

Zain M Khazi MD, Ambarish P Bhat MD

Division of Vascular and Interventional Radiology, Department of Radiology, University of Missouri Columbia, Columbia, MO

Introduction

There is a growing trend towards endovascular intervention for management of submassive pulmonary embolism (PE). With increasing popularity of mechanical thrombectomy, there is uncertainty regarding urgency of mechanical thrombectomy after diagnosis of submassive PEs.

Study Objectives

Determine if time to MT for acute submassive PE impacts

- 1) Length of hospital stay
- 2) 30-day readmission rates
- 3) 30-day mortality rates
- 4) Identify independent risk factors for 30-day readmission and mortality rates.

Methods

Retrospective review of adult (>17 years) patients that underwent MT for PE from Nov 2019 to July 2022.

- Only patients with submassive PE were included in the study
- n= 69 patients

Patients were stratified into 2 categories based on time to MT from time to diagnosis.

- a. MT <12 hours from time of diagnosis (n= 27)
- b. MT >12 hours from time of diagnosis (n= 42)

Statistical Analysis-

- Pearson's χ^2 and student's t-test to compare the cohorts.
- Logistic regression analysis to identify independent risk factors for 30-day readmission and mortality rates.

Comparison of Clinical Outcomes Between MT \leq 12 hrs vs >12 hrs from Diagnosis of Submassive Pulmonary Embolism

Clinical Outcomes	MT \leq 12 hours	MT >12 hours	p-value
Length of Hospital Stay, days	8 \pm 14.1	6.9 \pm 6	0.702
30-day Readmission Rate	2 (7.4)	5 (10.4)	0.461
30-day Mortality Rate	0 (0)	4 (9.5)	0.098

MT- Mechanical Thrombectomy



Pre-thrombectomy pulmonary angiogram demonstrates filling and perfusion defects



Post-thrombectomy pulmonary angiogram demonstrates resolution of perfusion defect

Results

In total, 69 patients underwent MT for acute submassive PE.

- 39% underwent MT within 12 hours from time of diagnosis
- 71% underwent MT >12 hours from time of diagnosis
- Overall length of hospital stay was 7.4 \pm 9.9 days
- Overall 30-day readmission rate was 10.1% (n=7)
- Overall 30-day mortality rate was 5.8% (n=4)

There was **no** significant difference in length of hospital stay, 30-day readmission rates, and 30-day mortality rates between the two cohorts (Table).

On multivariate analysis, increasing age was the only independent risk factor for 30-day mortality (OR: 1.2, 95% CI: 1.03-1.48, p=.04). Time to MT from diagnosis was **not** associated with increased risk for 30-day readmission or 30-day mortality rates (p>0.05 for both).

Discussion

- For submassive PEs, MT >12 hours from time of diagnosis does not impact in-hospital and 30-day outcomes when compared to those that underwent MT within 12 hours from time of diagnosis.
- Even though MT >12 hours from time of diagnosis was not associated with poorer outcomes, we recommend performing MT within 24 hours from time of diagnosis of acute submassive PEs.

Contact Information

Zain M. Khazi: zmky74@umsystem.edu

[@ZainKhazi_MD](#)

Ambarish P Bhat: bhatap@umsystem.edu

[@bhat_ambarish](#)