Comparision of Combination Test (CT and Troponin) Against the Gold Standard Echocardiogram to Assess Right Ventricular Dysfunction in Acute Pulmonary Embolism

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INTRODUCTION

- Patients with acute pulmonary embolisms (PE) are tested for the presence of right ventricular dysfunction (RVD) using computed tomography pulmonary angiography (CTPA) and transthoracic echocardiography (TTE)[1]
- TTE is regarded as the gold standard but is usually unavailable when patients present at the hospital. Most patients gets CTPA before TTE during the workup for acute PE.[2]
- Combination testing (CTPA + biomarker) has been compared against TTE in a previous study using the right ventricular/left ventricular (RV/LV) volume ratio as opposed to the RV/LV axial ratio[3]
- Routinely, the common parameter reported in practice is the RV/LV axial ratio

PURPOSE

- To investigate the effectiveness of combination testing (CT + Troponin) against the gold standard TTE in identifying RVD in hemodynamically stable patients

METHODS

1. Thorough Literature Review
2. Retrospective Chart Review of PE patients
3. Data Collection and Comparison of Results
4. Statistical Analysis

Diagnostic Indices

- Sensitivity
- Specificity
- Positive Predictive Value
- Negative Predictive Value
- Area under the curve using Receiver Operating Characteristic (ROC) analysis

NEXT STEPS

Retrospective chart review of admitted LVHN patients diagnosed with acute PE from January 1, 2021 to May 30, 2024 using the EPIC electronic health records system

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Data collection using the REDCap database

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Comparing data indicating the presence/absence of RVD on CTPA + Troponin with TTE results, with TTE as the reference standard

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Statistical analysis conducted on SPSS including descriptive statistics and ROC analysis, using a 95% confidence interval and $p \leq 0.05$ for statistical significance

References

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3. T. Henzler, S. Roeger, M. Meyer, et al. Pulmonary embolism: CT signs and cardiac biomarkers for predicting right ventricular dysfunction. *European Respiratory Journal 2012; 39:919-926.*

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