

Press release**Universitätsklinikum Bonn****Dr. Inka Väh**

03/04/2025

<http://idw-online.de/en/news848411>Research results, Scientific Publications
Medicine
transregional, national**New multicenter study shows: Which treatment helps best with high-risk acute pulmonary embolism**

International study with over 1,000 patients provides groundbreaking findings for clinical intensive care medicine - A current study involving the University Hospital Bonn (UKB) has investigated which treatment strategy offers the best chances of survival in high-risk acute pulmonary embolism. The results, now published in the renowned journal "Intensive Care Medicine", provide crucial information for the future treatment of this life-threatening disease.

High-risk acute pulmonary embolism affects around five percent of all pulmonary embolisms and can take a dramatic course even in young people. Acute obstruction of the pulmonary circulation by a blood clot can lead to circulatory failure with a high mortality rate. The study, which was carried out in collaboration with 34 European centers and included 1,060 patients, is one of the largest studies on this topic worldwide.

"The results of our study show that targeted recanalization of the pulmonary circulation by means of intrahospital systemic thrombolysis, surgical thrombectomy or percutaneous catheter-directed treatment is superior to circulatory support with VA-ECMO alone and can thus reduce the mortality rate," explain Prof. Dr. Dr. Enzo Lüsebrink, cardiologist at the UKB Heart Center and head of the study, Dr. Andrea Stadlbauer (University Hospital Regensburg), Prof. Dr. Tom Verbelen (UZ Leuven) and Prof. Dr. Daniele Camboni (University Hospital Regensburg) (study coordinators). Surgical open recanalization in particular, but also the new, promising catheter-based procedures, increased the chances of survival for the patients affected in this study.

The mortality rates within the four therapy groups studied were as follows:
57 percent for patients with circulatory support by VA-ECMO alone,
48 percent with intrahospital systemic thrombolysis,
43 percent for percutaneous catheter-directed treatment,
34 percent with surgical thrombectomy.

The study was carried out as a so-called "target trial analysis" using state-of-the-art statistical methods in order to be able to make the most valid statements possible about the effectiveness of the different therapeutic approaches. In addition to classic statistical models, machine learning methods were also used.

"In view of the difficulty of conducting randomized studies on this topic, our study represents one of the central new sources of information for the treatment of high-risk acute pulmonary artery embolism," said Prof. Dr. Holger Thiele, Clinic Director of Cardiology at the Heart Center Leipzig, and Prof. Dr. Georg Nickenig, Clinic Director of Cardiology at the Heart Center of the UKB.

The UKB and its Heart Center have contributed a significant cohort of patients to the study. In addition, the international collaboration with 34 European centers was an enormous coordination effort that is now paying off: for the first time, the study offers a comprehensive analysis of all relevant treatment options and provides a valuable basis for

future treatment.

"These findings are of great importance for future clinical practice," emphasizes Lüsebrink. "Our study will have a relevant influence on the upcoming guideline discussions and the future treatment of high-risk patients with acute pulmonary embolism."

Publication: Andrea Stadlbauer, Tom Verbelen et al: Management of high-risk acute pulmonary embolism: an emulated target trial analysis; Intensive Care Medicine; DOI: <https://doi.org/10.1007/s00134-025-07805-4>

Press contact:

Felix Heyder

Press spokesman of the Heart Center at the UKB

phone: +49 228 / 287 11904

e-mail: felix.heyder@ukbonn.de

About Bonn University Hospital: The UKB treats around 500,000 patients per year, employs around 9,500 staff and has total assets of 1.8 billion euros. In addition to the 3,500 medical and dental students, 550 people are trained in numerous healthcare professions each year. The UKB is ranked first among university hospitals (UK) in NRW in the Focus Clinic List, had over 100 million third-party funds in research in 2023 and has the second highest case mix index (case severity) in Germany. The F.A.Z. Institute awarded the UKB first place among university hospitals in the category "Germany's Training Champions 2024".

contact for scientific information:

Prof. Dr. Dr. Enzo Lüsebrink

Cardiologist at the Heart Center

Bonn University Hospital (UKB)

e-mail Enzo.Luesebrink@gmx.de

Original publication:

Andrea Stadlbauer, Tom Verbelen et al: Management of high-risk acute pulmonary embolism: an emulated target trial analysis; Intensive Care Medicine; DOI: [10.1007/s00134-025-07805-4](https://doi.org/10.1007/s00134-025-07805-4)

URL for press release: <https://doi.org/10.1007/s00134-025-07805-4> Publication