

Beyond Rest: Exercise TAPSE/PASP in TR

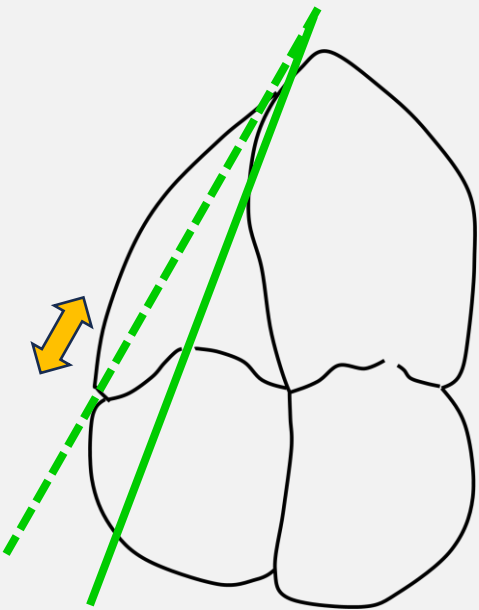
Session : Cutting-edge insights in tricuspid regurgitation
EUROVALVE 2025 Congress

Tadafumi Sugimoto

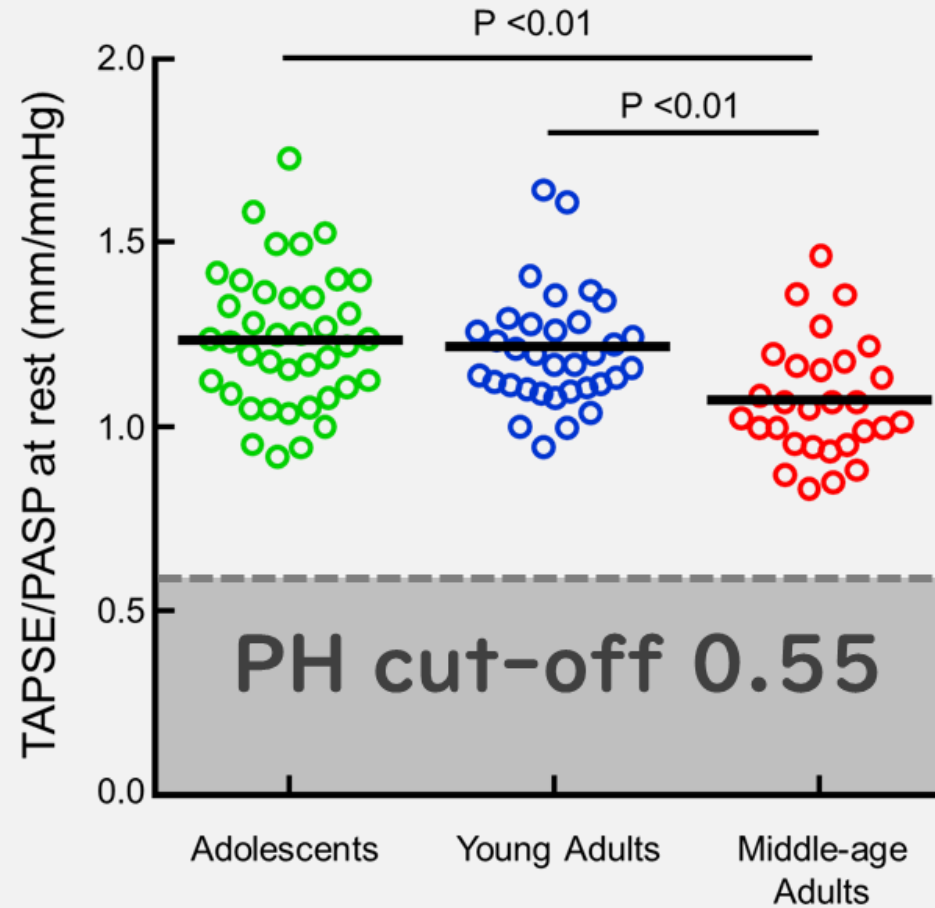
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What is TAPSE/PASP?

**TAPSE/PASP
(M-mode/CW Doppler)**

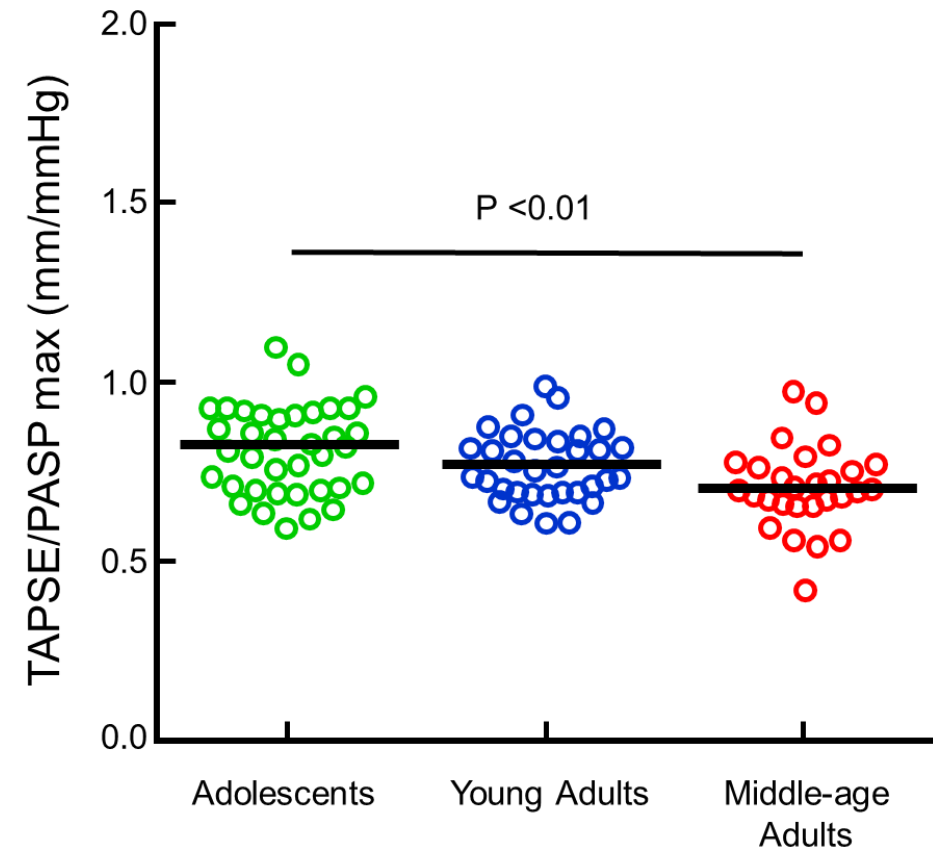
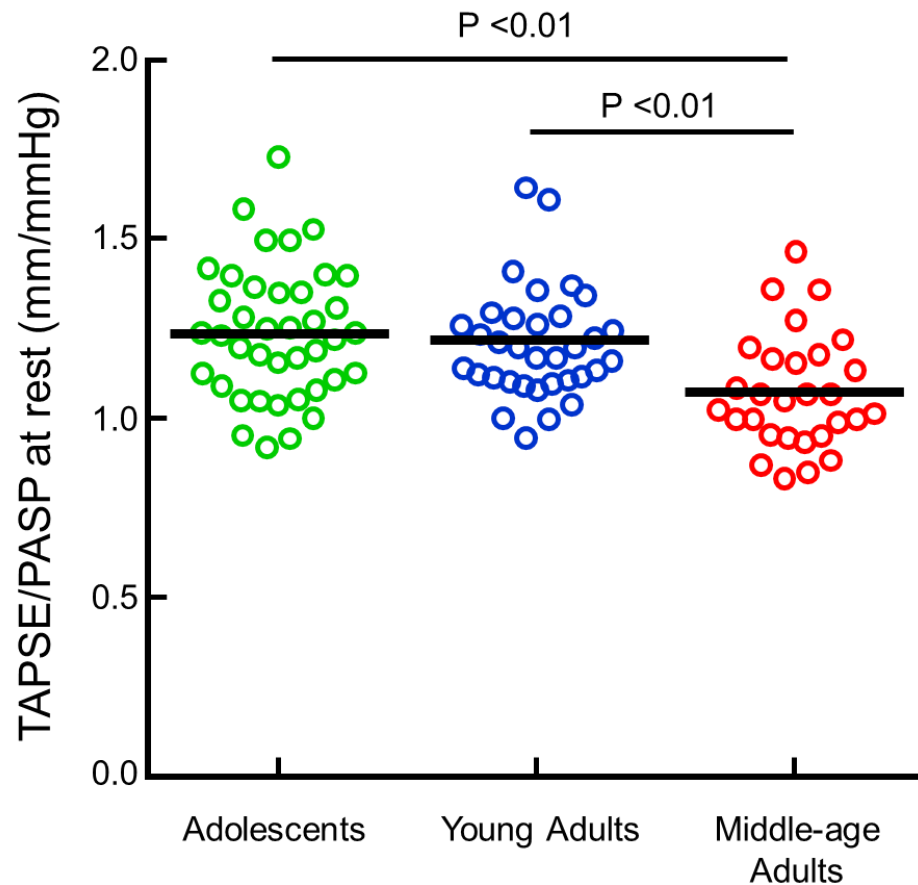


$$\text{PASP} = \text{TRPG} + \text{RAP}$$



**In healthy subjects:
No sex differences
Declines with aging**

Physiological changes with aging and during exercise in healthy subjects

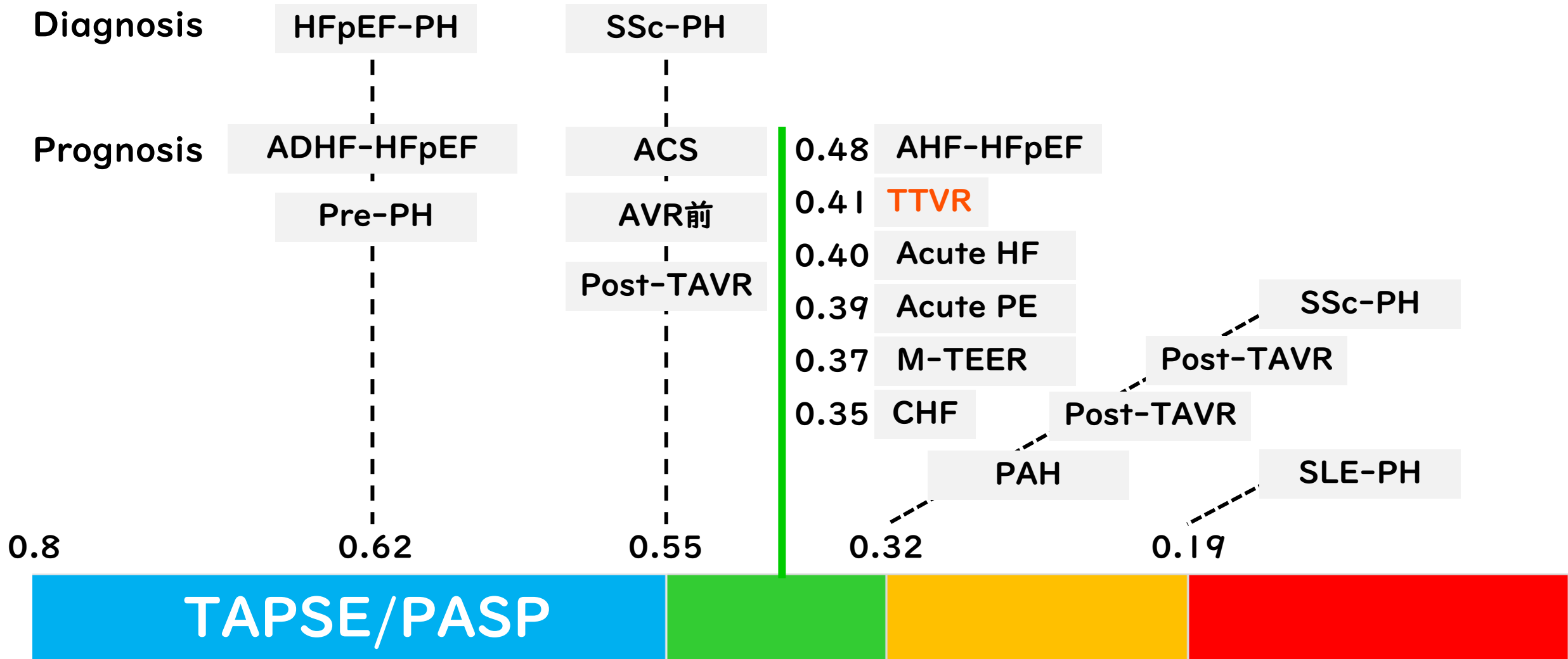


Echocardiographic Evaluation of PH Severity

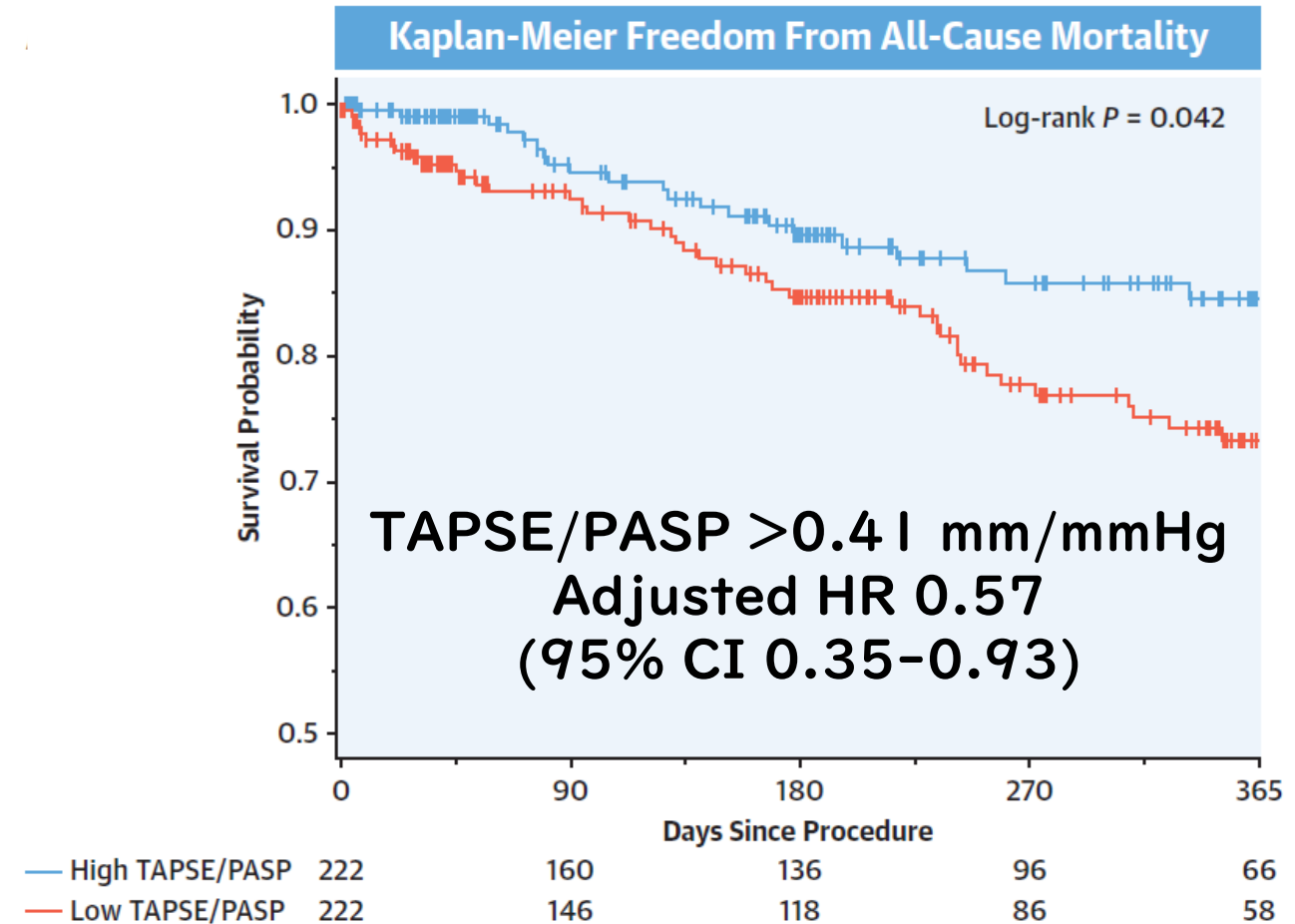
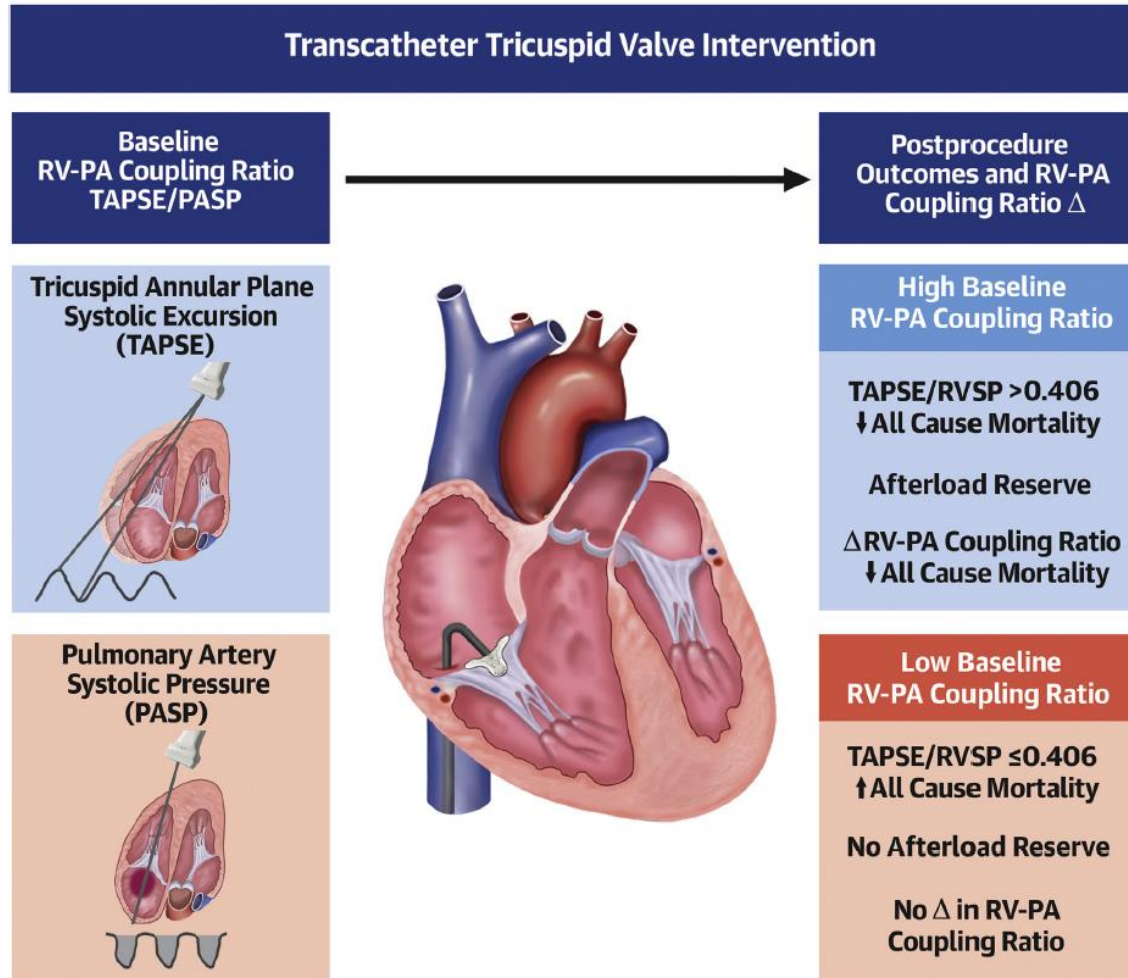
Determinants of prognosis (estimated 1-year mortality)	Low risk (<5%)	Intermediate risk (5–20%)	High risk (>20%)
Clinical observations and modifiable variables			
Signs of right HF	Absent	Absent	Present
Progression of symptoms and clinical manifestations	No	Slow	Rapid
Syncope	No	Occasional syncope ^a	Repeated syncope ^b
WHO-FC	I, II	III	IV
6MWD ^c	>440 m	165–440 m	<165 m
CPET	Peak VO ₂ >15 mL/min/kg (>65% pred.) VE/VCO ₂ slope <36	Peak VO ₂ 11–15 mL/min/kg (35–65% pred.) VE/VCO ₂ slope 36–44	Peak VO ₂ <11 mL/min/kg (<35% pred.) VE/VCO ₂ slope >44
Biomarkers: BNP or NT-proBNP ^d	BNP <50 ng/L NT-proBNP <300 ng/L	BNP 50–800 ng/L NT-proBNP 300–1100 ng/L	BNP >800 ng/L NT-proBNP >1100 ng/L
Echocardiography	RA area <18 cm ² TAPSE/sPAP >0.32 mm/mmHg No pericardial effusion	RA area 18–26 cm ² TAPSE/sPAP 0.19–0.32 mm/mmHg Minimal pericardial effusion	RA area >26 cm ² TAPSE/sPAP <0.19 mm/mmHg Moderate or large pericardial effusion



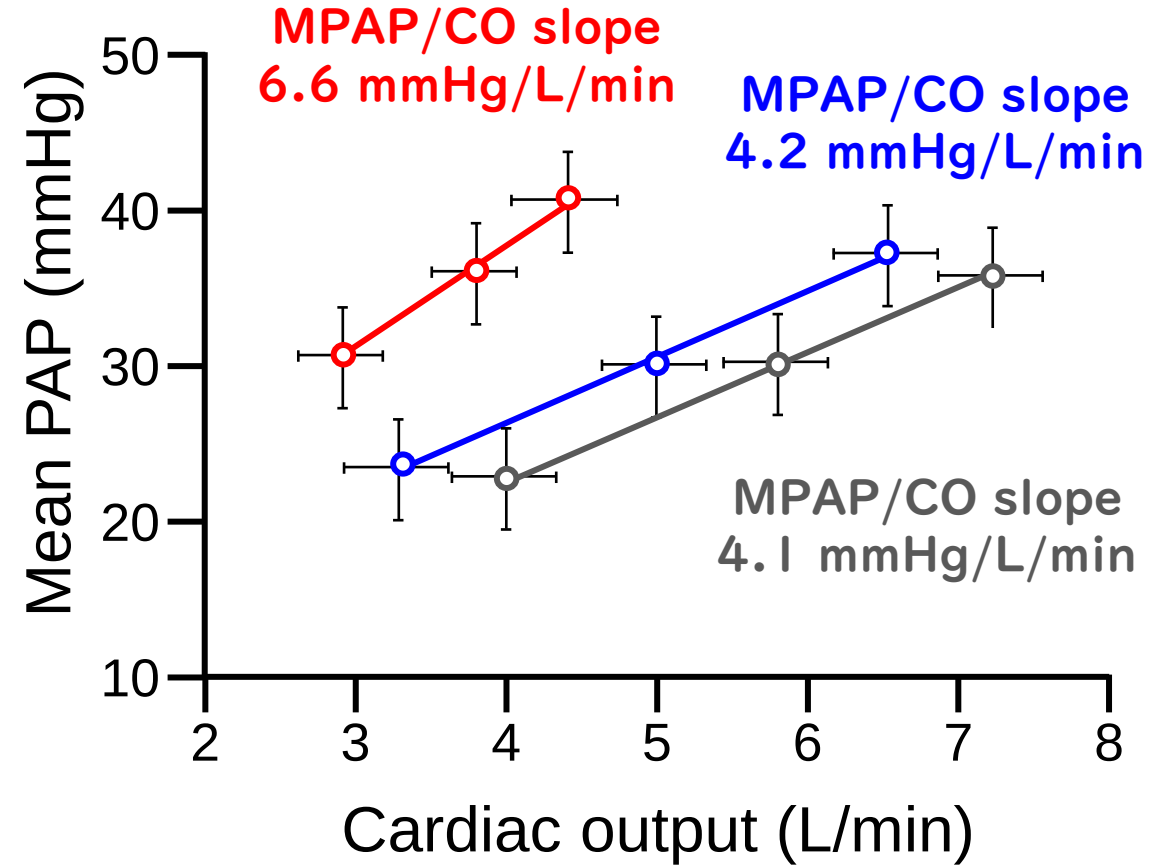
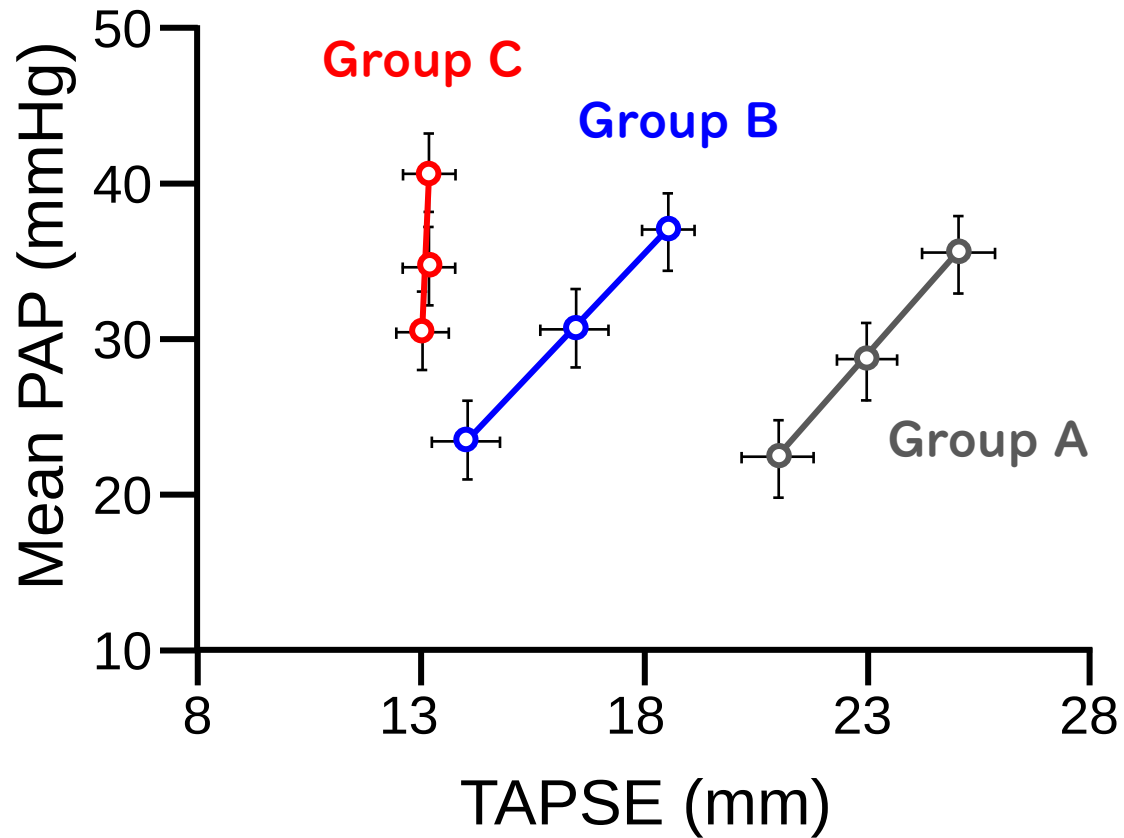
Cutoff Value of TAPSE/PASP



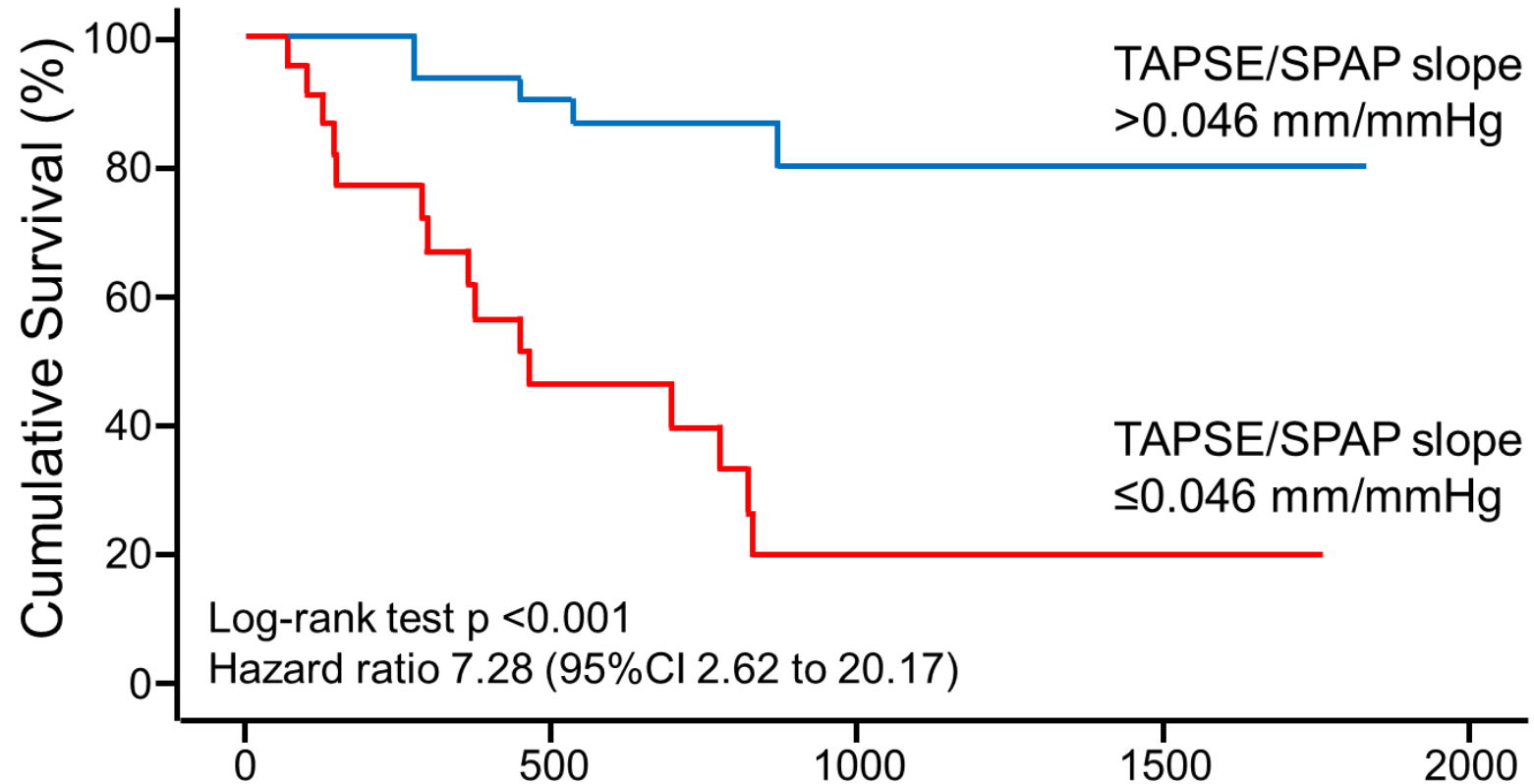
Prognostic value of TAPSE/PASP before TTVR



Exercise PAP and TAPSE in Chronic HF



Exercise TAPSE/PASP slope in severe TR



TAPSE/SPAP slope

>0.046 mm/mmHg 40

24

10

4

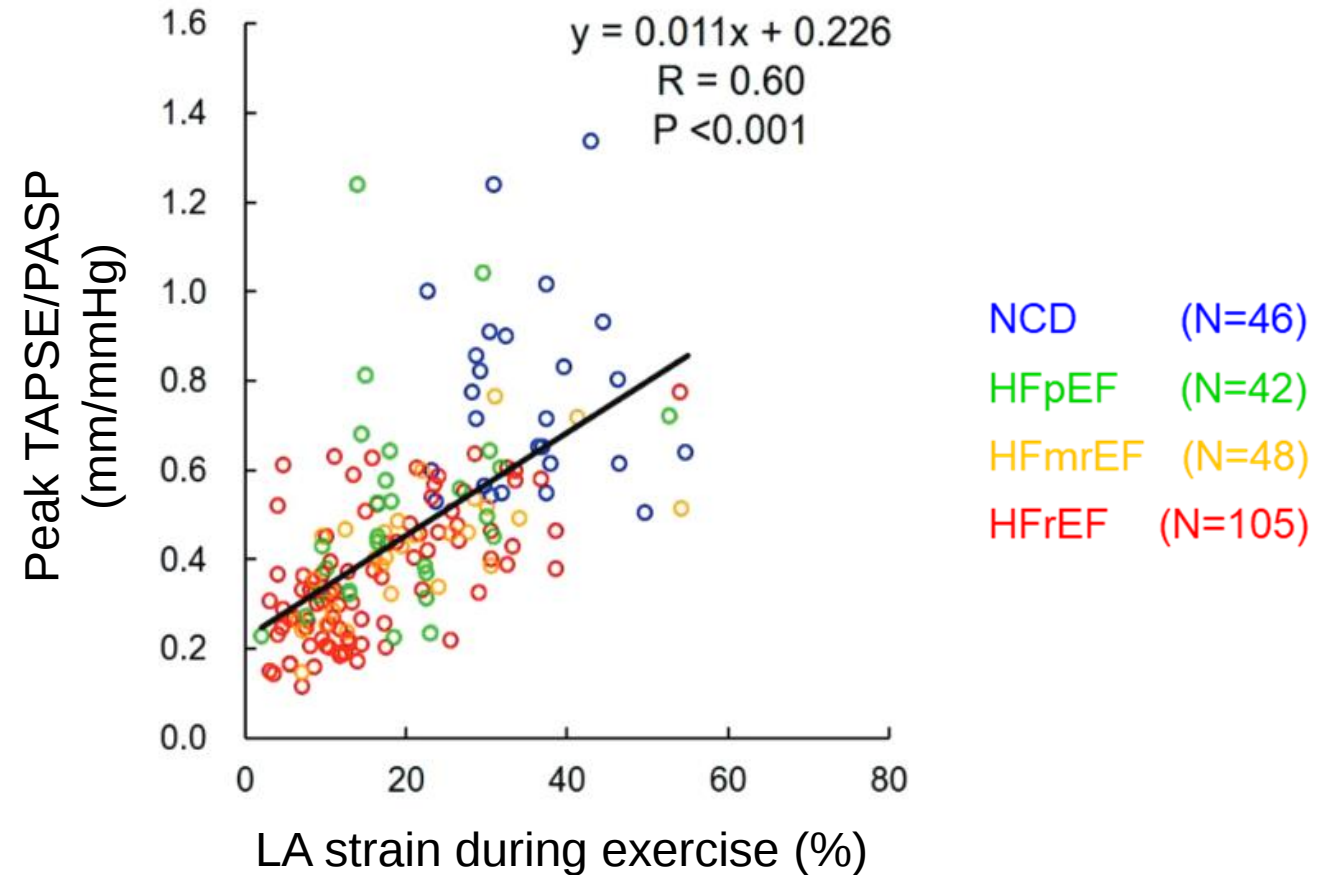
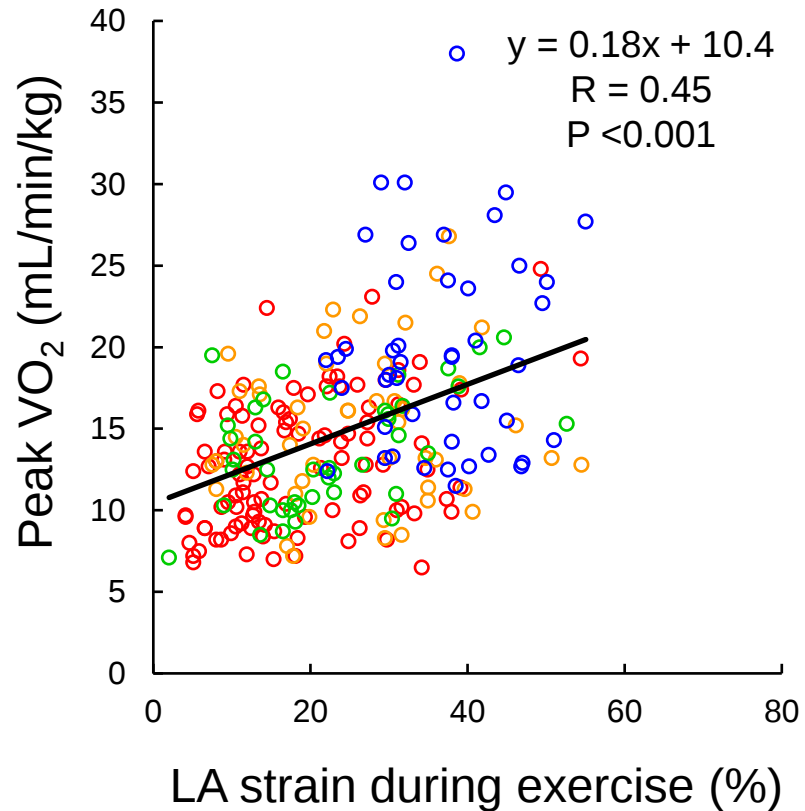
≤0.046 mm/mmHg 24

9

3

1

LA function and TAPSE/PASP during Exercise



Key messages

- ✓ TAPSE/PASP serves not only as a screening tool for PH, but also as a valuable prognostic marker across a variety of cardiovascular diseases.
- ✓ In patients undergoing transcatheter tricuspid valve repair, resting TAPSE/PASP has been shown to predict survival, with a cutoff value of 0.4 l mm/mmHg.
- ✓ Exercise TAPSE/PASP provides a more sensitive reflection of dynamic changes in severe TR and may allow for more refined prognostic stratification in the future.