

Improvement in Clinical and Echo Parameters After Aspiration Thrombectomy for Treatment of Acute Pulmonary Embolism

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Background

- To evaluate recovery in patients with acute pulmonary embolism (PE), clinicians rely on clinical parameters and imaging.
- Right ventricular (RV) size and clot burden are typically evaluated by using computed tomography; however, echocardiography (echo) has also proven to provide clinically meaningful measures of RV function.
- This study evaluated improvement in clinical and echo parameters after treating acute PE patients with computer-aided mechanical aspiration thrombectomy with the Indigo Lightning 12 Aspiration System (Lightning 12, Penumbra, Inc., Alameda, CA).

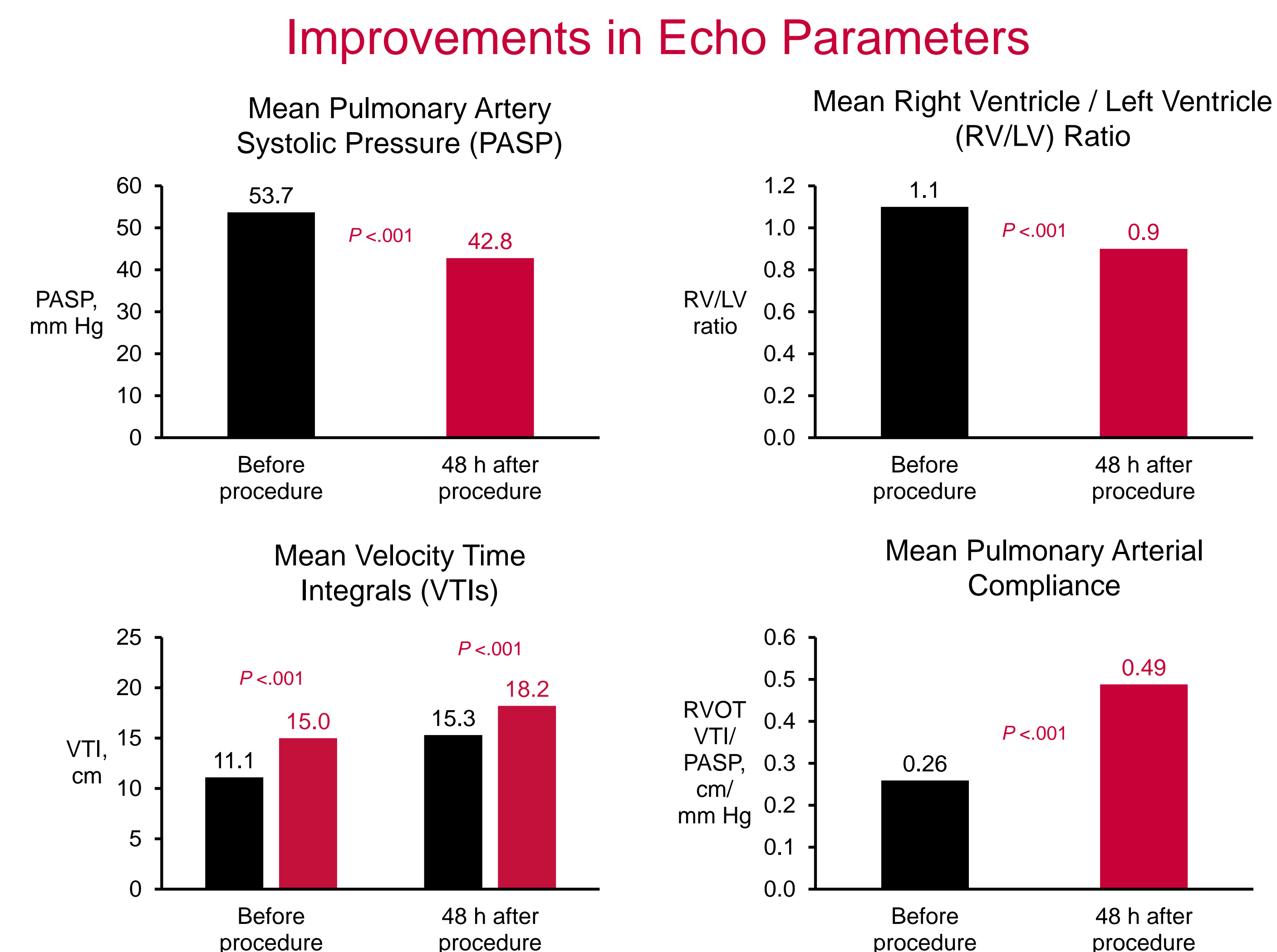
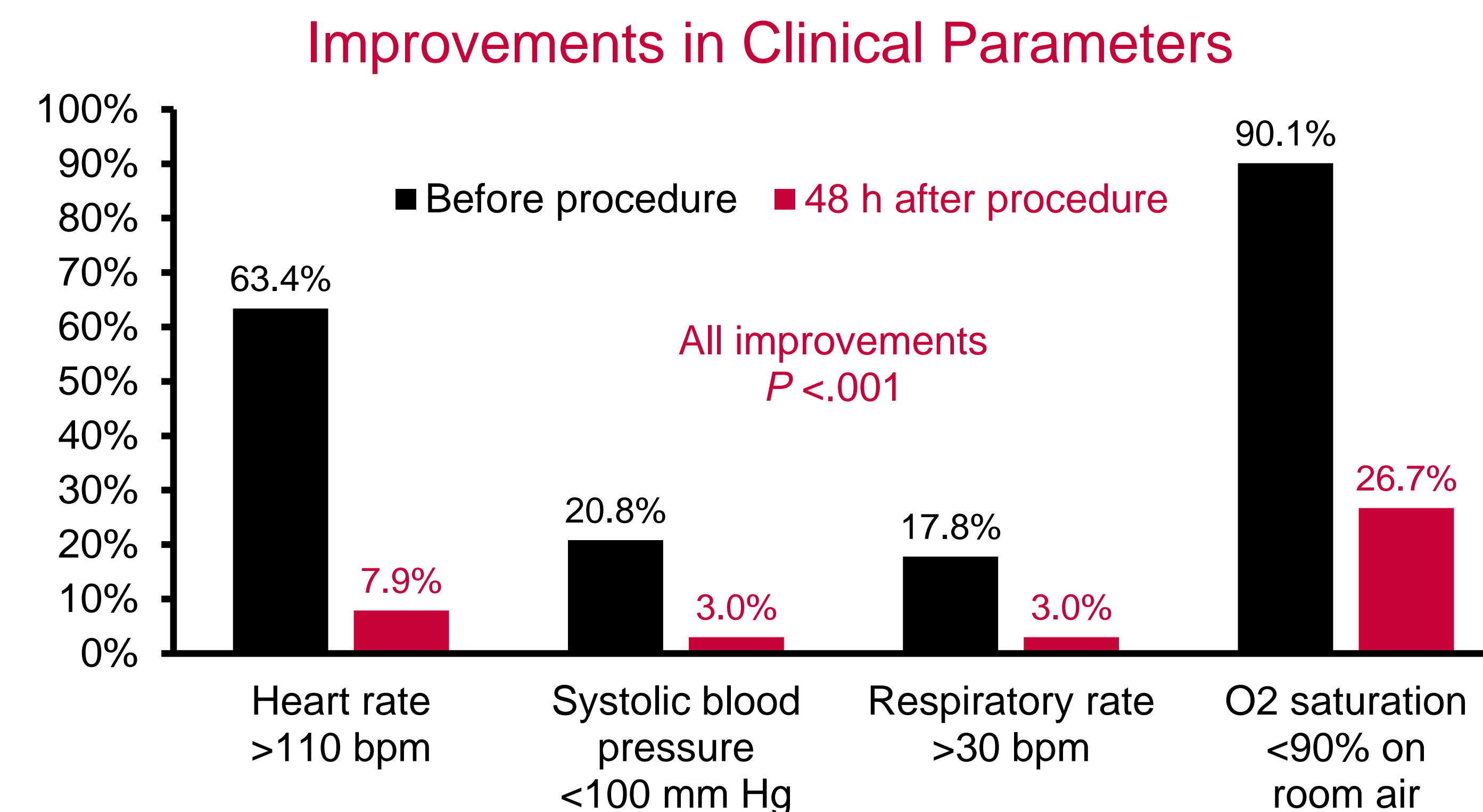
Methods

- Study design:** Single-center retrospective review
- Patients included:** Adults with high-risk or intermediate-risk acute PE and treated with Lightning 12 between January 2020 and August 2022
- Variables measured:**
 - Clinical parameters (abnormal clinical findings)
 - Echo parameters
 - Safety outcomes
 - Performance outcomes

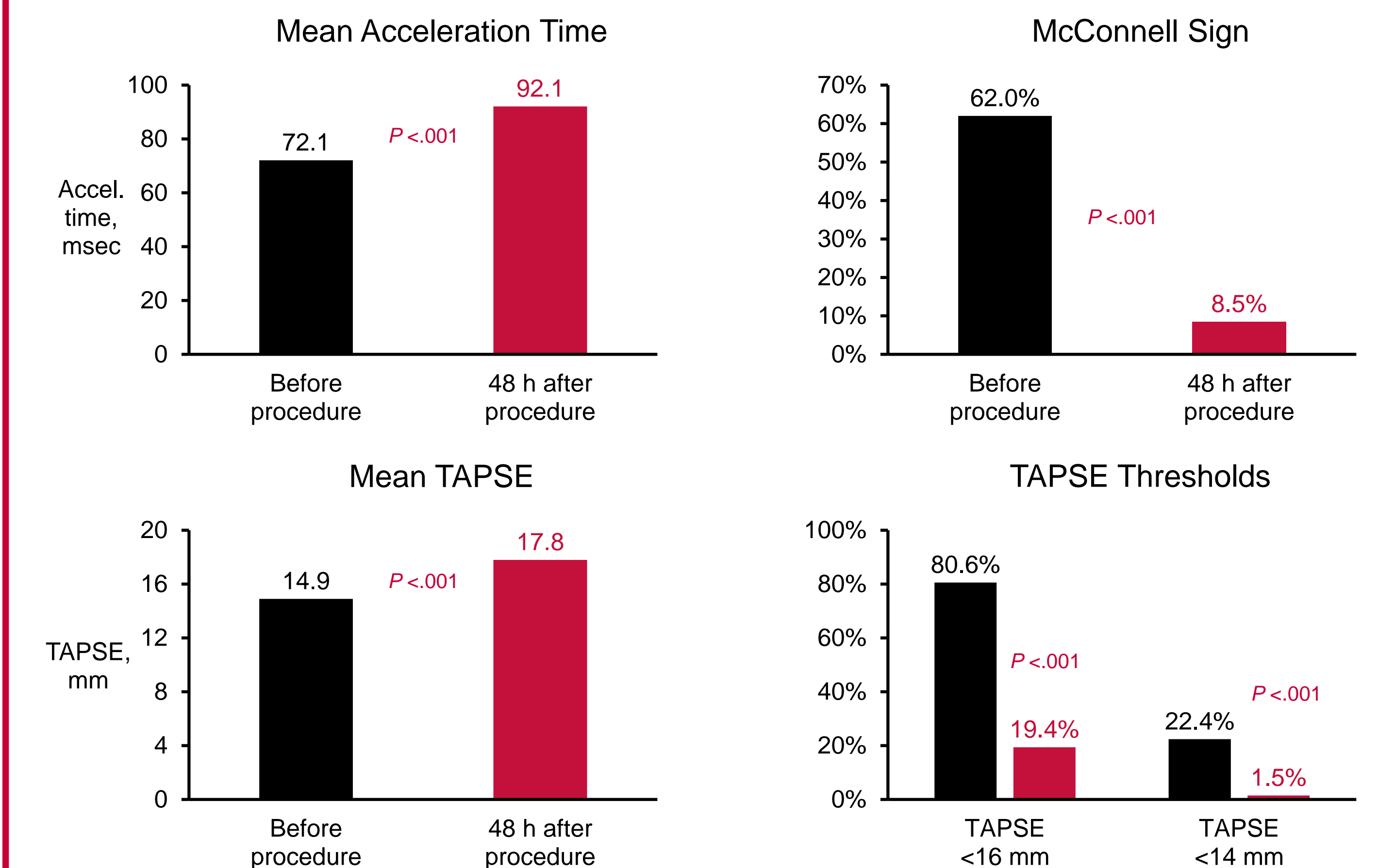
Results

Baseline characteristics	Lightning 12 (N=101)
Demographics	
Age, y	61.9 ± 14.5
Sex, female, % (n)	46.5% (47)
ESC classification of PE severity, % (n)	
High risk	6.9% (7)
Intermediate-high risk	84.2% (85)
Intermediate-low risk	8.9% (9)
PE location, % (n)	
Bilateral	94.1% (95)
Unilateral	5.0% (5)
Central	44.6% (45)
Time from symptom onset to procedure, d, median [IQR]	3.9 [2.4-5.7]

Results (continued)



Results (continued)



Safety and performance outcomes; mean ± SD, median [IQR], or % (n/N)	Lightning 12 (N=101)
Procedure time, min	18.0 [14.8-21.5]
Estimated blood loss, mL	340.2 ± 96.3
Procedure-related major bleeding*	1.0% (1/101)
In-hospital death	3.0% (3/101) [†]
Arrhythmia	0.0% (0/101)
Cardiac complication	0.0% (0/101)
Reduction in PESI score, baseline to 72 h	22 [20-40]
Normal RV size and function at mean follow-up of 11.5 mo	90.1% (20/22)

*GUSTO moderate or severe. [†]2 deaths due to pre-existing pneumonia, 1 death due to complications from traumatic injuries.

Conclusions

Treatment of acute PE with computer-aided mechanical aspiration thrombectomy rapidly improved clinical and echo parameters. This was accomplished with a short procedure time and an acceptable safety profile.