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## **Title**

Safety and Hemodynamic Impact of a Multi-disciplinary PERT Model in Management of Intermediate-High and High-Risk Pulmonary Embolism: A Single Center Experience

## **Background**

Intermediate-high and high-risk pulmonary embolism (PE) are associated with significant morbidity and mortality from acute right ventricular strain and hemodynamic compromise. Pulmonary Embolism Response Teams (PERT) facilitate rapid multidisciplinary evaluation and coordination of advanced therapies, including Catheter-Directed Thrombolysis (CDT/EKOS) and Mechanical Thrombectomy (MT). However, real-world data on the immediate hemodynamic impact and safety of PERT-guided catheter-based interventions remain limited. This study evaluates the safety and acute pulmonary artery pressure changes following catheter-based therapy at a single center.

## **Methods**

We conducted a retrospective review of 90 consecutive patients (mean age 65.4 years) presenting with intermediate-high or high-risk PE. Risk stratification was performed using a PERT algorithm incorporating sPESI score, diagnostic imaging (CT, TTE), and clinical stability. Interventions included MT (n=63) and CDT (n=27). Primary endpoints included changes in mean pulmonary artery pressure (mPAP) and in-hospital outcomes.

## **Results**

Among 90 patients, 17.8% (n=16) presented with shock (high-risk), and 82.2% (n=74) had intermediate-high risk PE. Among patients with paired mPAP measurements undergoing MT (n=48), mean mPAP decreased from 35.5 to 27.6 mmHg following intervention (mean reduction 7.9 mmHg,  $p < 0.001$ ). No device-related procedural complications were observed. In-hospital mortality was 2.2% (n=2), with a mean ICU length of stay of 2.91 days and a mean total hospital stay of 6.8 days.

## **Conclusions**

PERT-guided catheter-based intervention was associated with significant immediate pulmonary hemodynamic improvement and low in-hospital mortality in selected intermediate-high and high-risk PE patients, with procedural safety and clinical outcomes comparable to those reported in contemporary PE registries and catheter-based clinical trials. These findings support catheter-based interventions as an important treatment strategy within PERT-guided management of higher-risk pulmonary embolism.