

## Diagnostic Yield of CT PA and Value of Pre Test Assessments in Predicting the Probability of Pulmonary Embolism

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**Abstract :** Acute pulmonary embolism (PE) is a common disease and can be fatal. The clinical presentation is variable and nonspecific, making accurate diagnosis difficult. Testing patients with suspected acute PE has increased dramatically. However, the overuse of some tests, particularly CT and D-dimer measurement, may not improve care while potentially leading to patient harm and unnecessary expense. CTPA is the investigation of choice for PE. Its easy availability, accuracy and ability to provide alternative diagnosis has lowered the threshold for performing it, resulting in its overuse. Guidelines have recommended the use of clinical pretest probability tools such as 'Wells score' to assess risk of suspected PE. Unfortunately, implementation of guidelines in clinical practice is inconsistent. This has led to low risk patients being subjected to unnecessary imaging, exposure to radiation and possible contrast related complications. Aim: To study the diagnostic yield of CT PA, clinical pretest probability of patients according to wells score and to determine whether or not there was an overuse of CTPA in our service. Methods: CT scans done on patients with suspected P.E in our hospital from 1st January 2014 to 31st December 2014 were retrospectively reviewed. Medical records were reviewed to study demographics, clinical presentation, final diagnosis, and to establish if Wells score and D-Dimer were used correctly in predicting the probability of PE and the need for subsequent CTPA. Results: 100 patients (51male) underwent CT PA in the time period. Mean age was 57 years (24-91 years). Majority of patients presented with shortness of breath (52%). Other presenting symptoms included chest pain 34%, palpitations 6%, collapse 5% and haemoptysis 5%. D Dimer test was done in 69%. Overall Wells score was low (<2) in 28 %, moderate (>2 - < 6) in 47% and high (> 6) in 15% of patients. Wells score was documented in medical notes of only 20% patients. PE was confirmed in 12% (8 male) patients. 4 had bilateral PE's. In high-risk group (Wells > 6) (n=15), there were 5 diagnosed PEs. In moderate risk group (Wells >2 - < 6) (n=47), there were 6 and in low risk group (Wells <2) (n=28), one case of PE was confirmed. CT scans negative for PE showed pleural effusion in 30, Consolidation in 20, atelectasis in 15 and pulmonary nodule in 4 patients. 31 scans were completely normal. Conclusion: Yield of CT for pulmonary embolism was low in our cohort at 12%. A significant number of our patients who underwent CT PA had low Wells score. This suggests that CT PA is over utilized in our institution. Wells score was poorly documented in medical notes. CT-PA was able to detect alternative pulmonary abnormalities explaining the patient's clinical presentation. CT-PA requires concomitant pretest clinical probability assessment to be an effective diagnostic tool for confirming or excluding PE. . Clinicians should use validated clinical prediction rules to estimate pretest probability in patients in whom acute PE is being considered. Combining Wells scores with clinical and laboratory assessment may reduce the need for CTPA.

**Keywords :** CT PA, D dimer, pulmonary embolism, wells score

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