



Presence of coronary artery calcifications on CT is associated with PE-related mortality in patients with acute PE

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Disclosure

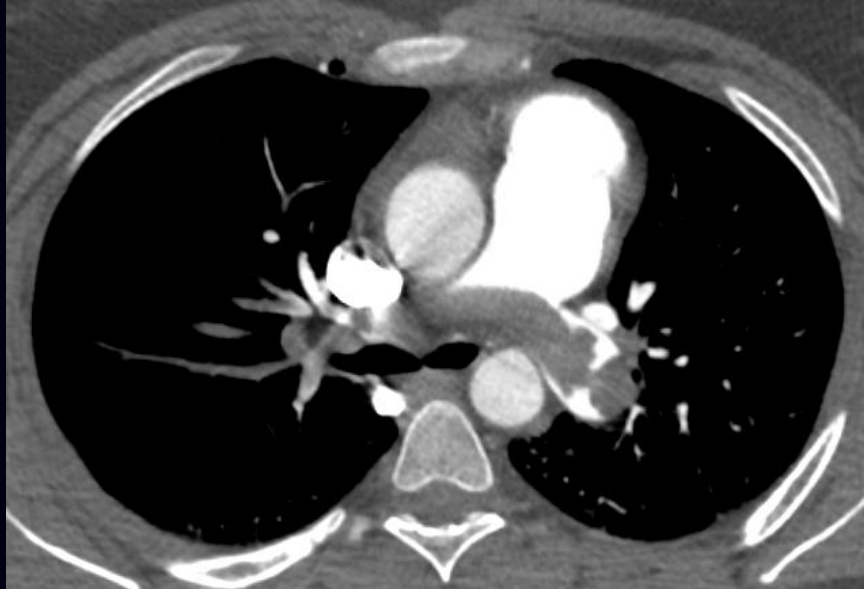
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Introduction

- RV ischemia has been proposed as a mechanism for RV dysfunction in acute pulmonary embolism (PE).
- History of coronary artery disease has been associated with adverse events in patients with acute PE.
- Coronary artery calcifications (CAC) on CT as a risk factor for adverse events has not been fully investigated.

Study Purpose

To evaluate the association of CAC on CT with PE-related mortality in patients with acute pulmonary embolism



Methods

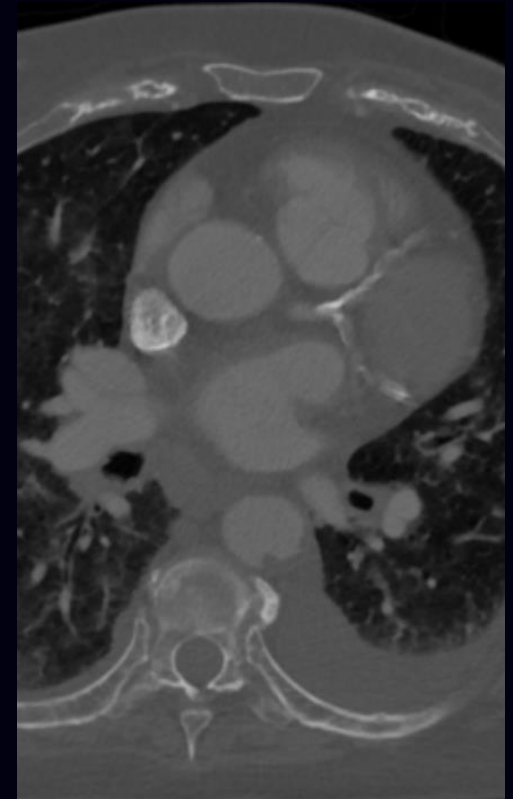
- IRB approved, retrospective study
- Online medical record search
- May 2007 to December 2014
- Consecutive patients with an International Classification of Disease (ICD) inpatient code for acute PE

Methods

- Inclusion of patients with CT-verified acute PE and CT images available in PACS.
- 479 patients
 - 53% women
 - Mean age 63 ± 16 years
 - 47% with smoking history

Methods

- Cardiothoracic radiologist visually graded CAC
 - Absent
 - Mild
 - Moderate
 - Severe
- 30 day PE-related mortality
- Association of CAC with PE-related mortality was tested using logistic regression analysis.



Results

53% of patients with CACs

- Mild 30%
- Moderate 19%
- Severe 4%

Patients with CAC were

- Older ($P < 0.001$)
- More frequently male ($P = 0.008$)
- More frequently smokers ($P = 0.001$)

Outcome

- Overall PE-related mortality was 4%.
 - 2% (4/226) of those **without CAC**.
 - 6% (15/253) patients **with CAC**.
 - Mild 5% (7/143)
 - Moderate 7% (6/89)
 - Severe 10% (2/21)
- Mortality was significantly higher in patients with CAC (OR 3.5 [CI 1.1-10.7]; p=0.028).
 - Mild OR 2.9 (CI 0.8 – 9.9) p=.099
 - Moderate OR 4.0 (CI 1.1 – 14.6) p=.035
 - Severe OR 5.8 (CI 1.0 – 34.0) p=.049

Conclusion

- Among patients with acute PE, the presence of CAC was associated with an increased rate of PE-related mortality.
- With increasing severity of CAC, PE-related mortality also increased.
- Simple visual assessment of CAC on CT may be utilized as an additional prognostic parameter for early risk stratification in patients with PE.

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