
AI vs Humans: Detecting Incidental Pulmonary Embolism on Chest CT



A study was conducted to assess the diagnostic performance of an AI algorithm for detecting incidental pulmonary embolus (iPE) on conventional contrast-enhanced chest CT examinations. Results show that the AI tool had a high negative predictive value (NPV) and moderate positive predictive value (PPV) for detection and was able to find some iPEs that were missed by radiologists. The findings are published in the

American Journal of Roentgenology.

The study included 2,555 patients (1,340 women and 1,215 men) who underwent 3,003 conventional contrast-enhanced chest CT examinations between September 2019 and February 2020. An AI tool was used to detect acute iPE on the images. A natural language processing algorithm was then applied to the clinical reports to identify examinations interpreted as positive for iPE.

Results show that the AI tool had an NPV of 99.8% and a PPV of 86.7% for detecting iPE on conventional contrast-enhanced chest CT examinations. Of the 40 iPEs present in the study sample, seven iPEs were detected only by the clinical reports, and four were detected only by AI.

Both the AI tool and clinical reports detected iPEs missed by the other method. However, the diagnostic performance of the AI tool did not show significant variation across the study subgroups.

These findings suggest the possibility of using the AI tool as a second reader to detect additional iPEs or as a worklist triage tool to allow earlier iPE detection and intervention, explain the researchers. The team also identified explanations of misclassifications by the AI tool to provide targets for model improvement.

Source: [American Roentgen Ray Society](#)

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