Prognostic Value of Pulmonary Artery Oxygen Saturation in Pulmonary Embolism Requiring Endovascular Intervention

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Background
• Pulmonary embolism (PE) remains one of the leading causes of cardiovascular death.
• Some patients may benefit from therapies beyond anticoagulation, but systemic thrombolysis is associated with significant bleeding complications.
• Endovascular therapies may provide benefit while minimizing risk, but patient selection remains challenging.

Objective
Comparison of prognostic value of PA-SAT, PESI, and BOVA in patients undergoing endovascular therapies for PE.
• Primary Outcome: All-Cause Mortality

Methods
• Of 168 patients who underwent endovascular interventions for PE, 72 had PA-SAT measurements.
• Localized catheter-directed thrombolysis (CDT, EKOSonic [Boston Scientific, Massachusetts]) and clot retrieval using large bore thrombectomy (LBT, FlowTriever [Inari Medical, California]) were explored.
• Data was collected between 2018 to 2021 across 11 hospitals in Northeast Ohio.
• Appropriate statistical tests were used.

Results
Mean PA-SAT by Subgroup

| Overall Cohort | 60.2 ± 10.42%
| LBT | 58.3 ± 10.82
| CDT | 63.1 ± 9.22

Pearson’s Method Correlation with PA-SAT

<table>
<thead>
<tr>
<th>Variable</th>
<th>r</th>
<th>p-value</th>
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<tbody>
<tr>
<td>RV/LV ratio</td>
<td>-0.291</td>
<td>0.019</td>
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<tr>
<td>PESI score</td>
<td>-0.285</td>
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<tr>
<td>BOVA score</td>
<td>-0.319</td>
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Binary Logistic Regression Association of PA-SAT with Mortality

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<tr>
<th>Covariate</th>
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<tr>
<td>Unadjusted</td>
<td>0.911</td>
<td>0.042</td>
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<tr>
<td>Adjusted*</td>
<td>0.872</td>
<td>0.044</td>
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</tbody>
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*Adjusted for PESI score and type of endovascular intervention


Conclusions
• Mean PA-SAT was significantly lower among patients who passed away within 90 days.
• PA-SAT was found to be independently associated with mortality and appears to be a valid risk stratification tool.
• The PESI score was found to be a stronger predictor of outcomes than PA-SAT.
• Larger prospective studies are required to determine the value of PA-SAT in aiding patient selection and guiding management decisions.
• Our study was limited by the low number of patients and the use of two different endovascular approaches introducing potential confounding.

References