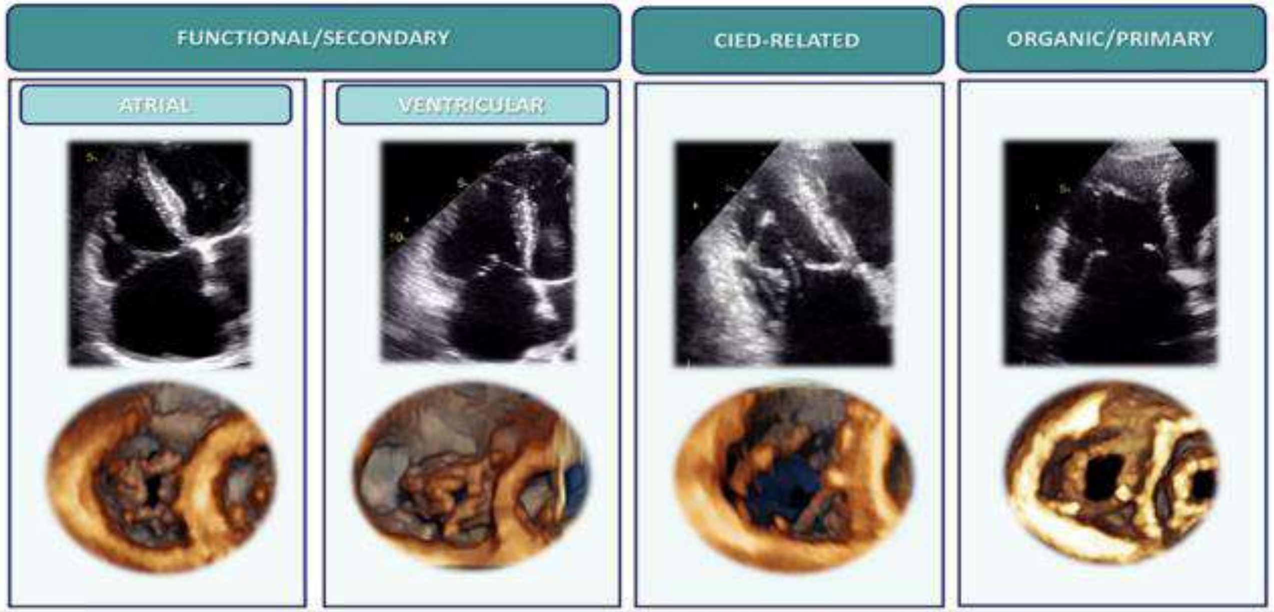
Chang et al. EH

Graphical Abstract



Heightened interest in tricuspid regurgitation (TR) has led to a novel classification of the aetiology of TR, novel leaflet nomenclature, novel ways of quantify-

European Heart Journal - Cardiov
https://doi.org/10.1093/ehjci/jeac00



Parameter	Atrial FTR	Ventricular FTR	CIED-Related	Primary TR	
				Prolapse (I)	RHD (IIIA)
Leaflet Tethering	-	+++	++	-	-
Leaflet Restriction	-	Systole	Systole/Diastole	-	Diastole
RA/TA Dilatation	+++	++	+/-	++	++
RV Dilatation	+/-	+++	+/-	+/-	+/-
RV Dysfunction	+/-	+++	+/-	+/-	+/-

Figure 3 Classification of tricuspid regurgitation.

European Heart Journal - Cardiovascul
https://doi.org/10.1093/ehjci/jeac009

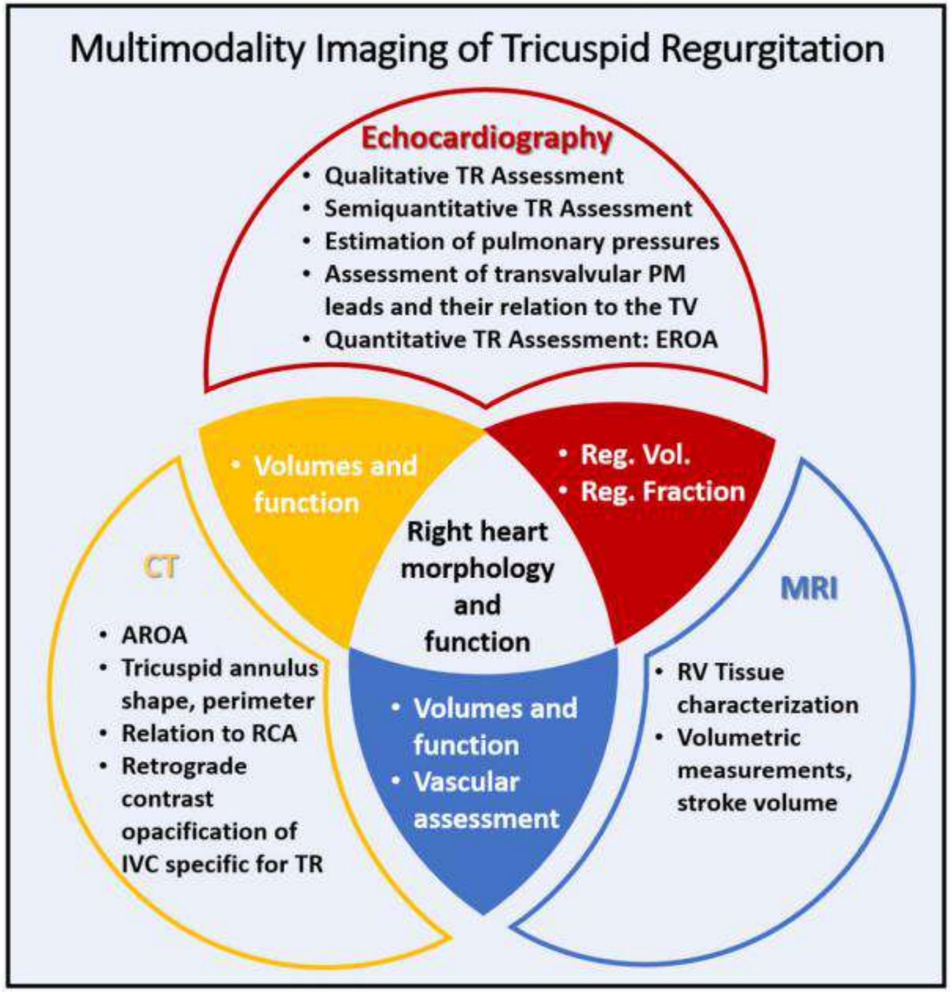
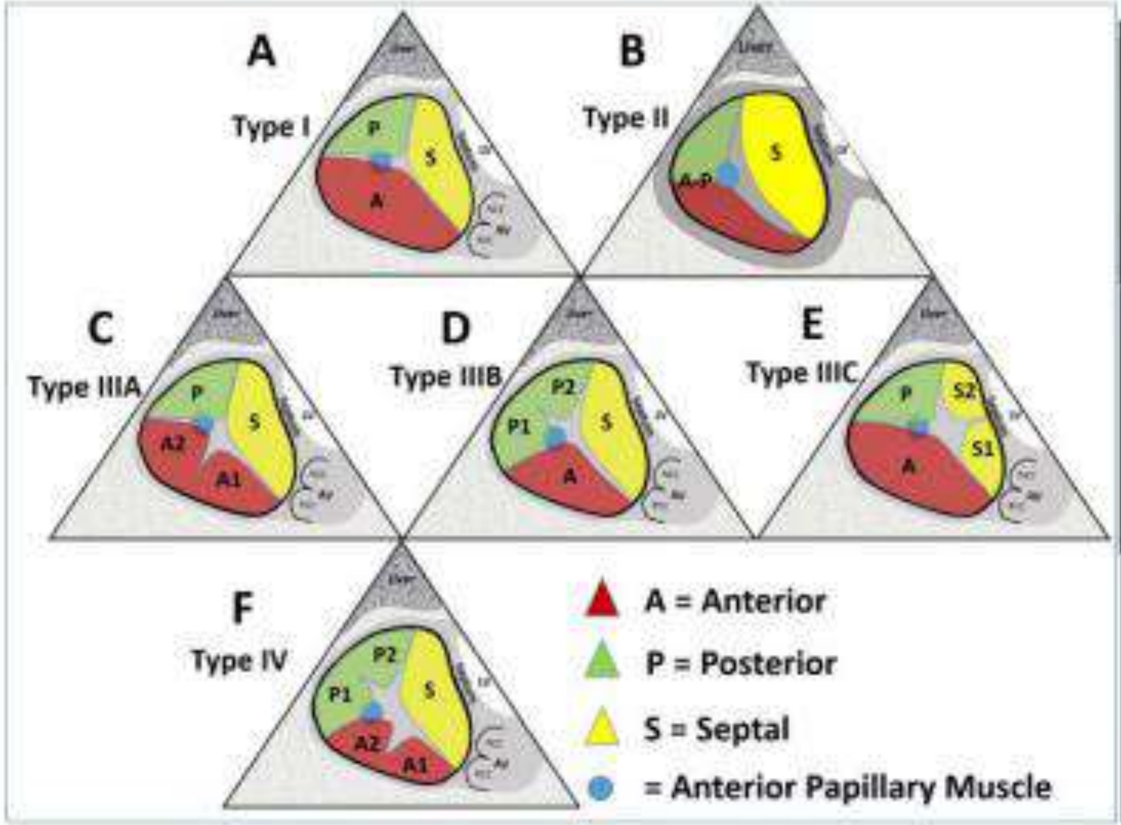


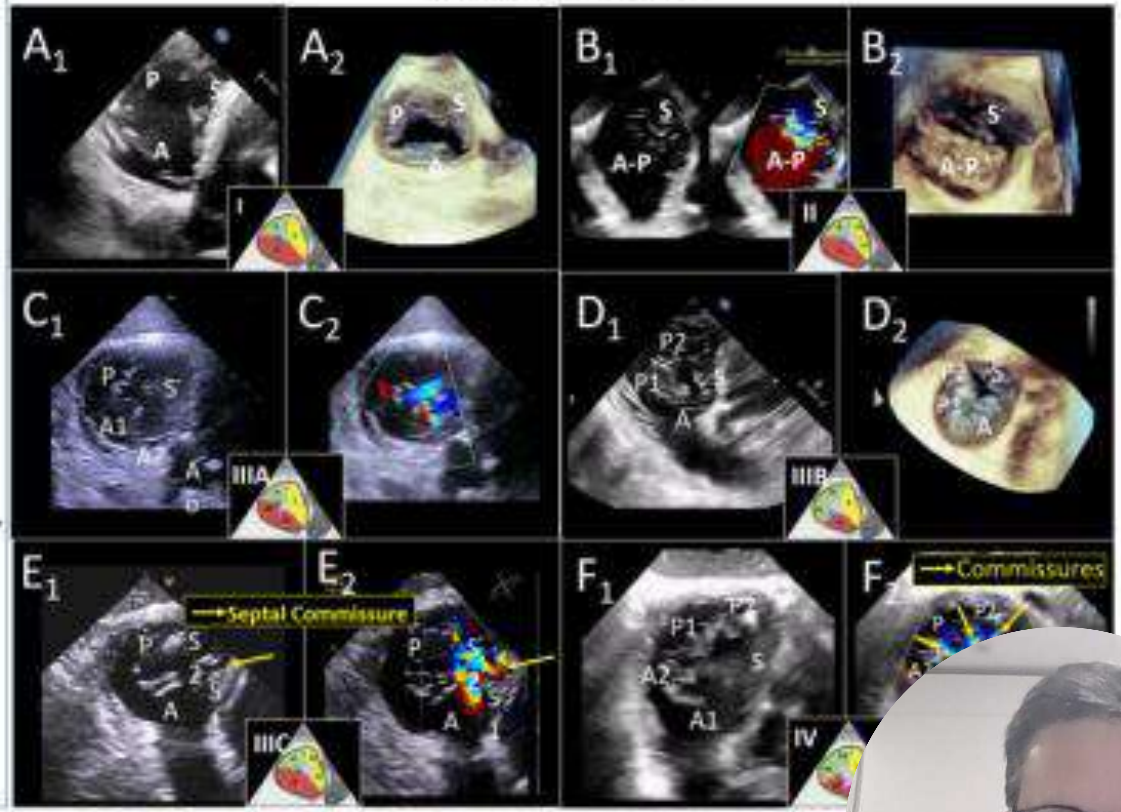
Figure 5 Multimodality assessment of tricuspid regurgitation severity. Different imaging methods give complementary information about tricuspid regurgitation aetiology, anatomic and functional substrates as well as TR severity. AROA = anatomic regurgitant orifice, EROA = effective regurgitant orifice area, CT = computed tomography, IVC = inferior vena cava, MRI = magnetic resonance imaging, PM = pacemaker, RCA = right coronary artery, Reg. Fraction = regurgitant fraction, Reg.Vol. = regurgitant volume, RV = right ventricle, TR = tricuspid regurgitation, TV = tricuspid valve.

European Heart Journal - Cardiovasc
https://doi.org/10.1093/ehjci/jeac009

1. Proposed Tricuspid Nomenclature



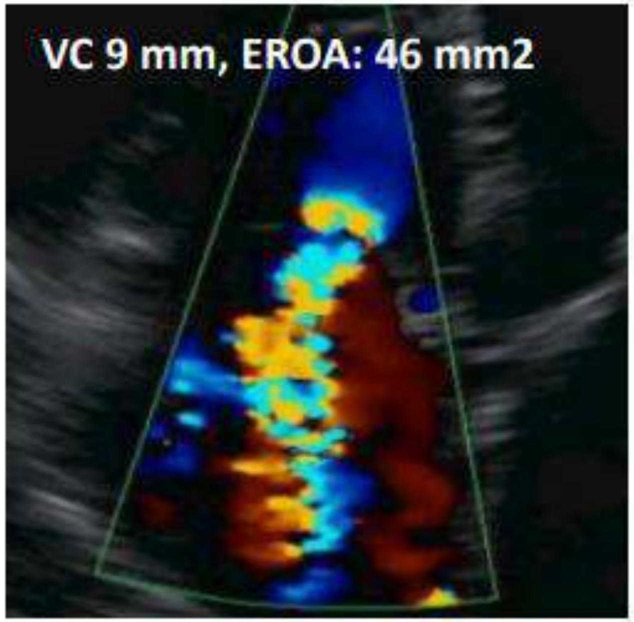
2. Echocardiographic Examples of Tricuspid Valve Morphologies

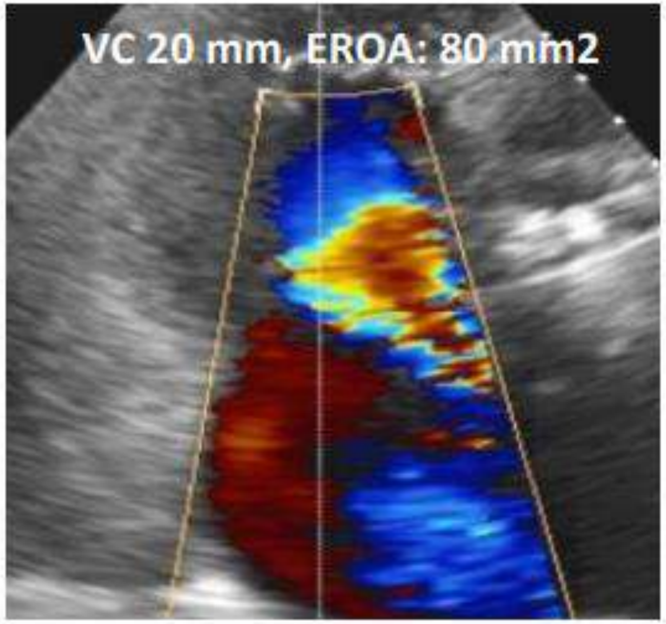


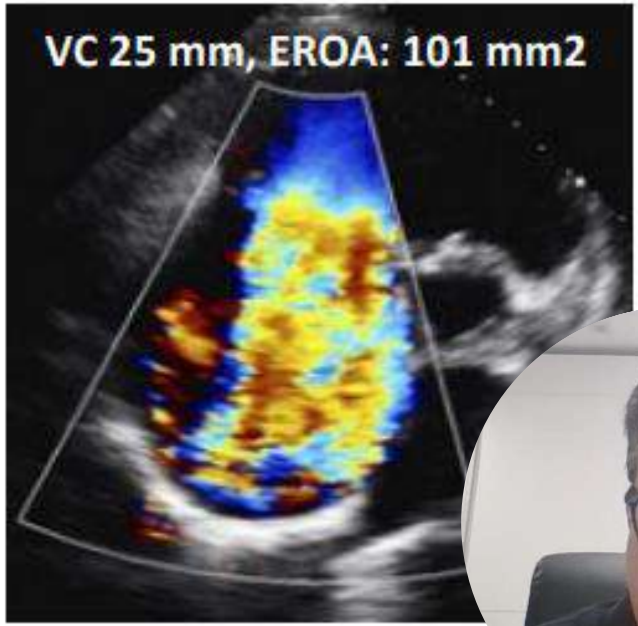
European Heart Journal - Cardiov
https://doi.org/10.1093/ehjci/jeac00

More than one grade of severity of TR

Variable	Mild	Moderate	Severe	Massive	Torrential
VC (biplane)	<3 mm	3-6.9 mm	7–13 mm	14–20 mm	≥21 mm
EROA (PISA)	<20 mm^2	20–39 mm^2	40–59 mm^2	60–79 mm^2	≥80 mm^2
3D VCA or quantitative EROA			75–94 mm^2	95–114 mm^2	≥115 mm^2



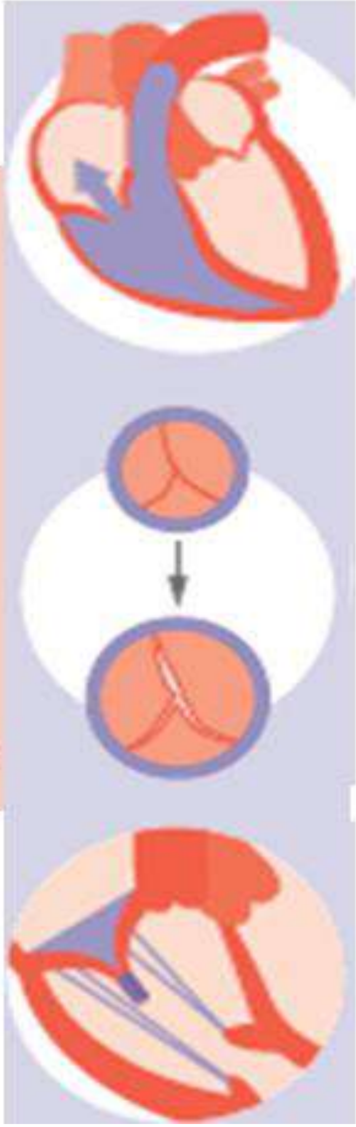


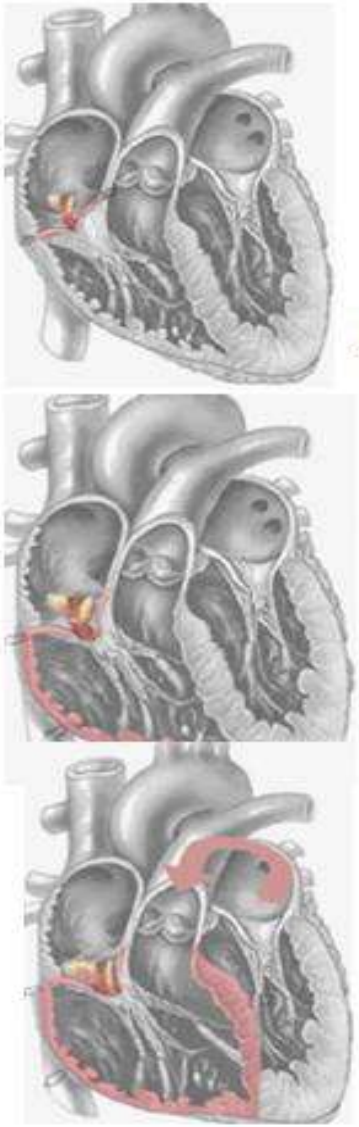


Hahn R, Zamorano JL. Eur Heart J Cardiovasc [illegible] 2017

Anatomical stages in FTR

Stage 1	Stage 2	Stage 3
TR severity: None or mild	TR severity: Mild or moderate	TR severity: Severe
Annular diameter: <40 mm	Annular diameter: >40 mm	Annular diameter: >40 mm
Coaptation mode: Normal (body-to-body), with no leaflet tethering	Coaptation mode: Abnormal (edge-to-edge), with or without tethering of <8 mm below the annular plane	Coaptation mode: No coaptation, with or without tethering of >8 mm below the annular plane





ANNULAR DILATION

ABNORMAL COAPTATION (edge to edge → loss of coaptation)

Progessive RV REMODELING and dysfunction

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Vicious T

Tarama... 15

Dreyfus, G.D. et al. J Am Co... ol. 2015

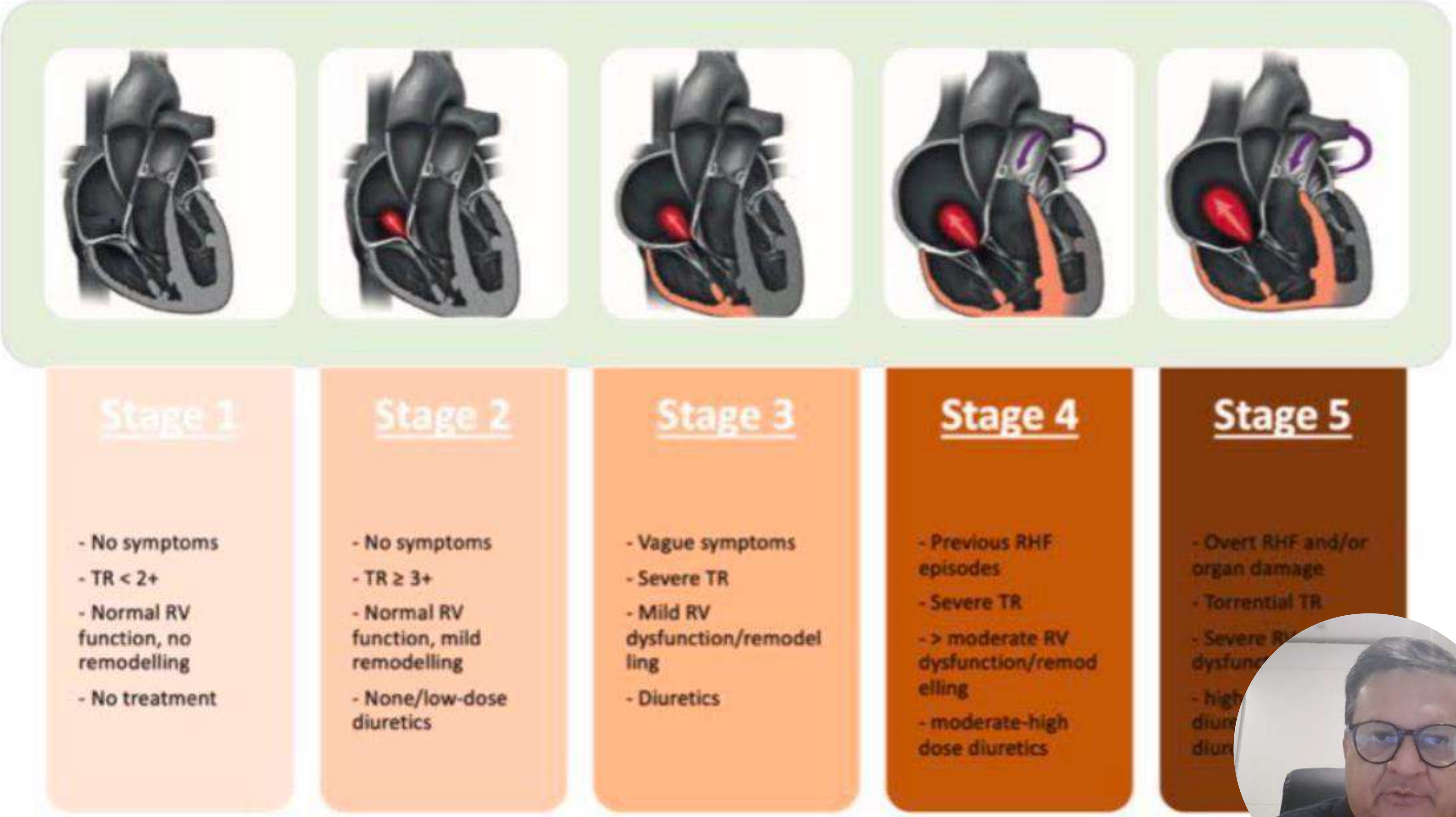
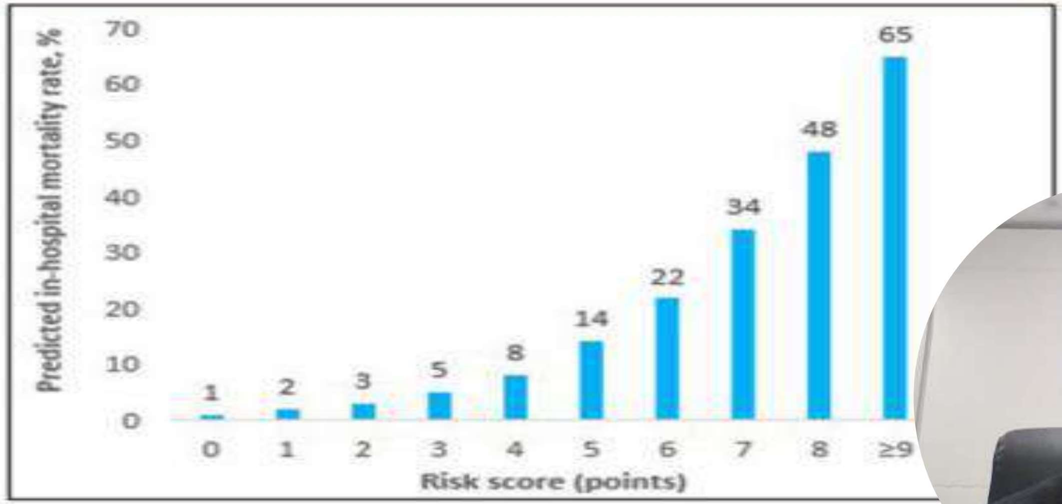


Fig. 1. 5 Stages classification and determinants/characteristics for distribution of patients [Reproduced with permission from].

TRISCORE

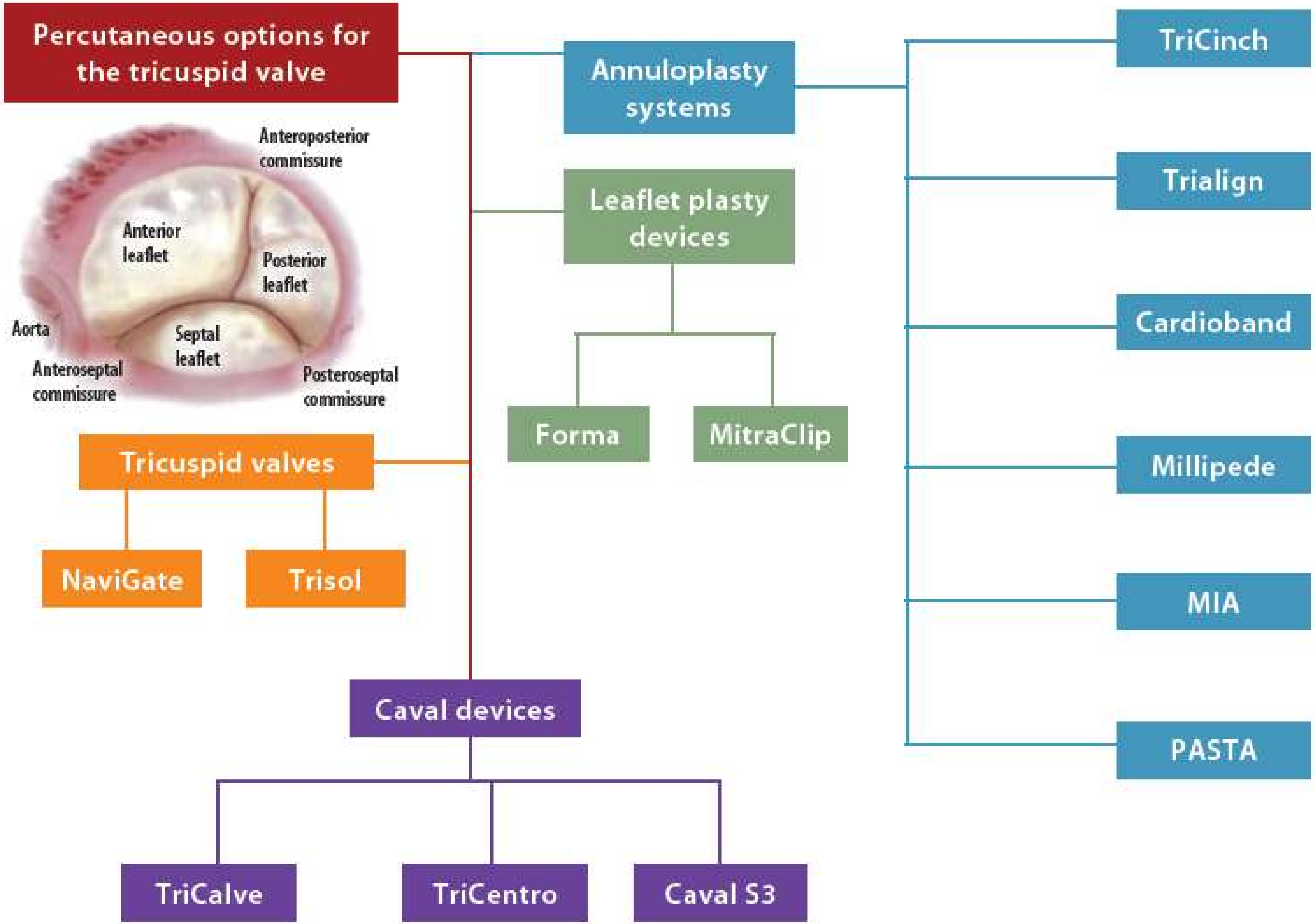
Risk factors and scoring system for in-hospital mortality after isolated tricuspid valve surgery	
Risk factors (final model from multivariate analysis)	**Scoring**
Age ≥ 70 years	1
NYHA functional class III-IV	1
Right-sided heart failure signs	2
Daily dose of furosemide ≥ 125mg	2
Glomerular filtration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

Predicted in-hospital mortality rate according to the final risk score model



European Heart Jour
https://doi.org/10.1093/eu 679

Tricuspid valve transcatheter interventions



1Anatomical challenges for transcatheter tricuspid valve therapies.

- Large tricuspid annulus dimensions with a non-planar and elliptical shape
- Absence of calcifications
- RV morphology (trabeculae, muscle bands, thin apical wall)
- Proximity/contiguity of other structures (coronary sinus, AV node and bundle of His, venae cavae, right coronary artery)
- Angulation of the annulus in relation to the superior vena ca inferior vena cava

Real life world experience

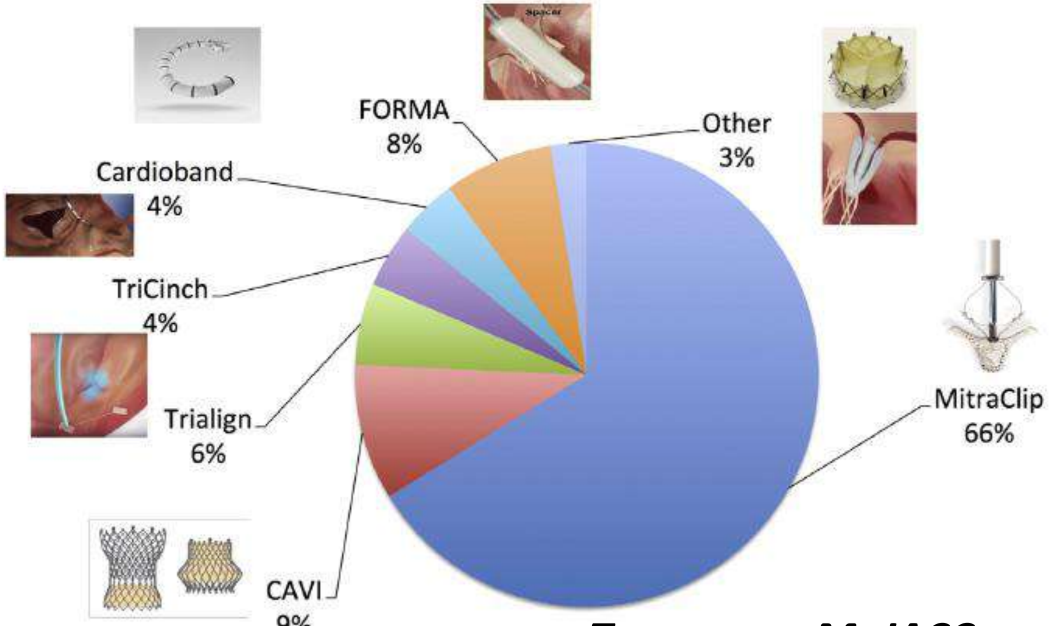
312 patients with severe or greater symptomatic TR underwent TTVI
and were included in the registry across 18 centers

The International Multicenter TriValve Registry

Which Patients Are Undergoing Transcatheter Tricuspid Repair?

Outcomes After Current Transcatheter Tricuspid Valve Intervention

Mid-Term Results From the International TriValve Registry



Taramasso M. JACC cardiovascular interventio... & 2018

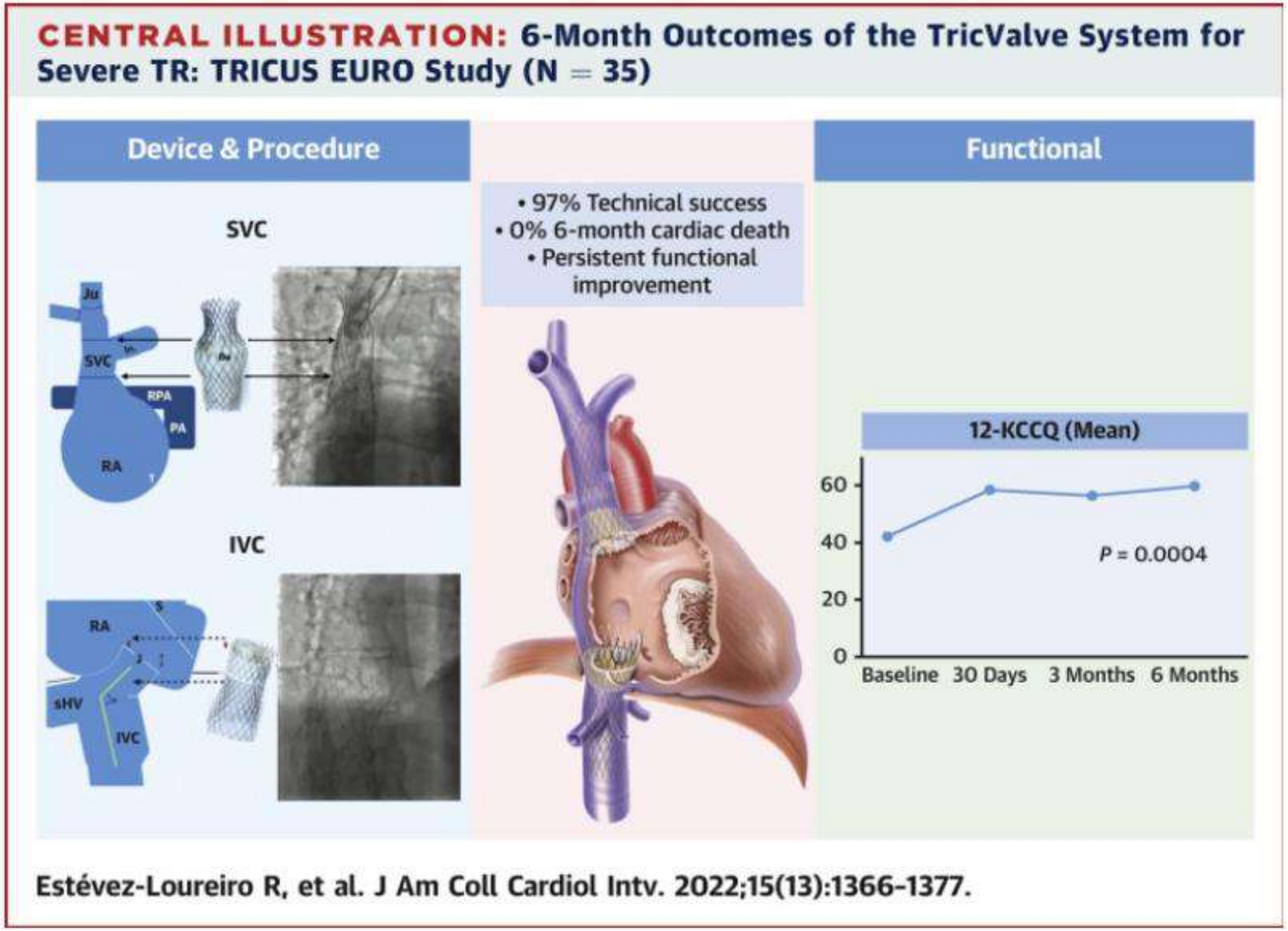
TRICVALVE HETEROTOPIC SOLUTION

Table 3. Main clinical and hemodynamic eligibility criteria for the TRICUS Study and TRICUS EURO.

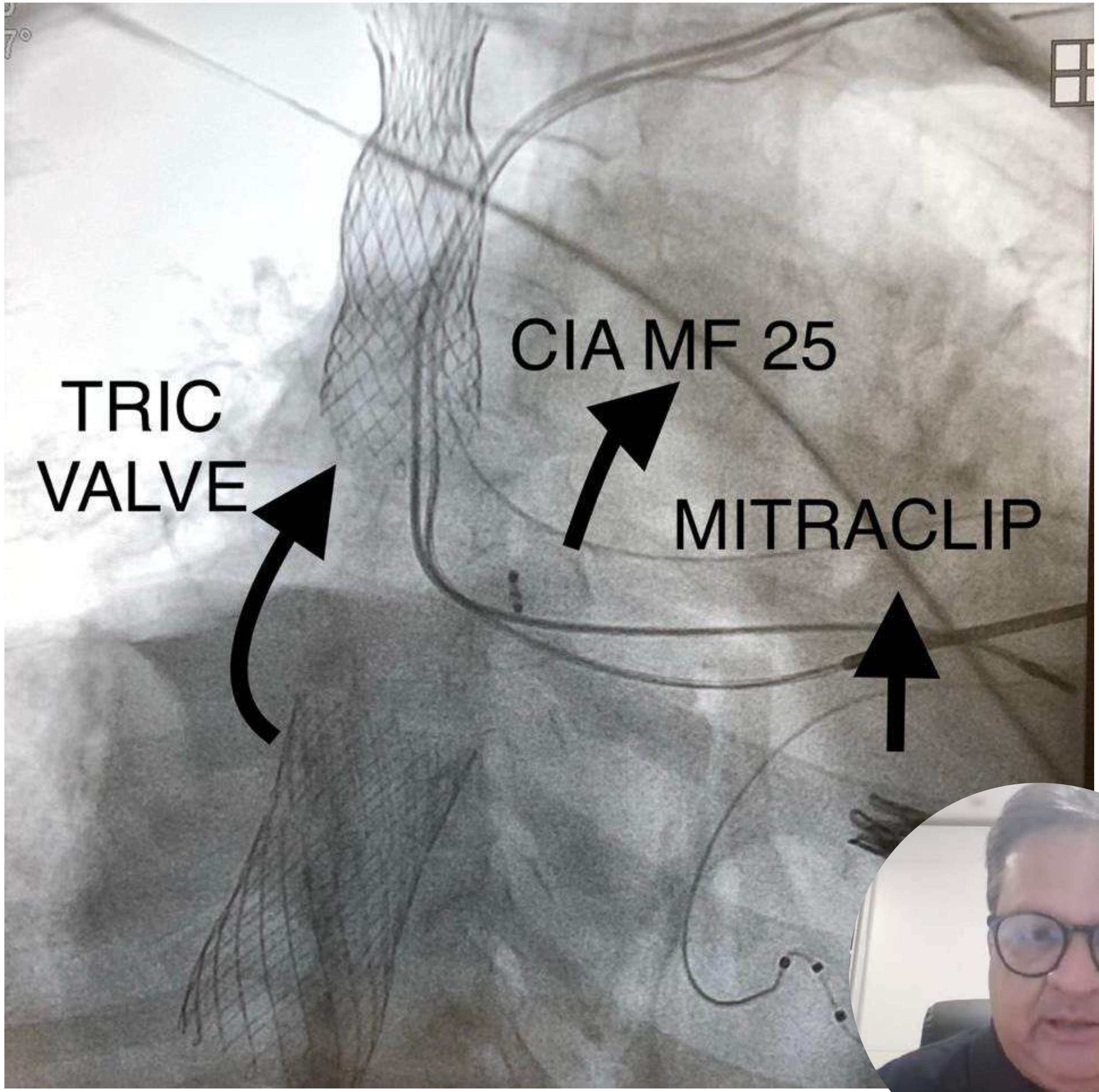
Inclusion Criteria
Clinical
• Severe symptomatic TR demonstrated by echocardiography with significant backflow in the IVC and/or SVC • NYHA functional Class III or IV despite OMT • LVEF $\geq$ 40% • Distance covered in 6-min walk test $\geq$ 60 m • The patient shall be screened by a "Heart Team" (including interventional cardiologist and cardiac surgeon)
Hemodynamic
• Tricuspid v-wave $\geq$ 25 mmHg as demonstrated by right heart catheterization (mea IVC and/or SVC • Systolic arterial pulmonary pressure < 65 mmHg

Exclusion Criteria
Clinical • Right ventricular failure (TAPSE $\leq$ 13 mmHg) • Systolic pulmonary arterial pressure > 65 mmHg as assessed by Doppler echocardiography • Untreated significant left sided valvular heart disease which requires treatment • Requirement for other elective cardiac procedures (i.e., PCI, CABG, etc) • Liver cirrhosis Child C • Serum creatinine > 3.0 mg/dl or on dialysis • Intra-cardiac shunt or congenital structural heart disease based on heart teams decision • Documented primary coagulopathy or platelet disorder, or thrombocytopenia (absolute platelet count < 90 k) • Contraindication or known allergy to device's components, or VKA • Thrombosis of the lower venous system or vena cava filter • Life expectancy to less than one year for a non-cardiac condition

CABG: Coronary-Artery Bypass Graft. IVC: Inferior Vena Cava. LVEF: Left Ventricular Ejection Fracti
New York Heart Association. OMT: Optimal Medical Therapy. PCI: Percutaneous Coronary Interve
Superior Vena Cava. TR: Tricuspid Regurgitation. VKA: Vitamin K Antagonist.


CENTRAL ILLUSTRATION: 6-Month Outcomes of the TricValve System for Severe TR: TRICUS EURO Study (N = 35)
Device & Procedure
SVC
Ju
SVC
RPA
PA
RA
IVC
RA
S
sHV
IVC
• 97% Technical success
• 0% 6-month cardiac death
• Persistent functional improvement
Functional
12-KCCQ (Mean)
60
40
20
0
P = 0.0004
Baseline
30 Days
3 Months
6 Months
Estévez-Loureiro R, et al. J Am Coll Cardiol Intv. 2022;15(13):1366-1377.

PRIMEIRA TRICVALVE NO BRASIL



POS IMPLANTATION CARE

- VENTRICULARIZATION OF RA PRESSURE
- RV DYSFUNCTION
- PROSTHESIS MALFUNCTION WITH MINIMUM BACKFLOW
- SHOULDER PAIN
- TEMPORARY PLATELET COUNT DECREASE
- MIGRATION

MUCHAS GRACIAS POR SÚ ATENCIÓN!

marciojmontenegro@gmail.com
MARCIO MONTENEGRO
@MarciMonteg

4Valves TV