

**Abstract P161 Table 1** Characteristics of conventional and age-adjusted D-dimer cut-off values in patients  $\geq 50$  years old

	Conventional	Age x 10-adjusted	Age x 3-adjusted
Sensitivity (%)	100	76.9	100
Specificity (%)	53.7	84.7	47.7
Positive Predictive Value (%)	11.5	23.3	10.3
Negative Predictive Value (%)	100	98.4	100

(age x 10 ng/ml) cut-off values were applied to patients  $\geq 50$  years, and specificity and sensitivity were calculated.

**Results** (Table 1) Of the 389 presentations, 229 (58.9%) were from patients aged  $\geq 50$  years. 13 (11.5%) patients with positive D-dimers using the conventional cut-off, had VTE as confirmed by imaging tests. The sensitivity of the conventional D-dimer cut-off value was 100% in this older cohort, with a specificity of 53.7%. The age x10-adjusted cut-off improved specificity to 84.7%; however sensitivity was markedly reduced to 76.9%, with 3 patients (23.1%) with non-high clinical probability of VTE missed. Further analysis suggested that an age-adjusted cut-off factor of x3 would maintain sensitivity at 100%; however specificity was only 47.7%.

**Conclusions** We have identified that an age-adjusted cut-off factor of x10 significantly increased D-dimer specificity in older patients; however the sensitivity of this test was unacceptably compromised. A cut-off factor of x3 maintained sensitivity, but specificity was unsatisfactory compared to conventional values, although still higher than in most published series. We conclude that we cannot use an age-adjusted cut-off of x10 in our  $\geq 50$  year old population using this assay. Further work is required to identify an appropriate cut-off, concentrating on the  $>75$  year old patients only. This would help to reduce the number of unnecessary tests and anxiety in this vulnerable group of patients.

**P162 A TWO MONTH PROSPECTIVE STUDY: ARE CTPAS REQUESTED APPROPRIATELY AND IF NOT DO THEY DIAGNOSE ALTERNATIVE PATHOLOGIES?**

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10.1136/thoraxjnl-2014-206260.291

**Introduction** Pulmonary Embolisms (PE) are clinically difficult to diagnose and associated with significant morbidity and mortality. Computerised Tomography Pulmonary Angiogram (CTPA) is routinely used to investigate suspected PE. Clinical concern and the increased availability of CTPA may mean that more patients may be receiving unnecessary radiation: a CTPA is

approximately 15 mSv, equivalent to 750 chest radiographs.<sup>1</sup> In addition, detection of other pathology by CTPA often has minimal clinical impact.<sup>2</sup>

**Aims** To investigate our compliance with NICE guidelines in ordering CTPAs, and whether detecting alternative diagnoses justifies their use.

**Methods** This prospective study, in a London teaching hospital, reviewed data in all medical and oncology patients who had a CTPA from January to February 2014. Clinical diagnoses and risk scores were recorded according to national guidelines.

**Results** A CTPA was carried out on 91 patients (63% female); 20 had confirmed PE (22%). In 50 (55%), guidelines were not followed: 43 did not have D-dimers, of these 15 (35%) had cancer. Of those with PE, 35% were detected despite low Wells Scores (n = 7).

In 47 (52%) alternative diagnoses made on CTPA accounted for the presenting symptoms: 18 diagnoses were newly made on CTPA but only 13 led to a change in management. Incidental findings requiring following were made in 9.

**Conclusions** PEs remain difficult to diagnose. Clinical skills may not be accurate; our detection rate was 22%. In 55% NICE guidelines were not followed. In 15 this was due to d dimers not being performed in patients with cancer. The testing of d dimers is not routinely performed in our trust in patients with cancer, due to reduced clinical usefulness. A better scoring system may be required especially in cancer patients.

Alternative diagnoses made on CTPA do not appear to alter management in the majority, suggesting that they should not be used to make other diagnoses. More research is required in diagnosing PE to minimise radiation and contrast risks, and ensure CTPAs are of maximum clinical benefit.

**REFERENCES**

- 1 Davies *et al*, *BMJ* 2011;342:d947
- 2 van ES *et al*, *Chest* 2013;144(6):1893–9

**P163 ACCURACY OF INFLAMMATORY MARKERS TO DISTINGUISH BETWEEN PNEUMONIA AND PULMONARY EMBOLISM IN ACUTE SETTINGS**

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10.1136/thoraxjnl-2014-206260.292

**Background** In emergency settings, the presence of significant rise in inflammatory markers in patients with acute respiratory symptoms suggest an alternative diagnosis rather than pulmonary embolism (PE), hence reduces the clinical probability of PE and the need for CTPA/VQ. However, it is increasingly recognised

**Abstract P163 Table 1** Comparison of inflammatory markers and d-dimer levels between PE, CAP and ARTI

Characteristic	PE (n = 167)	CAP (n = 58)	ARTI (n = 63)	p-value
Gender, male (%)	84 (50.3)	31 (53.4)	40 (63.5)	0.358
Age (yrs), mean (sd)	66.9 (16.6)	73.4 (17)	63 (23)	0.016
Hospital stay (days), median (range)	5.31 (0–8)	7.08 (0–34)	1.51 (0–29)	<0.0001
30 day mortality, n (%)	7 (4.2)	16 (27.6)	9 (14.3)	<0.0001
CRP (mg/l), median (range)	67.3 (4–412)	88.9 (12–417)	68.9(9–284)	0.322
WCC (g/l), mean (sd)	10.9 (4.8)	11.9 (5.2)	12.17 (5.9)	0.2
D.dimer (ng/ml), median (range)	1000 (255–1000)	513 (150–1000)	170 (100–1000)	<0.0001
Positive d-dimer (%)	123 (96.9)	8 (53.3)	3 (18.8)	<0.0001

WCC=white cell count, CRP=C-reactive protein, Acute LRTI= symptoms of acute chest infection with normal CXR. Normal range: WCC=4–11 g/l; D-dimer= (mg/l); CRP=0–5 mg/l