

# An audit of the appropriateness of CTPA requests in a district general hospital

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# Background

- Pulmonary embolism (PE) is an important disease with significant mortality and morbidity.
- Multiple clinical scoring systems exist to help with the clinical assessment of patients with suspected PE such as PERC score and WELLS score. These scoring systems have been externally validated.
- NICE recommends the use of a 2 level WELLS score in the assessment of PE.

# Background

- In 2013/14 an audit was done at Wexham Park Hospital to assess the usage of CTPA in the assessment of patients with suspected PE.
- This audit found that the CTPA scans were positive in 16.8% of patients.
- Since this audit, guidelines at the trust have changed to include both a PERC score and a 2 level WELLS Score.

# Aim

- Our audit aimed to assess whether the intervention of using a WELLS score and PERC score has increased the positive yield of CTPA scans.
- We also assessed whether there was evidence of a WELLS score and PERC score being documented, whether the preceding chest x-ray was normal and if the CTPA was able to find an alternative pathology to PE.

# Methods

- We assessed 200 consecutive electronic patient records and scans from 13/11/2019- 31/12/2019
- If a WELLS score or PERC score was not documented one was calculated retrospectively using clinical notes and observation charts and documented differential diagnoses lists.

# Results

- The positive yield of CTPA scans was 21% (increased from 16.8%)
- 10% of patients had a documented WELLS score
- No patients had a documented PERC score
- Out of the 42 patients with a positive scan for PE, 50% had an abnormal CXR prior to the CTPA

# Results (avoidable scans)

- 7 out of 200 patients had a low pre-test probability (Wells score  $\leq 4$ ) and a negative D-Dimer and all 7 patients had a negative CTPA for PE
- 14 of the 200 patients had a PERC score of 0 and all had negative CTPAs for PE.
- 95 (62%) out of the 158 negative CTPAs had an alternative clinically significant pathology identified by the CTPA

# Conclusion

- The positive yield of CTPA scans for PE is 21%, this is in line with the Royal College of Radiologist recommendations of between 15.4 & 37.4% of patients. Also this is improved compared to the previous audit.
- 7 or 14 CTPA scans out of 200 could have been avoided had a 2 level Wells score or PERC score been used respectively.

<https://www.rcr.ac.uk/audit/appropriateness-usage-computed-tomography-pulmonary-angiography-ctpa-investigation-suspected>



# Recommendations

- To further improve the diagnostic yield of CTPAs and minimise avoidable scans a 2 level wells score could be incorporated into the computer request for CTPA on the ICE requesting system.
- A teaching session could be incorporated into departmental inductions or a poster could be placed in the ED hub and AECU to advise using a clinical decision-making tool prior to requesting a CTPA.

# Questions/ Comments

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