



Review Article

Is it time for Pulmonary Embolism Response Team (PERT) ...A Review Article

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Abstract

Objective: This study aimed to determine the best Pulmonary Embolism Strategy for diagnosis and to optimize further management.

Method: Data was extracted from KAMC Registry regarding imaging studies done for diagnosing Pulmonary Embolism.

Result: During 2017-2019 at King Abdullah Medical City, 347 patients underwent CTPA studies for PE diagnosis without applying CDRs (Clinical Decision Rules). Only 53 studies (15.2%) were positive for PE, while 294 studies (84.8%) were negative for PE. Because of the large number of imaging studies done with a substantial number of negative studies, we elected to have a unified protocol, multidisciplinary team approach and evidence-based consensus decision for the appropriate management of acute PE. A task force was activated for this purpose to formulate a team and implement the best evidence based guidelines.



Abbreviations and Keywords:

PERT: Pulmonary Embolism Response Team

KAMC: King Abdullah Medical City

PE: Pulmonary Embolism

CTPA: CT Pulmonary Angiogram

Introduction

- Pulmonary embolism (PE) is a major cause of morbidity and mortality, and the management of acute PE remains poorly standardized.
- PE response teams (PERTs) are being established around the world to provide rapid, individualized, and expert-based care for patients with acute PE.
- Preliminary results from early adopters suggest that PERTs feasible and facilitate access to advanced therapies.
- Research is needed to determine if the PERT approach improves survival, reduces long-term complications, and is cost-effective.

Pert Multidisciplinary Team

- Pulmonary
- Critical Care/Intensive Care Unit
- Cardiology
- Radiology/interventional radiology
- Cardiac surgery
- Primary Physician



Results and Guidelines

Pulmonary Embolism Patients Admitted to the ICU (2018 – 2019)

Pulmonary Embolism Admissions to the ICU	
Total ICU Admissions	2138 admissions (96.45%)
Pulmonary Embolism Admissions	76 admissions (3.55%)

Pulmonary Embolism admissions

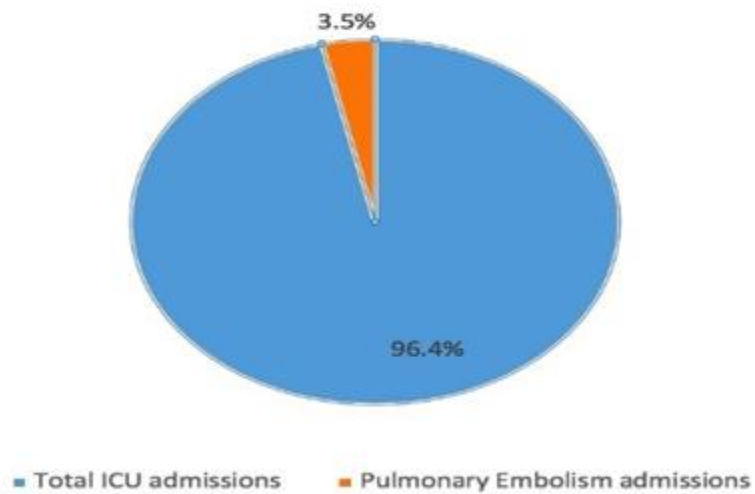
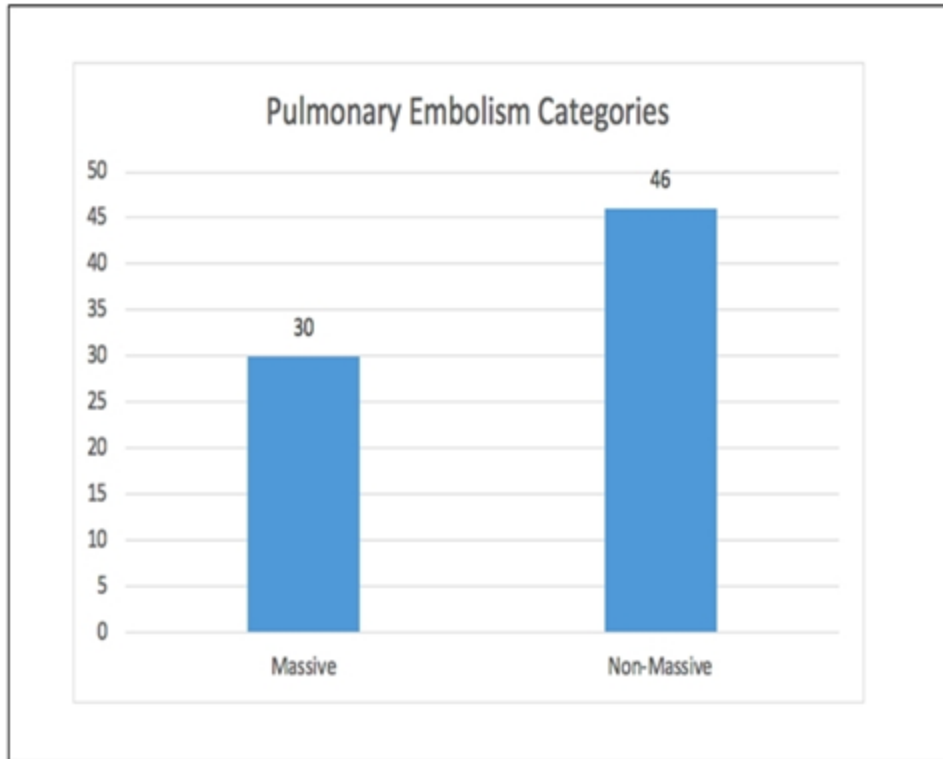


Table 1



PULMONARY EMBOLISM CATEGORIES

Massive	30 (39.48 %)
Non Massive	46 (60.52 %)

Table 2

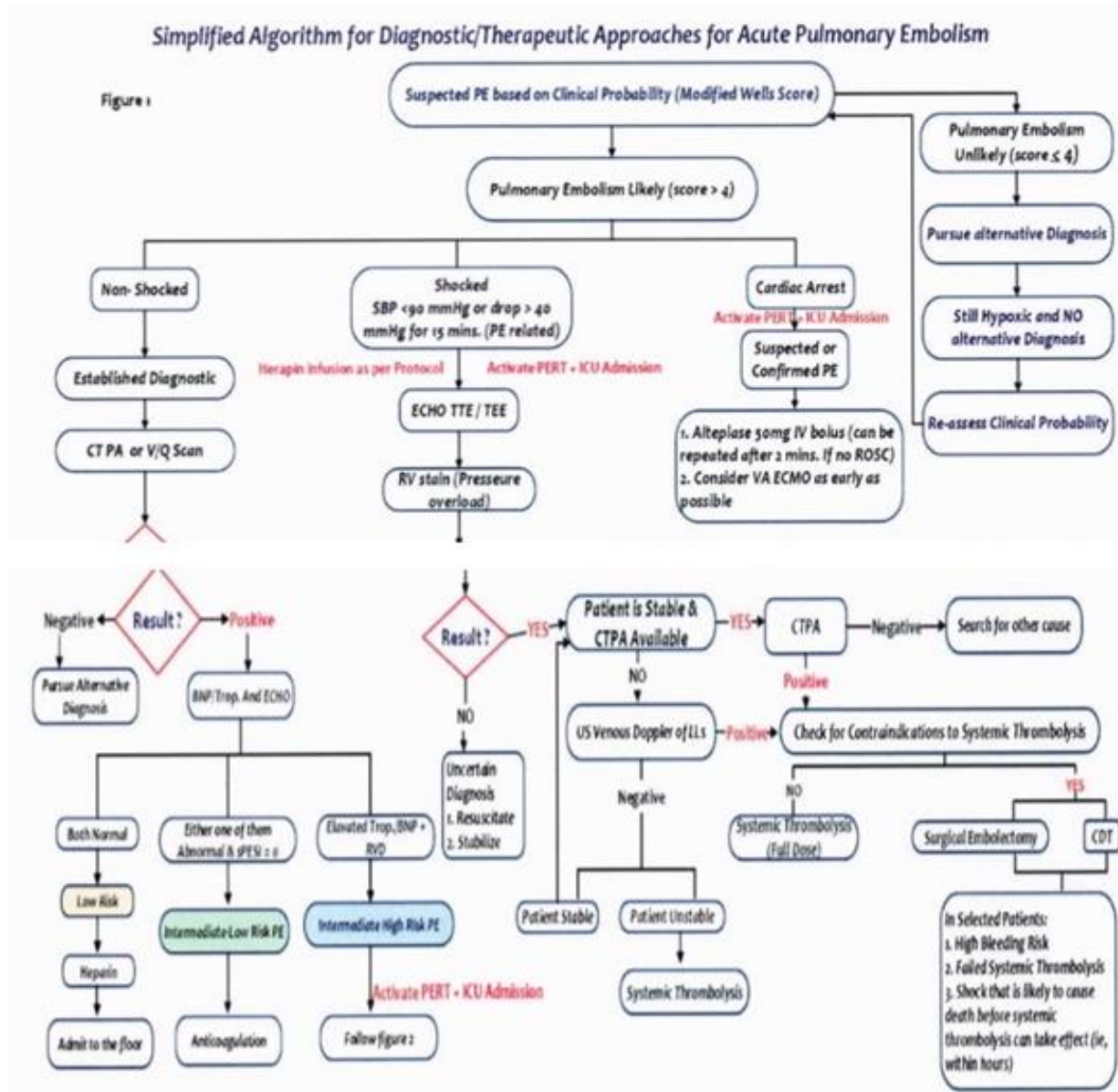


Figure 1



Management of Intermediate High-Risk Pulmonary Embolism

Figure 2

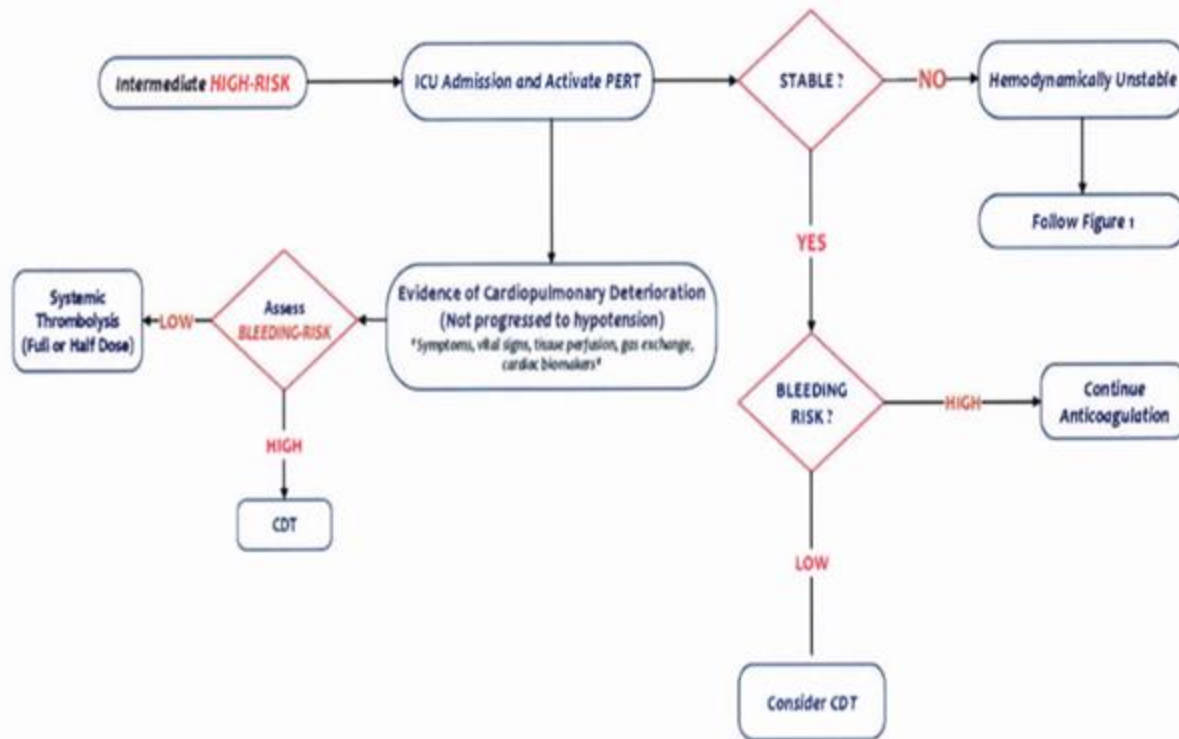


Figure 2

Discussion

The National PERT Consortium was established in 2015, when different institutions across the United States met in Boston, Massachusetts, with the intent to collaborate, guide, and influence PE management and research. Currently, the concept of PERT has been adopted in more than 100 centers worldwide. To date, around 12 major Retrospective and Prospective studies of the PERT Program have been conducted.

Why we need Pert?

- PE has long been called a silent killer.
- It is the third most common cause of death from CVDs, just after a heart attack and stroke, but with prompt diagnosis and treatment, survival rates can be significantly improved.
- To ensure the prompt diagnosis and treatment of pulmonary embolism.



- To standardize PE clinical care. It will include guidelines for all stages of PE, including early diagnostics, management and treatment, and post-PE follow up.
- To coordinate and expedite the treatment of acute PE with a balanced team of physicians from a variety of specialties.
- This multidisciplinary approach allows for:
 - Rapid evaluation of risks
 - Formulation of a treatment plan
 - Mobilization of the necessary resources to provide the highest level of care to those in need
 - Improving the clinical outcome of PE
 - Reducing the cost related PE diagnosis and management

Conclusion

Thus far, numerous descriptive and retrospective studies demonstrate that it is feasible to create such a multidisciplinary team and that there are many ways to establish a PERT. The formation of the PERT Consortium is a venue through which these teams together can collect data that can help inform treatment decisions, influence guidelines and algorithms, guide hospital policy, and shape future research in PE care. This additional evidence will help evaluate the value of this innovative model and determine if this collaborative approach improves PE outcomes, positively changes clinical care, is cost-effective, enriches patients' quality of life, and advances the science of PE treatment.

Data analysis from several studies showed that following PERT implementation, patients with intermediate and high-risk acute PE:

- a. Received more aggressive and advanced treatment modalities
- b. Received more efficient patient care
- c. Had a trend towards decreased mortality compared to before PERT

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