

Thrombectomy in high-risk pulmonary thromboembolism

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Pulmonary thromboembolism (PTE) is an acute and rather frequent cardiovascular condition which has considerable short-term mortality and potential of causing severely impairing long-term morbidity such as chronic thromboembolic pulmonary hypertension.

After the diagnosis of PTE is confirmed risk stratification for early mortality should be undertaken. According to the latest ESC Guidelines on the diagnosis and management of acute pulmonary embolism therapeutic decision making varies depending on a risk category the affected patient belongs to. Variables taken in account when assessing early mortality risk include shock or hypotension, PESI (Pulmonary Embolism Severity Index), imaging (echocardiography, CT) signs of right ventricular dysfunction and positivity of cardiac laboratory biomarkers. We distinguish low, intermediate (divides in intermediate-low and intermediate-high subgroup) and high risk group. Therapeutic choice for patients in high risk group is primary reperfusion which was mostly confined to administration of systemic thrombolytic treatment, usually with the use of recombinant tissue plasminogen activator.

However, a significant number of patients have well-established contraindications for systemic thrombolytic treatment. Catheter-directed thrombectomy is an invasive percutaneous, transvenous procedure which combines direct or ultrasound assisted pulmonary thrombus destruction and aspiration with possibility of local administration of thrombolytic agent. Even though there are various techniques, most of recently published authors gained clinical experience from successful applications of the AngioJet™ (Boston Scientific, MA, USA) pharmacomechanical thrombectomy device. It consists out of console and rheolytic thrombectomy catheter. It is a 6 Fr, 120 cm long, over the wire, dual lumen catheter. The console generates power which forces saline solution through the series of high pressure jets located on the tip of the catheter what disrupts the thrombus which is then aspirated into the low-pressure second lumen. There is an option of targeted administering of thrombolytic agent. Commonly encountered complications include bradycardia and hemoglobinuria. Rare, but potentially fatal complications include perforation of pulmonary artery, pericardial tamponade and life-threatening hemoptysis. Method was first described by *Koning et al* in 1997 and since then only small patient series were reported with the largest one including 50 patients. Despite that, cumulative data on roughly 600 patients suggest safety of the method with survival rates of nearly 90%.¹⁻³

Conclusion: Catheter directed thrombectomy should be considered as a treatment of choice in high risk pulmonary thromboembolism patients with contraindication for systemic thrombolytic treatment. However, optimal use of the described method urges more prospective data.

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LITERATURE

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