

PHARMACOMECHANICAL THROMBOLYSIS WITH THE BASHIR™ CATHETER: UNIQUE AND DIFFERENTIATED APPROACH VEITH 2024

Eric A. Secemsky, MD, MSc, RPVI, FACC, FAHA, FSCAI, FSVM
 Director | Vascular Intervention | Beth Israel Deaconess Medical Center
 Section Head | Interventional Cardiology and Vascular Research |
 Richard A. and Susan F. Smith Center for Outcomes Research in Cardiology
 Associate Professor of Medicine | Harvard Medical School

Beth Israel Lahey Health

Beth Israel Deaconess Medical Center | Richard A. and Susan F. Smith Center for Outcomes Research in Cardiology | HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Disclosures

Funding: NIH/NHLBI K23HL150290, Food & Drug Administration, SCAI

Grants to Institution: Abbott/CSI, BD, Boston Scientific, Cook, Medtronic, Philips

Speaking/Consulting: Abbott/CSI, BD, BMS, Boston Scientific, Cagent, Conavi, Cook, Cordis, Endovascular Engineering, Gore, InfraRedx, Medtronic, Philips, RapidAI, Rampart, Shockwave, Terumo, Thrombolex, VentureMed and Zoll

Beth Israel Deaconess Medical Center | HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

What Does the Optimal Device for PE Look Like?

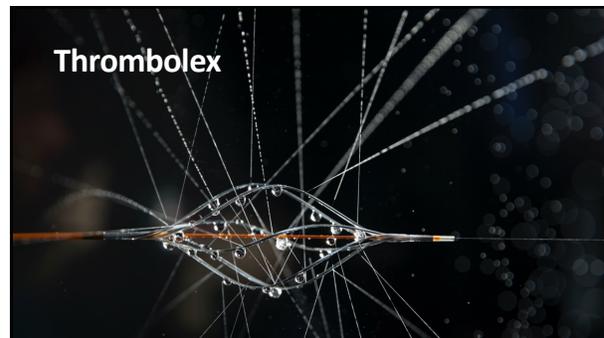
What if there was a single session, single device therapy to treat acute PE that could:

- Avoid high dose lytic infusion
- Avoid overnight lytic infusion
- Acutely lower RV/PA pressure
- Acutely improve RV function
- Rapidly and optimally resolve PA thrombus
- Improve safety dramatically without sacrificing clinical efficacy

The Novel BASHIR™ Endovascular Catheter is Poised to Disrupt the Treatment for PE

References:
 1. Dr. Rob Lockstein - Mount Sinai Hospital, presented at SIF2024

Beth Israel Deaconess Medical Center | HARVARD MEDICAL SCHOOL TEACHING HOSPITAL



Pharmacomechanical Lysis with the BASHIR™ Endovascular Catheter

Pulse Spray

Beth Israel Deaconess Medical Center | HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Advantage of the BASHIR™ Endovascular Catheter

Potential Implications:

- Reduced duration of therapy
- Reduced dose of thrombolytics
- Reduced Major bleeding rates

Beth Israel Deaconess Medical Center | HARVARD MEDICAL SCHOOL TEACHING HOSPITAL

Disruptive Platform Technology

Hybrid Pharmaco-mechanical Device

BASHIR[®] endovascular catheter

BASHIR S-B endovascular catheter

Portfolio for Long Lesion Treatments

BASHIR+ endovascular catheter

BASHIR+10 endovascular catheter

BASHIR+20 endovascular catheter

BASHIR+30 endovascular catheter

BASHIR+40 endovascular catheter

The BASHIR[®] Endovascular Catheters and the BASHIR+[®] Plus Endovascular Catheters are reserved for the identification and immediate treatment of pulmonary-arterial thrombus, including hemodynamically stable patients with acute pulmonary embolism, including the resolution of blood flow in patients with acute thrombosis.

Both Israel Deaconess Medical Center Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University

THE RESCUE-II STUDY

Study of the Safety and Feasibility of the On-The-Table Pharmacomechanical Lysis for treating Acute Intermediate-Risk Pulmonary Embolism

Funding support: Commonwealth of Pennsylvania Department of Health and Thrombolysis Inc.

Both Israel Deaconess Medical Center Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University

Is PML enough on the table without post-procedure infusion?

PM-CDT

- Markedly reduced PA obstruction

Bench Testing

- >50% of the r-tPA was adsorbed in the IV bag and tubing

PERCENT REDUCTION IN PA OBSTRUCTION

Trial	Percent Reduction in PA Obstruction
r-tPA 100mg	22.8%
Artoquinon	8.7%
PIERLBS	9.3%
EXTRACTPE	11.3%
OPALYSE	14.0%
SAFLEI	29.8%
RESCUE	35.9%

1. Sill et al. Thromb Haemostas. 1994 Feb;73(2):204. 2. Connors et al. Ann Surg. 1997;225(3):300-314. 3. Connors J Am Coll Cardiol. 2016 Nov;68(19):2089-2100.

Both Israel Deaconess Medical Center Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University

RESCUE-II Protocol

Unilateral PE – Total 4 mgs of r-tPA (Four pulse sprays 1 mg each)

Bilateral PE – Total 8 mgs of r-tPA (Eight pulse sprays 1 mg each — four mgs in each lung)

Both Israel Deaconess Medical Center Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University

DISCUSSION – Reduction in RV/LV Ratio

PERCENT REDUCTION IN RV/LV RATIO

Trial	Percent Reduction in RV/LV Ratio
r-tPA 100mg	31.0%
Artoquinon	16.1%
PIERLBS	25%
EXTRACTPE	29.3%
OPALYSE	27.5%
SAFLEI	27.1%
RESCUE	33.3%
RESCUE I	23.5%

Both Israel Deaconess Medical Center Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University

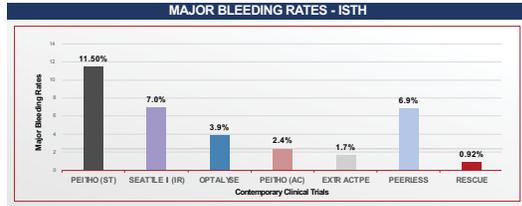
DISCUSSION – Reduction in PA Obstruction

PERCENT REDUCTION IN PA OBSTRUCTION

Trial	Percent Reduction in PA Obstruction
r-tPA 100mg	22.8%
Artoquinon	8.7%
PIERLBS	N/A
EXTRACTPE	11.3%
OPALYSE	14.0%
SAFLEI	29.8%
RESCUE	35.9%
RESCUE I	29.2%

Both Israel Deaconess Medical Center Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University Harvard Medical School, Brigham Young University

DISCUSSION – Major Bleeding Rates



**SAFETY: Major Bleeding rates with PML parallels that seen with anticoagulation alone.
No Major Bleeding RESCUE II**

Mayer G. Thrombolysis for patients with intermediate-to-severe pulmonary embolism. N Engl J Med 2014;370:1402-11. 13

Comparative PE Clinical Data

PE Clinical Studies	Total Lytic Dose	Device time	Post Procedure ICU Admission	Total Length of Stay	Safety: Adverse Events	Safety: Major Bleed Rate
Thrombolysis - RESCUE-II	8mg	39 Min	0%	3.0 Days	0%	0%
Inari - PEERLESS	n/a	47.9 Min	41.6%	4.5 Days	13.3%	6.9% (2 ICH)
CDT - PEERLESS	16mg	915 Min	98.6%	5.3 Days	11.5%	6.9% (1 ICH)

14

Comparative PE Clinical Data

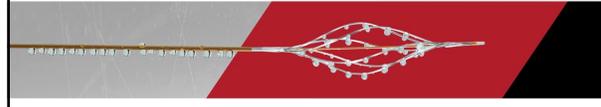
PE Clinical Studies	Total Lytic Dose	RV/LV Ratio: Improvement	PA Obstruction: Improvement	Safety: Major Bleed Rate
Thrombolysis - RESCUE-II	8mg	22.3%	29.2%	0%
Thrombolysis - RESCUE	14 mg	33.3%	35.9%	0.92%
EKOS – SEATTLE II	24 mg	27.1%	29.8%	10.00%
EKOS – OPTALYS E / ARM 3	12 mg	26.3%	14.0%	3.60%
Penumbra – EXTRACT PE	n/a	29.3%	11.3%	1.70%
INARI - PEERLESS	n/a	25%	n/a	6.9% (2 ICH)
INARI - FLARE	n/a	24.4%	9.3%	0.96%
PEITHO - Anticoagulation	n/a	16.1%	8.7%	2.40%
PEITHO - Systemic Lytics	100 mg	31.0%	22.0%	11.50%

15

RAPID-PE Study

On-the-table registry of Pharmacomechanical Lysis with the BASHIR Endovascular Catheter for Acute Pulmonary Embolism

Principal Investigators
Wisam Jabbar, MD
Robert Lookstein, MD



16

RAPID-PE Clinical Study

Treating 500 Patients at 50 Clinical Sites

Single Arm, Multi-Site Post Market Study	Shorter Treatment Time	Eliminate Need for ICU Stay
Reduce Lytic Dose	No Capital Equipment	Shorter Total Length of Stay

Driving a Paradigm Shift in The Treatment of Pulmonary Embolism

17

Drug Administration

r-tPA Administration

- Unilateral PE: 4mg r-tPA administered in 10cc/1mg increments x 4 pulse sprays
- Bilateral PE: 8mg r-tPA total administered in 10cc/1mg increments x 8 pulse sprays

Anticoagulant Dosage and Administration

- Pre and post procedure: Anticoagulation to be administered according to the investigator's standard of care



18

Thank you

 esecemsk@bidmc.harvard.edu

 [@EricSecemskyMD](https://twitter.com/EricSecemskyMD)

*Smith Center for Outcomes Research
in Cardiology
375 Longwood Avenue, 4th Floor
Boston, Massachusetts 02215*



19 