Pulmonary Embolism Re-Audit: Evaluating Adherence to CTPA Referral Guidelines and Diagnostic Yield in 2024

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Abstract

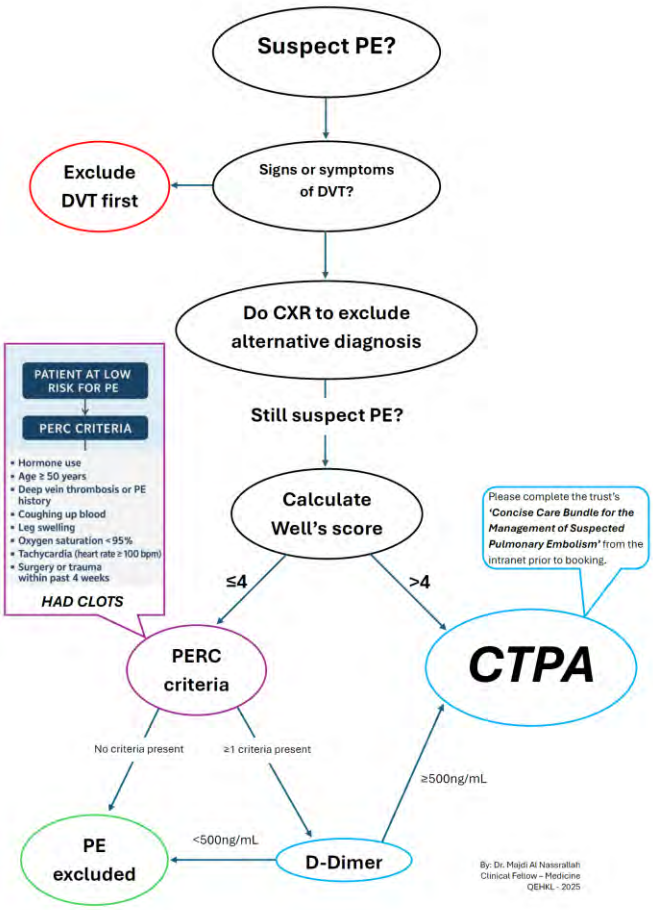
Background:
Pulmonary embolism (PE) remains a potentially life-threatening condition requiring prompt and accurate diagnosis. CT Pulmonary Angiography (CTPA) is the imaging modality of choice in suspected cases. However, inappropriate use may expose patients to unnecessary radiation and strain healthcare resources. This re-audit evaluates adherence to clinical standards for CTPA referral and assesses whether prior recommendations have led to improvements in diagnostic accuracy since the initial audit in 2021.

Methods:
A retrospective review was conducted on all CTPA referrals (n=168) received in January 2024. Data were extracted from Radiology Information Systems and PACS, including clinical details, Wells scores, D-dimer results, chest X-rays, and renal function (eGFR). Examinations that were non-diagnostic were excluded. Findings were compared against Royal College of Radiologists (RCR) standards.

Results:
Of the 168 CTPAs reviewed, 27 (16.07%) were positive for PE, within but at the lower threshold of the RCR's expected diagnostic yield (15.4–37.4%). Key findings included suboptimal use of pre-test probability scoring (Wells score), incomplete documentation of D-dimer results (20%), and missing or outdated eGFR in several cases, leading to delays. Notably, 16% of patients underwent CTPA without a prior chest X-ray, a deterioration compared to the previous cycle.

Conclusion:
Despite some adherence to national standards, key deficiencies persist in the pre-CTPA clinical evaluation process. The minimal improvement in diagnostic yield (0.37%) highlights limited impact of previous interventions. Enhanced implementation of decision support tools—such as the Wells score, D-dimer testing, and the Pulmonary Embolism Rule-out Criteria (PERC)—along with the Trust's PE care bundle, is recommended to optimize patient selection, improve efficiency, and uphold patient safety.

Image



Photograph



Biography

Dr. Majdi Al Nassrallah is a resident doctor with three years of clinical experience within the National Health Service (NHS). Throughout his training, he has developed a strong and sustained interest in radiology, with particular focus on its role in diagnostic accuracy and improving patient outcomes. He is actively involved in clinical audit and quality improvement projects, aiming to contribute meaningfully to evidence-based practice. Dr. Al Nassrallah is enthusiastic about pursuing a specialist career in radiology and is committed to ongoing learning and professional development within the field.

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Notes/Comments: