

3. Streszczenie w języku angielskim

Introduction:

Acute pulmonary embolism (APE) remains a significant cause of cardiovascular mortality despite advancements in its diagnosis and treatment. Patients at an increased risk of death require management in centers with appropriate expertise and therapeutic capabilities tailored to the specific clinical scenario. Consequently, the establishment of Pulmonary Embolism Response Team (PERT) has been proposed. These teams should operate within referral centers that coordinate with local hospitals. The role of such centers is to provide consultations for complex cases of acute pulmonary embolism, support the development of optimal therapeutic strategies, and, in particularly challenging cases, facilitate patient transfer for advanced treatment. One of the sophisticated therapeutic techniques available in referral centers is catheter-directed therapy (CDT), encompassing multiple interventional approaches.

Objectives:

The aims of the study were:

1. To assess the performance of the PERT, with a particular focus on treatment approaches and the effectiveness of implemented therapies.
2. To characterize the utilization of CDT in European centers treating patients with APE.
3. To illustrate the practical functioning of the team and the individualization of the diagnostic and therapeutic process.

Methods:

The first study in the series is a single-center retrospective analysis of consecutive patients hospitalized over a 12-month period in a referral center due to APE. It compares patients transferred from other hospitals with a non-selected cohort of consecutive patients admitted via the emergency department.

The second study is an analysis of data collected from a registry maintained by European centers performing percutaneous treatment of APE between 2017 and 2022. The registry form included information on disease progression, treatment approaches, indications, choice of CDDT, and an assessment of periprocedural complications, including mortality rates.

The final study presents a case report of a patient with a complex course of APE who was successfully treated within a multidisciplinary team.

Results:

The first study included 167 patients diagnosed with APE, of whom 65 (38,9%) were admitted from local hospitals following consultation with a referral center. These patients exhibited more severe forms of APE compared to those admitted from the emergency department, who formed the control group. APE with at least an intermediate-high risk of mortality, as defined by the European Society of Cardiology, was diagnosed in 89,2% of patients in the transferred group compared to 24,5% in the control group ($p < 0,001$). Patients admitted from external centers were significantly more likely to receive advanced APE treatments, including systemic thrombolysis, percutaneous techniques, inferior vena cava filter implantation, and surgical embolectomy (63,1% vs. 6,9%; odds ratio [OR] 23,2; 95% confidence interval [CI] 9,3–58,1). No statistically significant differences in treatment outcomes were observed, particularly regarding in-hospital mortality, which was higher in the control group (6,9% vs. 1,5%; OR 4,7; 95% CI 0,6–39,3).

The second study analyzed data from 145 patients who underwent percutaneous interventions across seven European centers (Poland, Serbia, and Spain). This method was frequently employed as the first-line treatment in 50,3% of cases. The use of a pig-tail catheter was associated with higher observed mortality rates compared to treatment using dedicated devices (20% vs. 5%, $p = 0,01$).

The case report describes a patient with suspected high-risk pulmonary embolism and the rare complication of paradoxical embolism. The patient was referred from a local hospital to a referral center, where a multidisciplinary approach facilitated the selection of appropriate and effective treatment.

Conclusions:

PERTs operating in centers specializing in the management of APE, providing access to advanced treatment modalities – particularly CDTs with dedicated systems – enable effective treatment of patients with the most severe forms of the disease.