

Ain and Jaff. Treatment of Submassive Pulmonary Embolism: Knowing When to be Aggressive and When to be Conservative. *Curr Treat Options Cardio Med* (2015) 17:25  
Grade F. Quality Outstanding. Review Article

Akin et al. Catheter-Directed Thrombolytic Intervention Is Effective for Patients with Massive and Submassive Pulmonary Embolism. *Ann Vasc Surg* 2014; 28: 1589–1594  
Grade D. Quality Outstanding

Avgerinos et al. Catheter-directed interventions for acute pulmonary embolism. *Journal of Vascular Surgery*. February 2015. Volume 61. Number 2.  
Grade F. Quality Outstanding. Review Article/Meta-analysis Review

Avgerinos et al. Improved early right ventricular function recovery but increased complications with catheter-directed interventions compared with anticoagulation alone for submassive pulmonary embolism. July 2016. *JOURNAL OF VASCULAR SURGERY: VENOUS AND LYMPHATIC DISORDERS*. Volume 4, Number 3  
Grade D. Quality Outstanding

Avgerinos et al. Predictors of failure and complications of catheter-directed interventions for pulmonary embolism. *Journal of Vascular Surgery: Venous and Lymphatic Disorders* May 2017. Volume 5. Number 3.

Bagla et al. Ultrasound-Accelerated Catheter-Directed Thrombolysis for Acute Submassive Pulmonary Embolism. *J Vasc Interv Radiol* 2015;26:1001–1006  
Grade D. Quality Outstanding

Barco et al. Catheter Directed Thrombolysis for Acute Pulmonary Embolism: Where do we stand? *Lung India*. 2017 May-June; 34(3): 221-222  
Grade F. Quality Outstanding

Bavare et al. Catheter-directed Thrombolysis for Severe Pulmonary Embolism in Pediatric Patients. *Ann Vasc Surg* 2014; 28: 1794.e1–1794.e7  
Grade D. Quality Outstanding

Bloomer et al. Safety of Catheter-Directed Thrombolysis for Massive and Submassive Pulmonary Embolism: Results of a Multicenter Registry and Meta-Analysis. *Catheterization and Cardiovascular Interventions* 89:754–760 (2017)  
Grade A. Quality Outstanding

Boshara et al. Ultrasound-Assisted Catheter-Directed Thrombolysis in Pulmonary Embolism in Transit. *JACC: Cardiovascular Interventions*. Volume 10. Number 4. 2017  
Grade E. Quality Adequate

Buccheri et al. Pulmonary embolism treatment: Why not a catheter-directed strategy? *International Journal of Cardiology* 221 (2016) 350–351  
Grade E/F. Quality Adequate. Treatment option after failed thrombolytics

Carroll et al. Ultrasound-facilitated, catheter-directed, low-dose fibrinolysis in elderly patients with pulmonary embolism: A SEATTLE II sub-analysis. *Vascular Medicine* 2017, Vol. 22(4) 324–330  
Grade A/B. Quality Outstanding. Subgroup analysis.

Dilektasli et al. Catheter-Directed Therapy in Acute Pulmonary Embolism with Right Ventricular Dysfunction: A Promising Modality to Provide Early Hemodynamic Recovery.

Grade F. Quality Outstanding

Med Sci Monit, 2016; 22: 1265-1273  
Grade D. Quality Outstanding

Dumantepe et al. Improvements in Pulmonary Artery Pressure and Right Ventricular Function After Ultrasound-Accelerated Catheter-Directed Thrombolysis for the Treatment of Pulmonary Embolism. J CARD SURG 2014;29:455-463  
Grade D. Quality Adequate

Engelberger et al. Fixed low-dose ultrasound-assisted catheter-directed thrombolysis for intermediate and high-risk pulmonary embolism. European Heart Journal (2015) 36, 597-604  
Grade D. Quality Outstanding

Fernandes et al. Caution Regarding Catheter-directed Thrombolysis: Chronic Thromboembolic Pulmonary Hypertension Mistaken for Acute Submassive Pulmonary Embolism. Am J Respir Crit Care Med Vol 195, Iss 8, pp 1066-1067, Apr 15, 2017  
Grade E. Quality Poor

Gaba et al. Efficacy and Safety of Flow-Directed Pulmonary Artery Catheter Thrombolysis for Treatment of Submassive Pulmonary Embolism. AJR 2014; 202:1355-1360  
Grade D. Quality Outstanding

George et al. A retrospective analysis of catheter-based thrombolytic therapy for acute submassive and massive pulmonary embolism. Vascular Medicine 2015, Vol. 20(2) 122-130  
Grade D. Quality Outstanding

Jain et al. Unloading of Right Ventricle and Clinical Improvement after Ultrasound-Accelerated Thrombolysis in Patients with Submassive Pulmonary Embolism. Case Reports in Medicine Volume 2014  
Grade E. Quality Outstanding

Kabrhel et al. Systemic Thrombolysis, Catheter-Directed Thrombolysis and Anticoagulation for Intermediate-Risk Pulmonary Embolism: A Simulation Modeling Analysis. Academic Emergency Medicine. 2107  
Grade E. Quality Good

Kaymaz et al. Ultrasound-Assisted Catheter-Directed Thrombolysis in High-Risk and Intermediate-High-Risk Pulmonary Embolism: Results From a Single-Center Cohort. Angiology 2017, Vol. 68(5) 433-440  
Grade D/E. Quality Outstanding

Kaymaz et al. Ultrasound-Assisted Catheter-Directed Thrombolysis in High-Risk and Intermediate-High-Risk Pulmonary Embolism: A Meta-analysis. Current Vascular Pharmacology, 2017, 15.  
Grade A. Quality Outstanding

Konstantinidis et al. Prevention of early complications and late consequences after acute pulmonary embolism: Focus on reperfusion techniques. Thrombosis Research. 2017  
Grade F. Quality Outstanding

Kosava et al. Endovascular Management of Massive and Submassive Acute Pulmonary Embolism: Current Trends in Risk Stratification and Catheter-Directed Therapies. *Curr Cardiol Rep* (2017) 19: 54

Grade F. Quality Outstanding

Lee et al. Catheter-directed, ultrasound-assisted thrombolysis is a safe and effective treatment for pulmonary embolism, even in high-risk patients. *Journal of Vascular Surgery: Venous and Lymphatic Disorders*, March 2017. Volume 5. Number 2.

Grade D. Quality Good/Adequate

Liang et al. Midterm outcomes of catheter-directed interventions for the treatment of acute pulmonary emboli

Grade D. Quality Outstanding

Lin et al. Endovascular Interventions for Acute Pulmonary Embolism. *Perspect Vasc Surg Endovasc Ther*. 2010.

Grade F. Quality Outstanding

Lin et al. Comparison of Percutaneous Ultrasound-Accelerated Thrombolysis versus Catheter-Directed Thrombolysis in Patients with Acute Massive Pulmonary Embolism. *Vascular*, Vol. 17, Suppl 3, pp. S137–S147, 2009.

Grade D. Quality Outstanding

Li et al. Risk Factors Associated with Symptomatic Pulmonary Embolism of Catheter Directed Thrombolysis for Lower Extremity Deep Venous Thrombosis. *Eur J Vasc Endovasc Surg* (2015) 50, 658e663

Not relevant.

Lou et al. A meta-analysis of efficacy and safety of catheter-directed interventions in submassive pulmonary embolism. *European Review for Medical and Pharmacological Sciences*. 2017; 21: 184-198

Grade A/B. Quality Outstanding

Long et al. CURRENT CONTROVERSIES IN THROMBOLYTIC USE IN ACUTE PULMONARY EMBOLISM. *The Journal of Emergency Medicine*, Vol. 51, No. 1, pp. 37–44, 2016

Grade F. Quality Outstanding

McCabe et al. Usefulness and Safety of Ultrasound-Assisted Catheter-Directed Thrombolysis for Submassive Pulmonary Emboli. *Am J Cardiol* 2015;115:821e 824

Grade D. Quality Outstanding

Mostafa et al. Treatment of Massive or Submassive Acute Pulmonary Embolism With Catheter-Directed Thrombolysis. *Am J Cardiol* 2016;117:1014e 1020

Grade F. Quality Outstanding

Nakamura et al. Impact of the efficacy of thrombolytic therapy on the mortality of patients with acute submassive pulmonary embolism: a meta-analysis. *Journal of Thrombosis and Haemostasis*, 12: 1086–1095

Grade A. Quality Adequate

Ozcinar et al. Thrombus resolution and right ventricular functional recovery using ultrasound-accelerated thrombolysis in acute massive and submassive pulmonary embolism. *International Angiology* 2017 October;36(5):428-37

Grade D. Quality Outstanding - Prospective?

Ramakrishnan. Thrombolysis is not warranted in submassive pulmonary embolism: a systematic review and meta-analysis. *Critical Care and Resuscitation* • Volume 9 Number 4 • December 2007

Grade A. Quality Poor. Not related to catheter directed

Bajaj et al. Catheter-directed treatment for acute pulmonary embolism: Systematic review and single-arm meta-analyses. *International Journal of Cardiology* 225 (2016) 128–139

Grade A. Quality Outstanding

Sadiq et al. Risk factors for major bleeding in the SEATTLE II trial. *Vascular Medicine* 2017, Vol. 22(1) 44– 50

Grade D. Quality Outstanding

Shariff. Systemic Full Dose, Half Dose, and Catheter Directed Thrombolysis for Pulmonary Embolism. When to Use and How to Choose? *Curr Treat Options Cardio Med* (2016) 18: 31

Grade F. Quality Outstanding

Singh et al. Pulmonary artery catheter-directed thrombolysis for intermediate high risk acute pulmonary embolism. *Lung India*. 2017. May-June; 34(3): 269-272

Grade F. Quality Outstanding

Sista et al. Four key questions surrounding thrombolytic therapy for submassive pulmonary embolism. *Vascular Medicine* 2016, Vol. 21(1) 47– 52

Grade F/G. Quality Outstanding

Chatterjee et al. Thrombolysis for Pulmonary Embolism and Risk of All-Cause Mortality, Major Bleeding, and Intracranial Hemorrhage: A Meta-analysis. *JAMA*. 2014;311(23):2414-2421.

Grade D. Quality Outstanding.

Beckman, JA. Thrombolytic Therapy for Pulmonary Embolism. *JAMA* June 18, 2014 Volume 311, Number 23.

Grade F. Quality Outstanding

Bradford et al. Benefits and Risks Associated With Thrombolysis for Pulmonary Embolism. *JAMA* October 15, 2014 Volume 312, Number 15

Grade F. Quality Outstanding

Akl et al. Review: In pulmonary embolism, thrombolytic therapy reduces all-cause mortality but increases major bleeding. 16 September 2014 | *ACP Journal Club* | Volume 161 • Number 6

Grade F. Quality Outstanding

Kuchar et al. Mechanical Catheter Intervention in Massive Pulmonary Embolism Proof of Concept. *CHEST* / 134 / 1 / JULY, 2008

Grade F. Quality Outstanding

Gokapt et al. Evaluation of effectiveness of thrombolytic therapy of pulmonary embolism. *Thrombosis Research* 129 (2012) 671

Grade F. Quality Outstanding

Weinberg et al. Accelerated Thrombolysis for Pulmonary Embolism Will Clinical Benefit Be ULTIMATEly Realized? *Circulation*. 2014;129:420-421.

Grade F. Quality Outstanding

Kuo et al. Editorial Response. JVIR. November 2010. Volume 21 Number 11.  
Grade F. Quality Outstanding

Sista et al. Catheter-Directed Thrombolysis for Pulmonary Embolism: Where Do We Stand?\*  
JACC: Cardiovascular Interventions. Volume 8. Number 10. 2015  
Grade F. Quality Outstanding

Eid-Lidt et al. Combined Clot Fragmentation and Aspiration in Patients With Acute Pulmonary Embolism\* CHEST 2008; 134:54–60  
Grade D. Quality Poor

Engelhardt et al. Catheter-directed ultrasound-accelerated thrombolysis for the treatment of acute pulmonary embolism. Thrombosis Research 128 (2011) 149–154  
Grade D. Quality Outstanding

Hao et al. Thrombolytic therapy for pulmonary embolism. Cochrane Database of Systematic Reviews 2015, Issue 9. Art. No.: CD004437.  
Grade B. Quality Outstanding

Kuchar et al. Randomized, Controlled Trial of Ultrasound-Assisted Catheter-Directed Thrombolysis for Acute Intermediate-Risk Pulmonary Embolism. Circulation. 2014;129:479-486.  
Grade A. Quality Outstanding

Kuo et al. Pulmonary Embolism Response to Fragmentation, Embolectomy, and Catheter Thrombolysis (PERFECT) Initial Results From a Prospective Multicenter Registry. CHEST 2015; 148 ( 3): 667 - 673  
Grade A. Quality Good

Tafer et al. Catheter-Directed Treatment of Pulmonary Embolism: A Systematic Review and Meta-Analysis of Modern Literature. Clinical and Applied Thrombosis/Hemostasis. 2016  
Grade D. Quality Outstanding

Teleb et al. Ultrasound-Assisted Catheter-Directed Thrombolysis: A Novel and Promising Endovascular Therapeutic Modality for Intermediate-Risk Pulmonary Embolism. Angiology 2017, Vol. 68(6) 494-501  
Grade F. Quality Outstanding

Teleb et al. Potential role of systemic thrombolysis in acute submassive intermediate risk pulmonary embolism: review and future perspectives. Ther Adv Cardiovasc Dis 2016, Vol. 10(2) 103–110.  
Grade F. Quality Good

Yoo et al. Comparison between systemic and catheter thrombolysis in patients with pulmonary embolism. American Journal of Emergency Medicine 34 (2016) 985–988  
Grade D. Quality Outstanding

Zarghouni et al. Catheter-directed intervention for pulmonary embolism. Cardiovasc Diagn Ther 2016;6(6):651-661  
Grade F. Quality Outstanding

Zuin et al. Acute pulmonary embolism after post-traumatic spinal epidural hematoma: Use of catheter-direct treatment

Grade E. Quality Outstanding

Zuin et al. Catheter-directed therapy as a first-line treatment strategy in hemodynamically unstable patients with acute pulmonary embolism: Yes or no? *International Journal of Cardiology* 225 (2016) 14–15

Grade F. Quality Outstanding