Diagnosing Pulmonary Embolism: Where are we going wrong?

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BACKGROUND

CTPA is the primary imaging technique for assessment of suspected pulmonary embolism (PE). CTPA is costly and involves high levels of radiation exposure. NICE provides a diagnostic framework, using Wells score, to manage patients with suspected PE.

OBJECTIVES

This audit aims to Improve the pulmonary emboli diagnostic yield of CTPA scans in a West London District Emergency Department (ED) by improving NICE guidance adherence. According to published studies conducted at regional centres CTPA should detect Pulmonary emboli in at least 15% of patients.

STANDARDS & TARGETS

- Local AEC pathway 'Management of Suspected Pulmonary Embolism' Based on NICE guidelines [1]
- A Two level Wells score should be calculated for all patients with a suspected PE. **Target 100%** [1]
- According to published studies conducted at regional centres CTPA should detect pulmonary emboli in between 15.4 & 37.4% of patients. **Target: Pulmonary emboli in at least 15%** [2]

REFERENCES

1) https://www.nice.org.uk/guidance/ng158.
2) https://www.rcr.ac.uk/audit/appropriateness-usage-computed-tomography-pulmonary-angiography-ctpa-investigation-suspected

METHODS

Retrospective data for all CTPA scans requested by the ED from 1st – 31st March 2019 was reviewed. The requests were examined and details of the Wells score, D-dimers and CTPA diagnostic yield was recorded.

After the initial Audit Educational posters (Figure 1) and education sessions for both Doctors and nurses were implemented. The re-audit cycle was completed by collecting data from 1st - 30th June 2020.

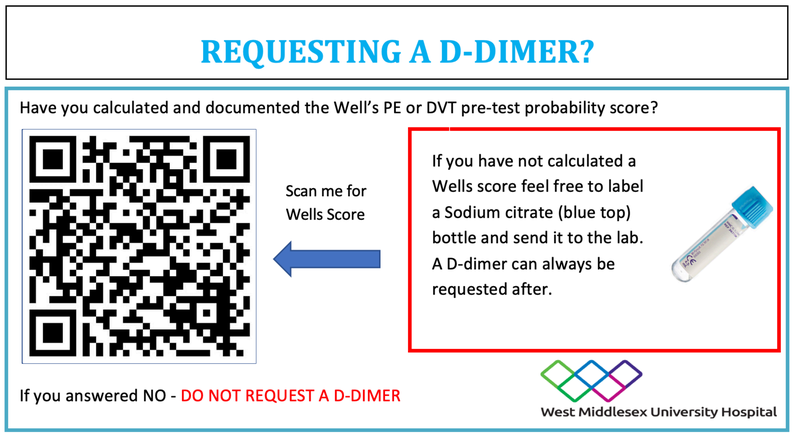

Figure 1: Educational poster placed in the Emergency Department

CONCLUSION

Improving NICE guidance adherence on CTPA requesting has shown significant increase in the diagnostic yield of CTPA scans in terms of PE. WMUH ED now has a PE diagnostic yield in line with regional centres. This ultimately equates to both a decrease in unnecessary exposure to radiation and a noteworthy cost saving.

ACKNOWLEDGMENTS

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RESULTS

50 CTPAs were carried out in the ED during March 2019. 10% patients were diagnosed with PE. Re-audit data from June 2020 where 49 CTPAs were carried out, demonstrated a 63% Increased yield in the number of PE observed to 16.3%.

The improvement was secondary to decreasing the number of inappropriate D-dimers requested in triage and increasing Wells score calculations.