

"Elective" Catheter Directed Therapies in Patients with Intermediate-High Risk Pulmonary Embolism with Unfavorable Clinical Parameters Assessed by a PERT

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Disclosure of Relevant Financial Relationships

I, [Ignacio Cigalini](#) DO NOT have any relevant financial relationships to disclose.

Faculty disclosure information can be found on the app

Background

- The ideal management of patients with intermediate-high risk (IHR) PE is still unknown.
- The combination of:



ID pts at higher risk



CDT with a better safety profile

- Our aim is to evaluate in-hospital results of catheter-directed therapies (CDT) in patients with IHR PE with unfavorable clinical parameters assessed by a PERT in comparison with current standard of care.

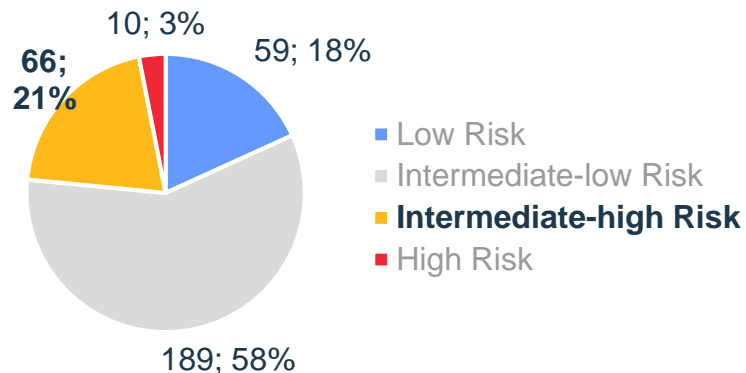
Methods

- Analysis of consecutive patients who were treated in a single center for IHR PE from Jan/2017 to Jun/2023.
- The in-hospital evolution of an invasive strategy defined by our institutional PERT (formed in Apr/2021) was compared against the current standard of care of isolated anticoagulation and reperfusion in the event of hemodynamic decompensation.



110 general beds
20 intensive care unit beds

327 pts with PE



Baseline characteristics

	IHR PE (n=66)	Invasive Arm (n=16)	Conservative Arm (n=50)	p
Age	72.3 ±12.5	64.8 ±11.8	74.7 ±12.5	<0.005
Female sex	34 (51.5%)	7 (43.8%)	27 (54%)	ns
Obesity	12 (18.5%)	4 (25%) ↑	8 (16%)	ns
Previous VTE	11 (16.7%)	4 (25%) ↑	7 (14%)	ns
Active cancer	15 (22.7%)	2 (12.5%)	13 (26%) ↑	ns
Previous Stroke	5 (7.6%)	1 (6.25%)	4 (8%)	ns
COPD	12 (18.2%)	2 (12.5%)	10 (20%) ↑	ns
Recent surgery	16 (24.2%)	6 (37.5%) ↑	10 (20%)	ns
Recent hospitalization	20 (30.3%)	7 (43.8%) ↑	13 (26%)	ns
Previous major bleeding	8 (12.1%)	2 (12.5%)	6 (12%)	ns

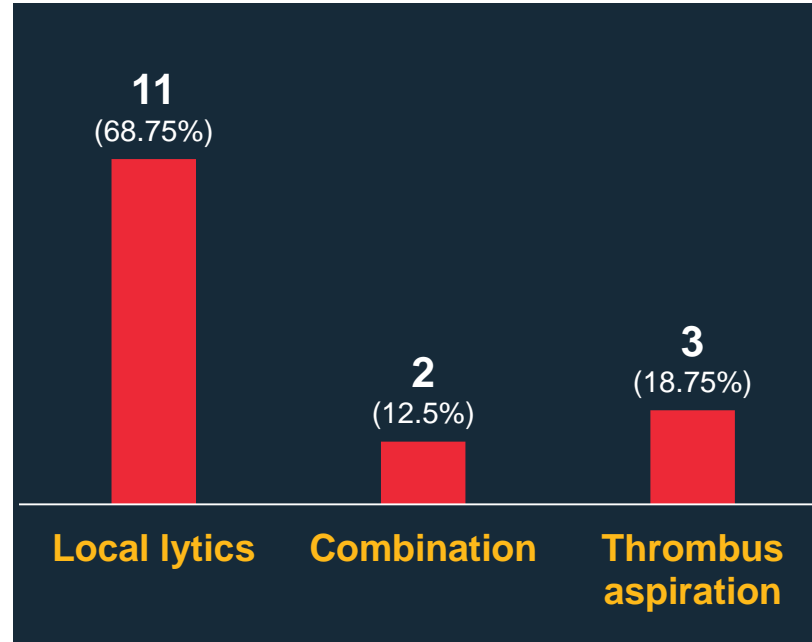
Presentation and management

	IHR PE (n=66)	Invasive Arm (n=16)	Conservative Arm (n=50)	p
Systolic Blood Pressure (mmHg)	122.5 (110-140)	130 (120-150)	120 (110-130)	ns
Heart Rate (beats pm)	100 (85-120)	110 (95-125)	100 (85-110)	ns
Respiratory rate (breaths pm)	20 (17-24.5)	23 (20-25) ↑	20 (16-24)	0.0506
TAPSE	16 (13.3-19.4)	16 (12-20)	15.5 (13-18)	ns
Central distribution of thrombus	53 (80.3%)	16 (100%)	37 (74%)	0.029
Troponin peak	57.1 (31-120.6)	75.2 (51.9-147.4)	53 (30-102.5)	ns
Concomitant DVT	39/61 (63.4%)	11/16 (68.8%)	28/45 (62.2%)	ns
BOVA score	4 (4-5)	5 (4-5)	4 (4-5)	ns
PERT discussion	25 (37.9%)	16 (100%)	9 (18%)	<0.0001
Anticoagulation	65 (98.5%)	5 (93.8%)	50 (100%)	ns
Vena cava filter	10 (15,2%)	5 (31.3%) ↑	5 (10%)	0.053
Reperfusion therapies	19 (28.8%)	16 (100%)	3 (6%)	<0.0001

Invasive arm (n=16)

Local Lytics (n=13)

- 100% standard infusion catheters (Fountain 5Fr)
- 76.9% (10/13) bilateral
- 100% US guided access (1/23 jugular)
- 21.1 mg (± 4.6) of rt-PA in 12h (10-24)



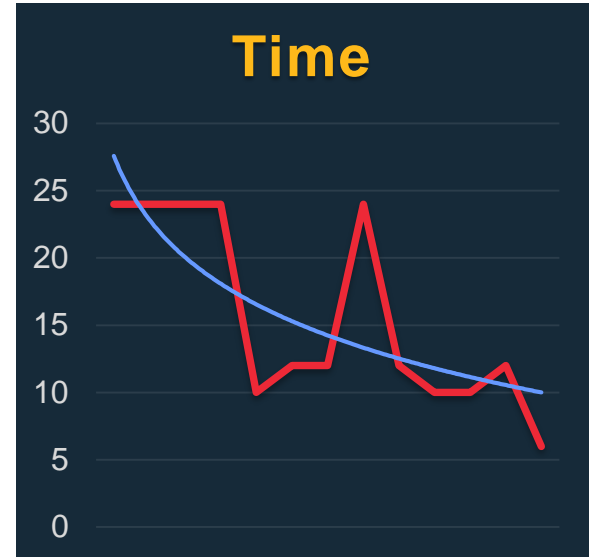
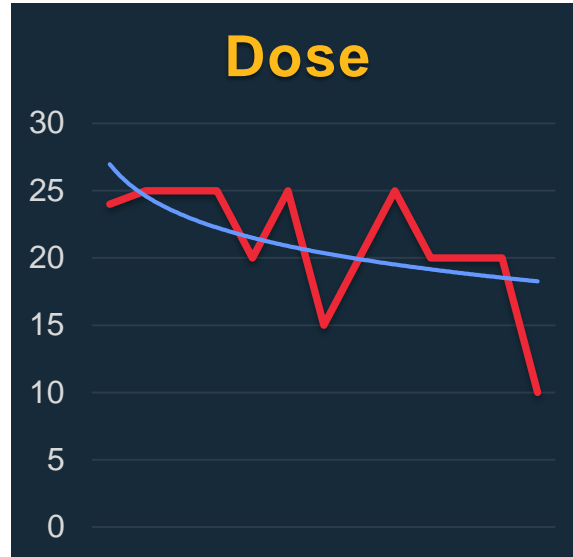
Thrombus aspiration (n=5)

- 3/5 (60%) Penumbra aspiration system
- 2/5 (40%) manual aspiration with 8-10 Fr catheters.
- 100% US-guided femoral approach

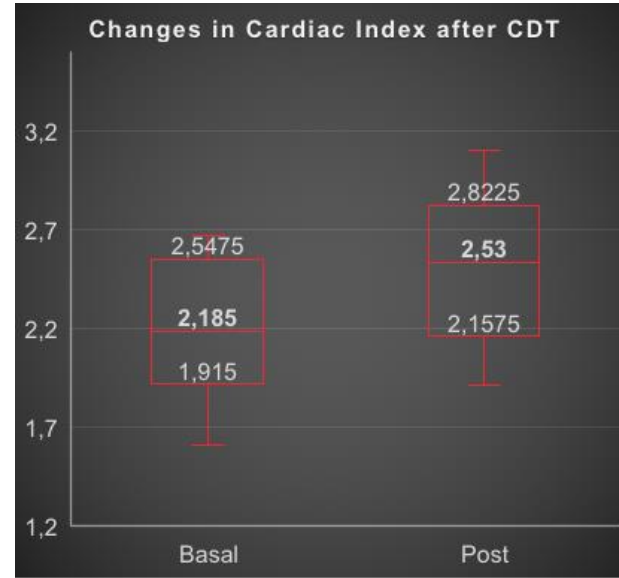
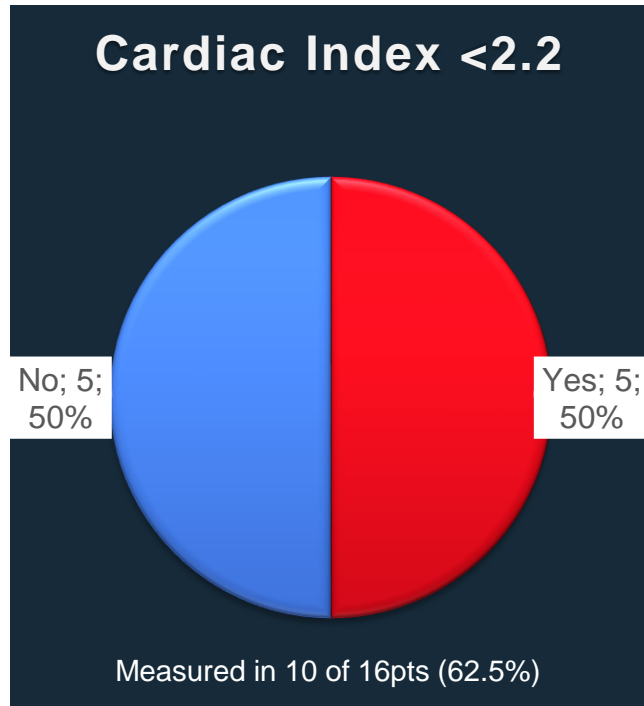
Invasive arm (n=16)

Local Lytics (n=13)

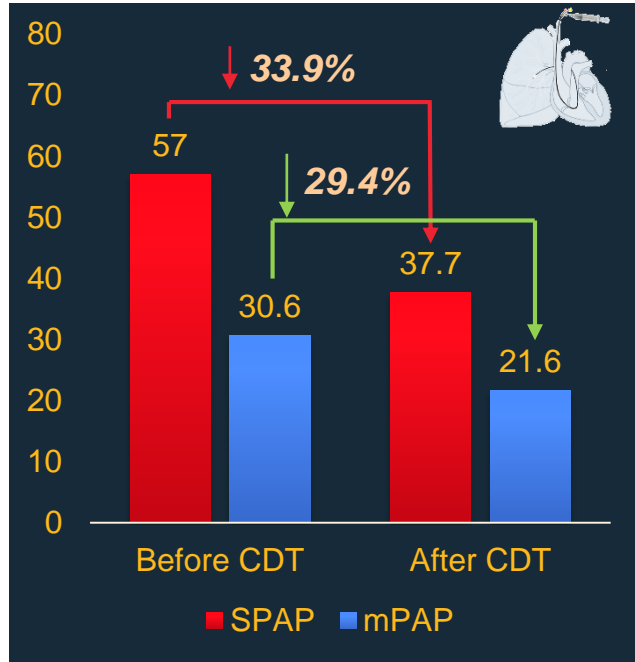
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Invasive arm (n=16)

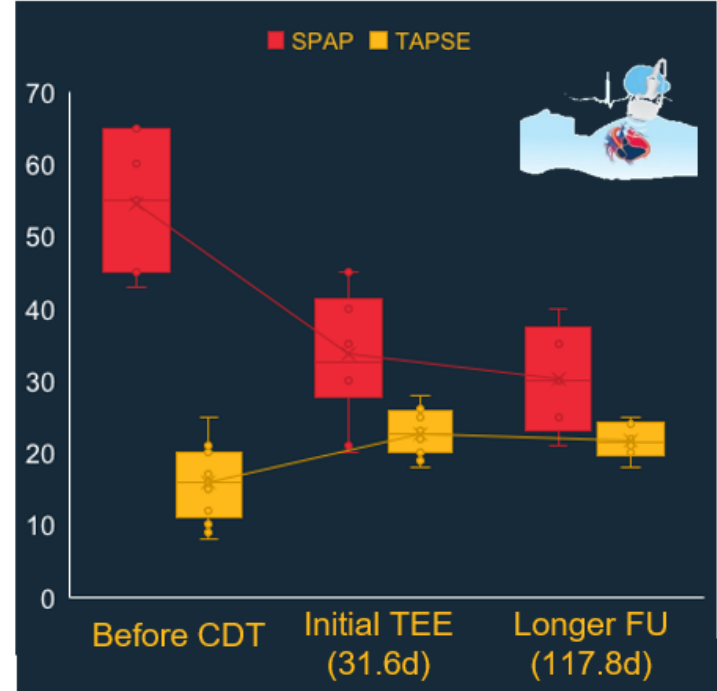


Invasive arm (n=16)



SPAP: 57mmHg (± 15.9) vs. 37.7mmHg (± 8.8); $p < 0.005$

mPAP: 30.6mmHg (6.1) vs. 21.6mmHg (4.2); $p < 0.005$,



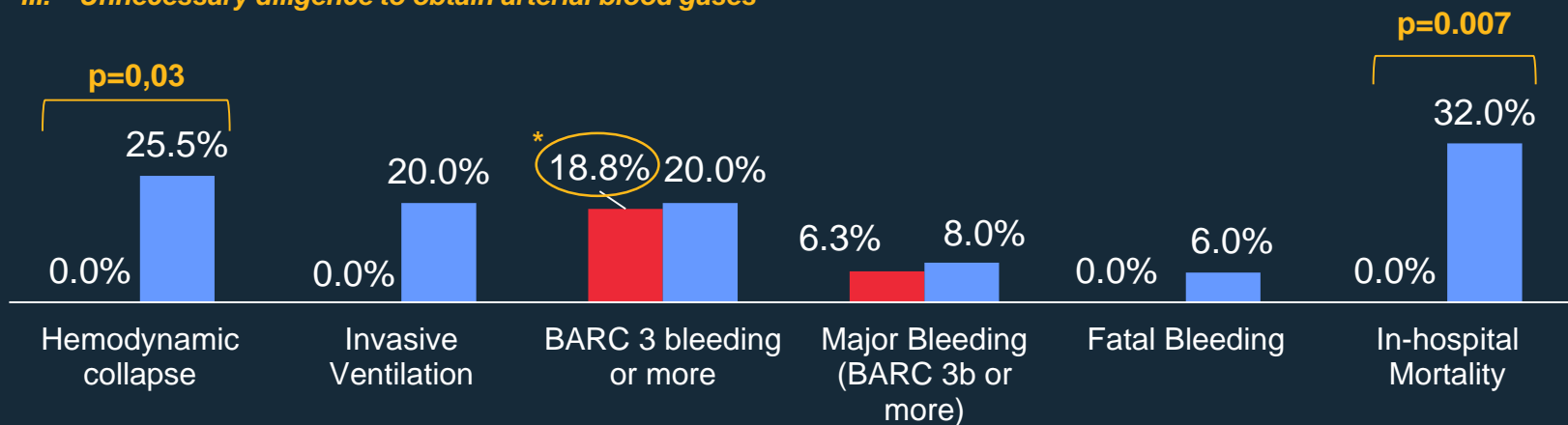
In-hospital events

Length of stay: 6 (5-8) vs. 9 (6-14); $p=0.036$

* 3/16 pts, none during 48h of CDT

- I. Bleeding after planned neurosurgery requiring re-intervention (not under AC)
- II. Drop of Hb from basal 8 to 7.5 with indication for transfusion by hematology
- III. Unnecessary diligence to obtain arterial blood gases

■ Invasive Arm
■ Conservative Arm



Limitations

- Small unicentric sample
- Observational nature
- High mortality in conservative arm could overestimate benefits of an invasive strategy
 - Post-hoc analysis showed that 28% (14/50) in the conservative arm had limitations of therapeutic effort → In-hospital mortality: 57.1% (8/14)
 - After excluding this patients, in-hospital mortality was still high (22.2%, 8/36) maintaining the benefit of an invasive strategy (p=0.0394)

Conclusions

- An "elective" invasive strategy in selected higher risk patients with IHR PE after PERT assessment was safe and resulted in less major in-hospital cardiovascular events in a single-center initial experience.
- This findings should be taken with caution due to the limitations mentioned.

Acknowledgement

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