



Automated CT analysis to predict post-interventional reduction of tricuspid regurgitation

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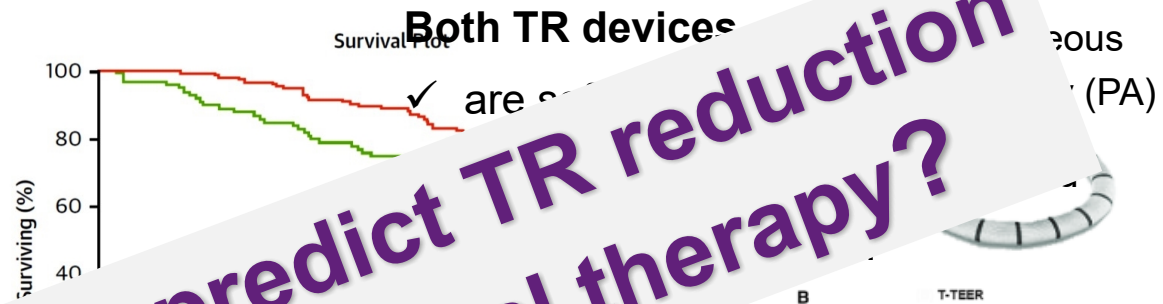
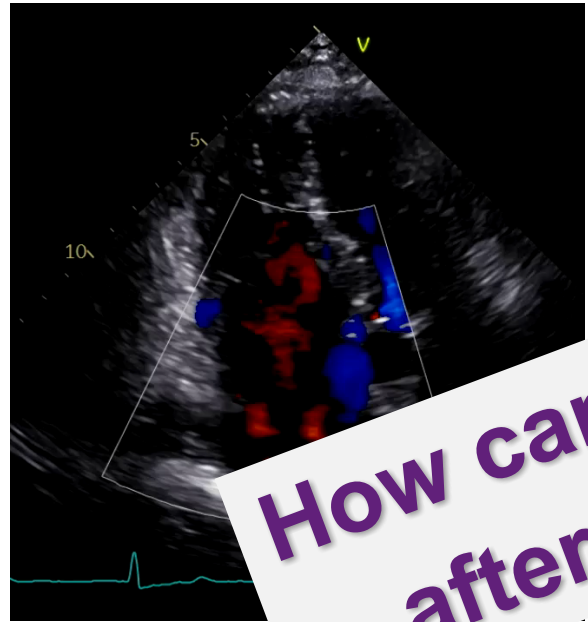
Potential conflicts of interest

Speaker's name : Isabel Mattig

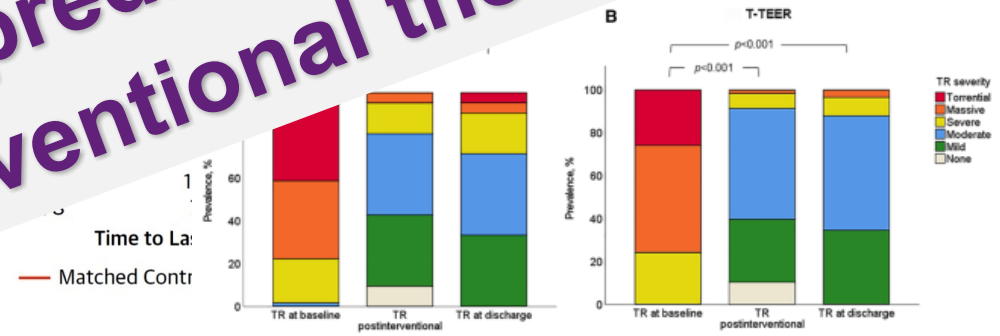
I have the following potential conflicts of interest to declare:

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Why this study?



How can we predict TR reduction after interventional therapy?



Topilsky et al. Burden of Tricuspid Regurgitation in Patients Diagnosed in the Community Setting. JACC Cardiovasc Imaging. 2019;12(3):433-42. | Russo et al. Challenges and future perspectives of transcatheter tricuspid valve interventions: adopt old strategies or adapt to new opportunities? Eur J Heart Fail. 2021. | Mattig et al. Comparison of procedural characteristics of percutaneous annuloplasty and edge-to-edge repair for the treatment of severe tricuspid regurgitation. Front Cardiovasc Med. 2023;10:1232327. | Sorajja et al. Transcatheter Repair for Patients with Tricuspid Regurgitation. N Engl J Med. 2023.

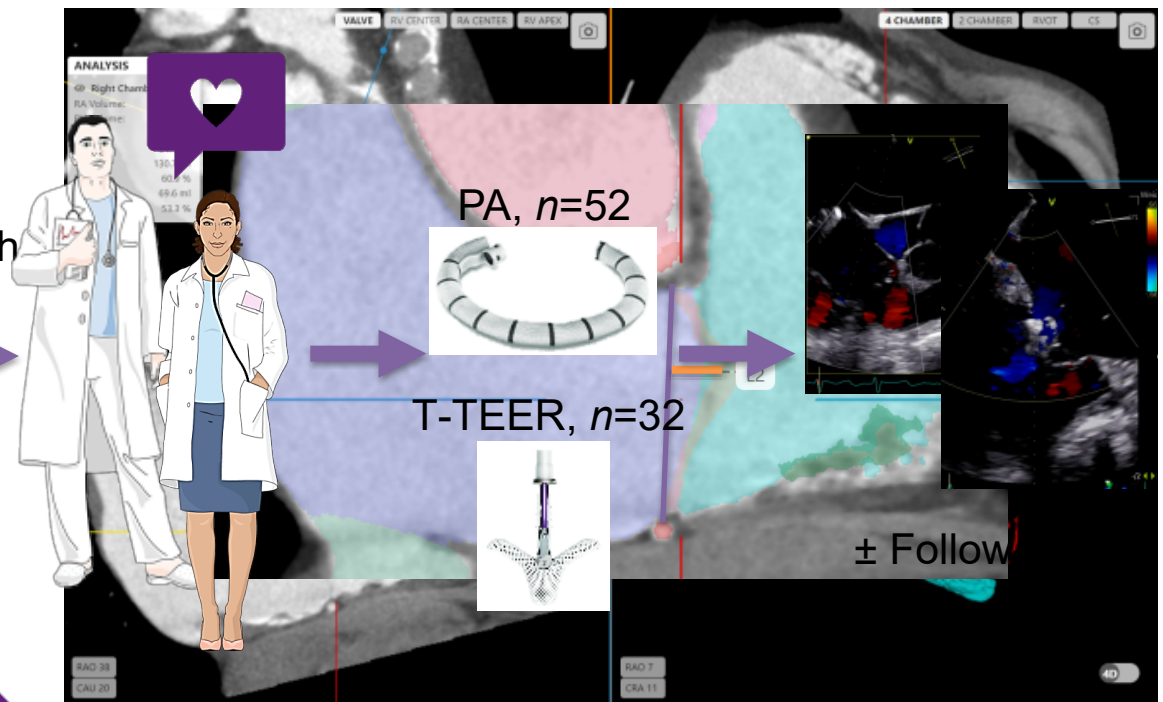
What did we study?

Potential **predictors of residual TR** after interventional therapy using automated deep learning **CT analysis.**



How was the study executed?

- CT was performed before
- Intervention
- at a tertiary center, Munich
- Transcatheter tricuspid
- and
- ph
- ing h
- measured



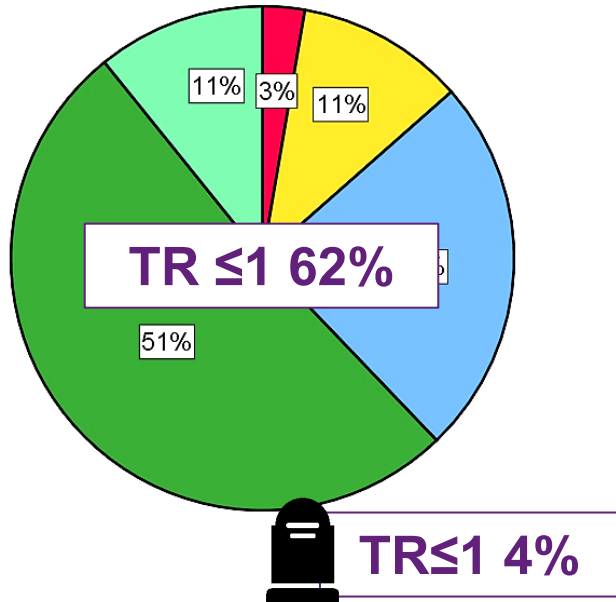
Russo et al. Challenges and future perspectives of transcatheter tricuspid interventions: adopt old strategies or adapt to new opportunities? Eur J Heart Fail. 2021. | Parts of the figure were drawn by using pictures from Servier Medical Art. Servier Medical Art by Servier is licensed under a Creative Commons Attribution 3.0 Unported License (<https://creativecommons.org/licenses/by/3.0/>).

What are the essential results?

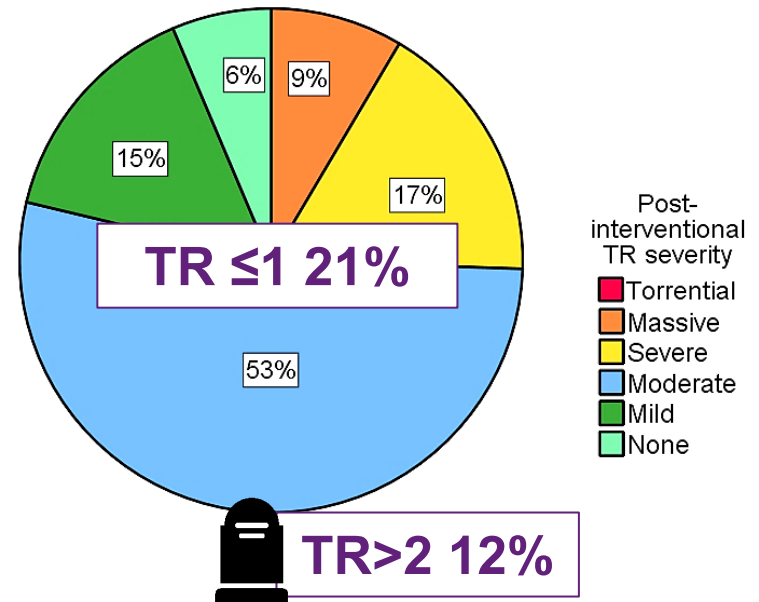
Baseline characteristics.			
Automated computed tomography analysis.			
	T-TEER (<i>n</i> =32)	PA (<i>n</i> =52)	<i>p</i> -Value
6.8mm			
LVEF, % ± SD	58±11	59±11	0.673
RA volume, ml ± SD	291±96	9.2mm 307±98	0.448
RV EF, % ± SD	55±8	55±8	0.755
RV EDV, ml (IQR)	224 (183-293)	248 (199-297)	0.570
TV area mid-diastolic, mm ² (IQR)	1798 (1550-2049)	1701 (1550-2013), <i>n</i> =50	0.683
Tenting height, mm (IQR)	8 (5-11)*	10 (7-12)	0.098
Tenting angle septal leaflet, ° (IQR)	17 (10-26)	27 (16-38), <i>n</i> =51	0.010
Tenting angle anterior leaflet, ° (IQR)	23 (16-34)*	26 (19-33), <i>n</i> =51	0.304
Tenting angle posterior leaflet, ° (IQR)	23 (14-31)	26 (17-36), <i>n</i> =51	0.362

What are the essential results?

Tenting height (CT)
<6.8mm in T-TEER and
<9.2mm in PA patients



Tenting height (CT)
≥6.8mm in T-TEER and
≥9.2mm in PA patients



Post-interventional TR severity

- Torrential
- Massive
- Severe
- Moderate
- Mild
- None

Why is this important?

- Predictors of post-interventional TR reduction remain limited
- Tenting height (CT prior to T-TEER and PA) was associated with residual TR after intervention
- Proposed thresholds: 6.8mm (T-TEER) and 9.2mm (PA)
- Limitations: small sample size, combined retro- and prospective design
- Further studies also incorporating orthotopic and heterotopic valve implantations are necessary to optimize procedural planning and device selection

The essentials to remember

What? TR therapy is an evolving field. Predictors of TR reduction are limited.

Why? Potential predictors of residual TR after interventional therapy.

How? Automated deep learning CT analysis prior to T-TEER and PA.

What are the results? Tenting height was associated with $TR \leq 1$.

Why is this important? To optimize procedural planning and device selection.

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