Mechanical Thrombectomy versus Catheter Directed Thrombolysis in Patients with Acute Pulmonary Embolism: a Multi-Center Experience

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Background

There has been a substantial increase in the use of catheter directed thrombolitics (CDL) and large bore mechanical thrombectomy (MT) in the treatment of acute pulmonary embolism (PE). To date, there is little data comparing the use and outcome of both modalities.

Methods

A multi-center, retrospective cohort study of patients undergoing MT or CDL for acute PE between 2014 and 2021 was performed. Patients were excluded if they had cardiac arrest, received systemic thrombolitics, received extracorporeal membrane oxygenation (ECMO), intracardiac clot in transit, or underwent surgical thrombectomy prior to catheter therapy were excluded. The primary outcome was the composite of in-hospital death, significant bleed, vascular complication, or need for mechanical support post procedure. Secondary outcomes included the individual components of the composite outcome in addition to blood transfusions, invasive hemodynamics, echocardiographic data, and ICU utilization.

Disclosures

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Results

From February, 2014 to February, 2021, 458 patients were treated for PE with 266 patients in the CDL arm and 192 patients in the MT arm. 10% of patients had high-risk PE and 82% had increased troponin levels without a difference between the two groups. More patients in the MT group had absolute contraindication to lytics (23% vs 2%). The primary composite endpoint was not significantly different between the two groups with CDL 12% vs MT 11% (p = 0.5). There was a significant difference in total length of ICU time required with more in the CDL group vs MT (3.8 ± 2.0 days vs 2.8 ± 3.0 days, p=0.009) which was attributable to the need for ICU care during lytic infusion. Otherwise all other secondary end points showed no significant difference between the groups.

Conclusions

In patients undergoing catheter directed treatment of PE:

• No difference was observed between MT and CDL in terms of in-hospital mortality, bleeds, catheter-related complications, and hemodynamics.
• There was a difference in both need for ICU level care as well as length of ICU care which was largely associated with the need for higher level care during thrombolytic infusion.
• Further prospective studies are ongoing comparing the two modalities.