

# **Outcomes of the Bashir Endovascular Catheter Thrombolysis On-The-Table Technique for the Treatment of Intermediate Risk Pulmonary Embolism**

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## **Objective:**

Catheter directed thrombolysis for the treatment of pulmonary embolism (PE) has traditionally involved several hours of thrombolytic infusion, requiring an intensive care unit (ICU) admission for monitoring. The pharamaco-mechanical effect of the new Bashir Endovascular Catheter (BEC) for the delivery of thrombolytic with an expandable infusion basket may allow for a briefer infusion period of the thrombolytic. Some operators have performed the treatment of PE with thrombolytic infusion exclusively in the Cath-Lab using the BEC catheter, known as the on-the-table technique, avoiding ICU admission or indwelling catheters. We present here data on patients treated with this technique.

## **Methods:**

This is a retrospective observational case-series study of ten patients with intermediate risk PE who received the on-the-table infusion of thrombolytic with the Bashir Endovascular Catheter at two medical centers.

## **Results:**

The median procedure duration was 50 minutes [interquartile range 43-63 minutes]. Patients received a median tPA dose of 2.5 mg in the right lung and 3.0 mg in the left lung during this time. One patient had ICU stay for reasons other than thrombolysis monitoring, including pneumonia requiring intubation. None of the 10 patients suffered from decompensation or death from PE. Only one patient had a minor bleeding event. All patients were discharged home without supplemental oxygen. See Table for additional information.

## **Conclusion:**

Using the Bashir Endovascular Catheter with only a short duration of thrombolytic infusion while on the table in the Cath-Lab for the treatment of acute PE appears safe, shows promising clinical effectiveness, and can be used to avoid prolonged admission in the intensive care setting. A prospective study is needed to assess this new strategy.

Table 1: Patient Demographics, Admission and Procedural Data, and Outcomes

<i>Demographics (N=10)</i>		
Age [median, IQR]		71 [62.8-78.8]
Gender	Male	6 (60%)
	Female	4 (40%)
Race	White	6 (60%)
	Asian	3 (30%)
	Hispanic	1 (10%)
Recent Surgery (<3 weeks)		1 (10%)
Recent Trauma (<3 weeks)		0
Recent Stroke (<3 weeks)		0
Congestive Heart Failure		0
Pulmonary Disease		4 (40%)
Hypertension		6 (60%)
Malignancy		3 (30%)
History of venous thromboembolism		4 (40%)
Contraindication to Thrombolysis	Minor	2 (20%)
	Major	0
<i>Admission</i>		
Oxygen saturation on room air, % [median, IQR]		92 [86-93]
Pulse, bpm [median, IQR]		96 [93-102]
Creatinine, mg/dL [median, IQR]		1.08 [0.90-1.33]
Anticoagulation at PE diagnosis		5 (50%)
Antiplatelet at PE diagnosis		3 (30%)
Concurrent Acute Deep Venous Thrombosis		6 (60%)
Elevated Troponin value		8 (80%)
<i>Pulmonary Embolism</i>		
PE Type	Low-Intermediate	2 (20%)
	High-Intermediate	8 (80%)
Symptom duration, days [median, IQR]		0 [0-2.8]
sPESI Score [median, IQR]		2 [1.15-2]
Laterality	Unilateral	1 (10%)
	Bilateral	9 (90%)
<i>Procedure</i>		
Systemic tPA given before catheter therapy		0
Access Site	Femoral	3 (30%)
	Jugular	7 (70%)
Treatment Laterality	Unilateral	5 (50%)
	Bilateral	5 (50%)
Pulmonary Artery Systolic Pressure, mmHg [median, IQR]		52 [43-61]
Pulmonary Artery Mean Pressure, mmHg [median, IQR]		28 [25-39]
tPA Dosage in Right Lung, mg [median, IQR]		2.5 [2.0-4.75]
tPA Dosage in Left Lung, mg [median, IQR]		3.0 [3.0-4.0]
Procedure duration, minutes [median, IQR]		50 [43-63]
Sheath left in place		1 (10%)
Length of Bashir Endovascular Catheter Infusion Basket	10 cm	9 (90%)
	12.5 cm	1 (10%)
<i>Procedural Outcomes</i>		
Intubation		1 (10%)
Cardiac arrest		0
ECMO		0
Decompensation to massive PE		0
Length of hospital stay, days [median, IQR]		7.5 [5.3-9.5]
Discharged on supplemental oxygen		0
Major Bleeding Events		0
Minor Bleeding Events		1 (10%)

IQR: Interquartile range; PE: Pulmonary Embolism; sPESI: simplified Pulmonary Embolism Severity Index; tPA: Tissue-type Plasminogen Activator; ECMO: Extracorporeal Membrane Oxygenation.